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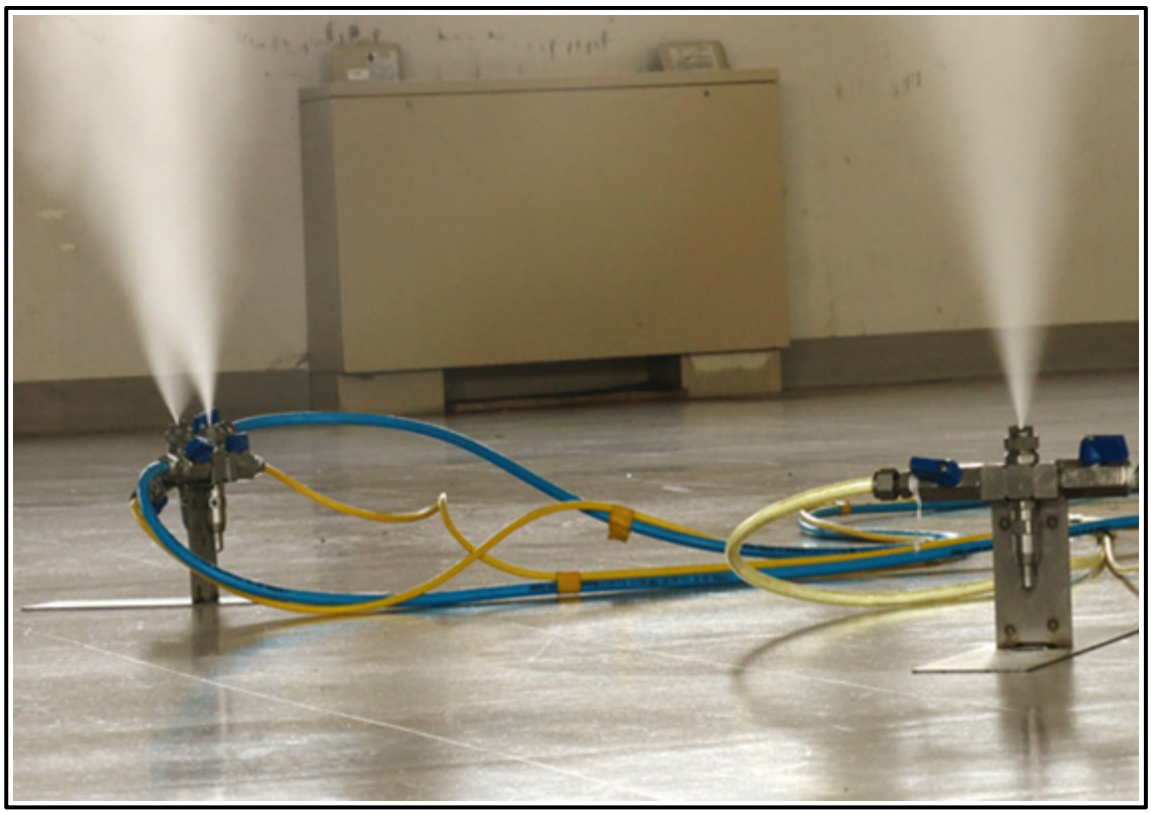
Performance Testing of a Novel Dry-Fog Mold Remediation and Prevention Process

Shane D. Hirschi and Dale L. Herron

August 2018



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Performance Testing of a Novel Dry-Fog Mold Remediation and Prevention Process

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Final Report

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Prepared for Assistant Chief of Staff for Installation Management,
Washington, DC 20310-0600

Under ITTP, "Performance Testing of a Novel Dry-Fog Mold Remediation and Prevention Process"

Abstract

Mold is an ongoing problem for Army installations and contingency basing locations. This work was undertaken to demonstrate the effectiveness of a two-step dry-fog mold remediation process technology to remove mold spores and provide long-term mold prevention in two buildings at Fort Campbell, KY. Treating each test building took 5 to 6 hours and included: mobilization, air and surface sampling before and after the application, and demobilization. This work concluded that the dry-fog technology provides rapid and quantifiable improvements to indoor air quality, and reduces exposure of personnel to harmful chemicals resulting from current mold remediation practices. Results indicated that the dry-fog technology could potentially support mold remediation needs resulting from indoor air quality maintenance and from natural hazards. Current rough estimates for application of the dry-fog technology are approximately $1.00/sq ft. Early project results were shared with Region IV of the Federal Emergency Management Agency (FEMA) and the Huntington District of the U.S. Army's Corps of Engineers.

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Preface

This study was conducted for the Assistant Chief of Staff for Installation Management (ACSIM) under the Installation Technology Transition Program (ITTP), project element "Performance Testing of a Novel Dry-Fog Mold Remediation and Prevention Process." The technical monitor was Natalie Myers, CEERD-CNN.

The work was performed by the Energy Branch (CFE) of the Facilities Division (CF), U.S. Army Engineer Research and Development Center, Construction Engineering Research Laboratory (ERDC-CERL). Special thanks is owed to the personnel from Fort Campbell, KY for their collaboration, knowledge, experience, and field support. At the time of publication, Giselle Rodriguez was Chief, CEERD-CFE; Donald K. Hicks was Chief, CEERD-CF; and Kurt Kinnevan, CEERD-CZT was the Technical Director for Facilities. The Deputy Director of ERDC-CERL was Dr. Kirankumar V. Topudurti and the Director was Dr. Lance D. Hansen.

COL Ivan P. Beckman was Commander of ERDC, and Dr. David W. Pittman was the Director.

1 Introduction

1.1 Background

Mold is a fungus that can grow on virtually any substance, provided moisture is present. Without treatment or preventive measures, mold can damage buildings and negatively affect the health of building occupants. Mold is typically removed and remediated when it becomes visually apparent (when it "looks bad"). Unfortunately, common mold removal practices address only the visual evidence of mold; they do not remove or remediate the mold spores.

In fact, air and surface sampling are required to test whether mold spores have been completely removed. However, since there are no indoor air quality regulations/limitations for mold spores, it is difficult to enforce and/or provide rationale to justify mold treatment based on indoor air quality. This question can only be verified and resolved through sample collection and analysis via an approved laboratory. Interpreting laboratory results for mold can be difficult for several reasons. First, there are no set maximum exposure limits (MELs) for airborne indoor mold concentrations. Setting limits is a difficult matter for many reasons. To begin with, there are limited data on the relationship between exposure and human response. Furthermore, an MEL would have to account for variation in sampling techniques; sensitivity to microbial exposures across the human population; and the vast number of varying types of mold and other biological pollutants within the indoor environment (NAVFAC 2011).

The current preferred process for mold eradication is to control and eliminate the source of moisture that precipitates mold growth (USAPHC 2002). However, in U.S. Department of Defense (DoD) installations, it can be difficult to implement this common solution. In most, if not all, real-world operational settings, occupants often adjust system specific heating, ventilation, and air-conditioning (HVAC) set points, and open or close such physical controls as windows, doors, etc. to enhance their comfort without regard for how those actions affect the building's propensity for mold growth. This, combined with outstanding maintenance needs on systems that control moisture in buildings, are reoccurring issues on military installations that promote mold growth. Consequently, mold continues to

be an ongoing problem for Army installations and contingency basing locations (Vavrin and Stein 2015). The problem is further compounded by the fact that current mold remediation technologies are labor intensive, and that workers must wear various levels of personal protective equipment (PPE) during mold removal and prevention processes. These specific requirements are detailed in UFGS-02 85 00.00 20, Mold Remediation (NAVFAC 2011).

In this work, Fort Campbell, KY, and the U.S. Army Engineer Research and Development Center (ERDC) partnered with the Army Office of the Assistant Chief of Staff for Installation Management's (OACSIM) Installation Technology Transfer Program (ITTP) to demonstrate the effectiveness of the two-step dry-fog mold remediation process technology developed by Pure Maintenance LLC, a commercial partner that owns the patented treatment technology. The dry-fog demonstration took place at two buildings at Fort Campbell, KY: a vacant dining facility, and a dormant barracks administration section that included classrooms, restrooms, and offices.

1.2 Objective

The objective of this ITTP demonstration was to conduct independent performance testing of the novel dry-fog mold remediation and prevention process to determine the effectiveness of the treatment process at eliminating mold and preventing regrowth at military installations and contingency basing locations. Specific technical objectives were to:

1. Demonstrate the dry-fog process via the 2nd generation application system (Figure 1) in two buildings at Fort Campbell, KY.
2. Determine the efficacy and performance (via sampling and analysis) of the dry-fog process.
3. Verify initial remediation impact(s) and non-reoccurrence of mold/mildew over a test period of 6 months (via sampling and analysis).

Figure 1. Dry-fog application system.

1.3 Approach

This project is related to two prior ITTP studies/demonstrations performed separately in Fiscal Year 2009 (FY09)* and FY10 (Stephenson, Lattimore, and Torrey 2011). Both these projects were performed at Fort Polk, LA. The data in Tables 1 and 2, respectively, briefly summarize the FY09 and FY10 studies/demonstrations.

Table 1. Prior related demonstration – 2009.

Parameter	Data
Year of Study	2009
Study	Demonstration of Mold Assessment and Removal Technologies at Fort Polk, LA (L.D. Stephenson et al. 2009)
Approach/ Objective	Determine the mold burden, eradicate mold, and mitigate its recurrence
Findings	Dry ice was successfully tested on concrete and concrete block surfaces, along with biocide protectants applied post-removal Although dry ice was shown to be a successful multi-step mold removal process, a simple mold removal and long-term prevention strategy is desired

Table 2. Prior related demonstration – 2010.

Parameter	Data
Year of Study	2010
Study	Prevention of Toxic Molds in Army Facilities Using Surface-Applied Biocides *(L.D. Stephenson, J.L. Lattimore, and K.M. Torrey 2011)*
Approach/ Objective	Evaluate the efficacy of a two-step mold removal process, which involves application of biocidal "eradicants" to remove mold from a variety of surfaces, followed by application of biocidal "protectants" to prevent recurrence of mold
Findings	Two best tests for quantifying potential for growth, existing mold, mold removal and long-term efficacy of protectants are: (1) viable swab test and (2) viable airborne spore count Best performing eradicants were: Sporicidin® (a phenolic-based product) and Shockwave® (a quaternary ammonium chloride-based product) Best performing antimicrobial protectants were Fosters 40-20 and Indoor Air Quality (IAQ) 6000 Full body coverage, rubber gloves, eye protection, and dust filter should be used during application of both eradicants and protectants American Society for Testing and Materials (ASTM) D5590 successfully predicted the long-term efficacy of protectants to mitigate recurrence of mold growth at Fort Polk. The 4-week accelerated test is suggested as a way to quantify relative efficacy among newly emerging protectants and can be used for screening purposes

* L. D. Stephenson, J. L. Lattimore, Ashok Kumar, and Raymond E. Patenaude. 2009. *Demonstration of Mold Assessment and Removal Technologies at Fort Polk, Louisiana*. Draft Technical Report. Champaign, IL: Engineer Research and Development Center, Construction Engineering Research Laboratory (ERDC-CERL).

This project involves a demonstration and evaluation of the short term and long-term effects of a dry-fog technology. To demonstrate/validate this technology, the researcher partners:

1. Identified two buildings suitable with existing mold problems at Fort Campbell that are suitable for use in the demonstration project.
2. Conducted pretreatment air and surface sampling in the demonstration buildings to determine existing mold levels.
3. Treated the designated areas within the buildings using the dry-fog process.
4. Sampled immediately after treatment to determine the initial effects of the treatment process.
5. Performed additional sampling after 1 month, 3 months, and 6 months following treatment to determine the long-term effects of the treatment.
6. Performed analyses to determine the efficacy of the dry-fog treatment technology.

1.4 Mode of technology transfer

The project team delivered the following technology transfer elements and activities during project execution:

- A Public Works Digest article (Hirschi and Herron 2017) was submitted for publishing.
- The Huntington, West Virginia District of the Corp of Engineers and Region IV of the Federal Emergency Management Agency (FEMA) were briefed on early project results via telecom.
- A U.S. Army Corps of Engineers (USACE) Engineering and Construction webinar was provided.
- A one-page project summary delivered to the OACSIM Program Management Office (PMO).
- A webinar with all 10 Regions and FEMA Headquarters is pending.

2 Demonstration Process

This project team, made up of individuals from Fort Campbell, KY, the Engineer Research and Development Center, Construction Engineering Research Laboratory (ERDC-CERL), and Pure Maintenance LLC performed site validation, completed baseline/background sampling and analysis, executed the treatment process using the two-step dry-fog technology and performed verification sampling and analysis to demonstrate the two-step dry-fog technology.

2.1 Site validation

Before initiation of any onsite activities, the project team held a kick-off meeting via telecon to identify the potential facilities and associated infrastructure at Fort Campbell, KY. On 9 March 2017, a site visit was held to facilitate a walk-through of the two demonstration locations, Bldg. 2261 (Dining Facility) and Bldg. 6733 (Barracks). Figure 2 shows their locations within the cantonment area of Fort Campbell. Both of these buildings were vacant and determined to be good candidates for the demonstration.

Figure 2. Fort Campbell cantonment area showing demonstration locations.

Source: Map Data 2017© Google.

2.1.1 Bldg. 2261

Bldg. 2261 (Figure 3) is a vacant dining facility with an interior area of 4000 sq ft, of which approximately 3700 sq ft were treated. Figures 4 and 5 show the existing conditions inside the facility. Mold was visible on most all surfaces to varying degrees.

Figure 3. Exterior of Bldg. 2261—dining facility.

Figure 4. Kitchen area inside Bldg. 2261.

Figure 5. Dining area inside Bldg. 2261.

2.1.2 Bldg. 6733

Bldg. 6733 (Figure 6) is a vacant hammerhead style barracks facility with interior area of 38,000 sq ft, of which approximately 2800 sq ft were treated. Only the administrative area of the first floor (i.e., classroom, offices, and restrooms) were included in this demonstration. Figures 7 and 8 show the amounts of mold visible on the wall surfaces.

These buildings were chosen because they were vacant, and because they were known to have high levels of mold. Given the short (8-month) demonstration period, vacant buildings were selected to make it easier to schedule treatments and to control building ingress and egress. However, the absence of personnel and functioning HVAC systems made it difficult to ensure constant environmental/occupational conditions. Outside temperatures had an additional impact on the variables of interest within the two buildings.

Figure 6. Exterior of Bldg. 6733 – barracks.

Figure 7. Classroom area inside Bldg. 6733.

Figure 8. Bathroom area inside Bldg. 6733.

2.2 Baseline/background sampling and analysis

2.2.1 General information

Mold analyses are typically reported in terms of marker molds, outdoor molds, and hyphal fragments. This report focuses on marker molds, outdoor molds, and hyphal fragments described below (Kung'u 2016):

- Marker molds are uncommon mold types that are not typically found in significant numbers outside. These mold types, which are associated with more serious health problems, are often the best indicator of indoor mold issues. The following are typical marker molds:
  - *Stachybotrys*, known as "black mold," is considered the most dangerous mold type and is typically found in low numbers, if at all in outdoor samples. This mold has been linked with infant death.
  - *Chaetomium*, a marker mold that is not commonly found at significant levels indoors and is associated with health problems including fibromyalgia, MS, Lyme disease, and others.

- Common outdoor molds are typically molds that start growing outdoors, and that can still cause health issues when growing indoors. Health issues are usually related to cold, allergy, sinus, and respiratory problems. Typical outdoor molds are:
  - Penicillium/Aspergillus, a genus that includes approximately 200 species and that is the most common fungal genus in the United States. Penicillium/Aspergillus is commonly found in house dust, water damaged wall paper and sheet rock, wallpaper glue, fabrics moist chipboards, in rotting food, in materials concealed behind.
  - Cladosporium, a genus that includes approximately 28-40 species and that is one of the top three most common genuses in the United States found indoors on a variety of substrates.
  - Basidiospores, which is an extremely common mold genus in outdoor samples that originate from fungus in gardens, forests, and woodlands. Basidiospores are often found in dirt of indoor potted plants or dust.
  - Hyphal Fragments are produced during mold reproduction and are often an indicator of active growth. Hyphal fragments can be found in small amounts outdoors and indoors in healthy environments. Indoor levels under 200 are generally considered "normal."

Tables 3 to 6 list "typical" U.S. outdoor average mold levels for various parts of the United States (EMLab 2012, pp 22-23, 29) for the location and months closest to those applicable to this demonstration. Data were not available for Kentucky or Tennessee, and Illinois was determined the most representable data set based on the demonstration's geographic location and weather patterns.

Table 3. U.S. national outdoor average for April.

Fungal Type	Low (Dry Climate) (#spores/m^3)	Medium (#spores/m^3)	High (Humid Climate) (#spores/m^3)
Alternaria	13	27	53
Basidiospores	67	240	960
Chaetomium	13	13	27
Cladosporium	107	320	1013
Penicillium/Aspergillus Types	53	160	400
Stachybotrys	13	13	40

Table 4. U.S. national outdoor average for July.

Fungal Type	Low (Dry Climate) (#spores/m³)	Medium (#spores/m³)	High (Humid Climate) (#spores/m³)
Alternaria	13	40	107
Basidiospores	107	427	3067
Chaetomium	13	13	27
Cladosporium	213	747	2120
Penicillium/Aspergillus Types	80	213	613
Stachybotrys	13	13	40

Table 5. U.S. national outdoor average for October.

Fungal Type	Low (Dry Climate) (#spores/m³)	Medium (#spores/m³)	High (Humid Climate) (#spores/m³)
Alternaria	13	40	107
Basidiospores	133	627	3625
Chaetomium	13	13	27
Cladosporium	213	800	2720
Penicillium/Aspergillus Types	100	267	747
Stachybotrys	13	13	40

Table 6. Annual outdoor average for Illinois.

Fungal Type	Low (Dry Climate) (#spores/m³)	Medium (#spores/m³)	High (Humid Climate) (#spores/m³)
Alternaria	13	53	187
Basidiospores	160	780	3220
Chaetomium	7	13	27
Cladosporium	120	693	2773
Penicillium/Aspergillus Types	53	133	400
Stachybotrys	13	13	53

2.2.2 Background sampling for this demonstration project

Before application of the dry-fog technology in the demonstration buildings, background air samples and surface samples were taken inside and outside each building (Figure 9). Samples were taken at Bldg. 2261 on 20 March 2017 and at Bldg. 6733 on 21 March 2017. In Figure 9 below, the background/outdoor sample location at each building is shown as Locations #5 and #17, respectively.

Figure 10 shows the sample collection containers for both air and surface sampling. Air sampling was conducted using a Zefon International Mold

Sampling Pump P/Z-Lite-IAQ (Figure 20). Sampling protocol for normal office space requires an air flow rate of 15 liters per minute (lpm) for a 5-minute period (EMLab 2012, pp 22-23, 29). Zefon Air-O-Cell™ sample containers were used to capture the air samples. Surface samples were taken using the tape pull method (EMLab 2012, pp 37-38, 29).

Figure 9. Sampling locations at Bldgs. 2261 and 6733 (not to scale).

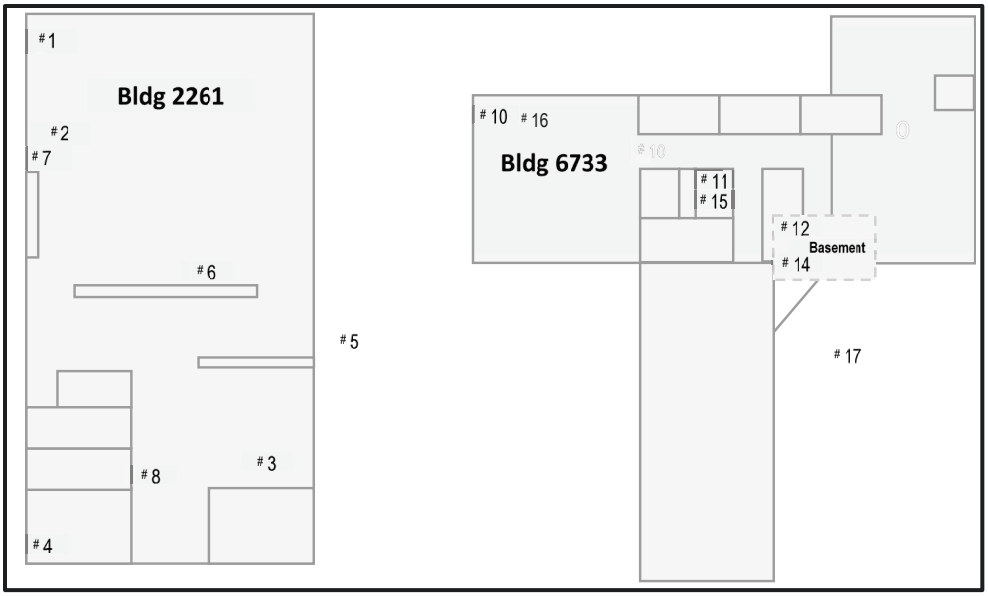


Figure 10. Air and surface sampling equipment.

2.2.3 Sample analysis

Spore trap analysis and direct microscopic examination were performed for the samples collected at each location by EMLab P&K (Lab Identification [ID] #102297). Both of these methods are considered standard analyses when determining mold levels within the air and on surfaces of interest:

- Spore trap analysis is used to determine the number of a particular mold spore type within a known volume of air at a specific location. Results are reported in number of spores per cubic meter (#/m^3). Positive results indicate airborne mold spores. Airborne mold spores contribute to an unhealthy environment and often lead to respiratory (and other) illnesses.
- Direct microscopic examination is used to determine specific types of mold spores present on the surface of any material at a particular location. Positive results indicate mold growth on the identified surface.

One of these two types of samples was performed on each sample collected during the demonstration. Chapter 3 of this report gives the results.

2.3 Two-step dry-fog application

The dry-fog is a gas/vapor with micron sized particles that can cover, penetrate, and envelope mold spores. The small size (6–8 microns) of the particles* makes it possible to treat materials and spaces that current mold removal technologies cannot access. The first step of the two-step dry-fog process is the application of InstaPURE, which is a powerful disinfectant that destroys mold spores and disinfects any surface it touches. The second step of the two-step process is the application of EverPURE, which is an antimicrobial barrier that destroys bacteria or viruses that come in contact with surfaces treated with EverPURE. The U.S. Environmental Protection Agency (USEPA) has approved both InstaPURE and EverPURE for use in all 50 U.S. states.

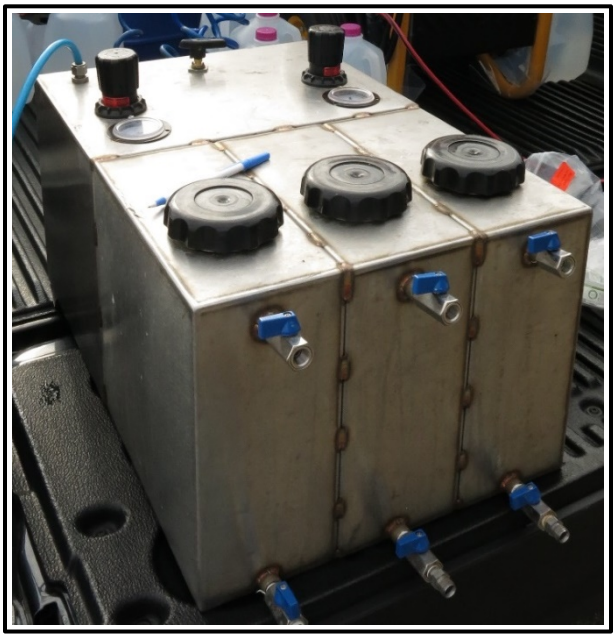
The dry-fog treatment system is completely mobile. It includes compressed air, spray nozzles, and the dry-fog box (Figure 11).

*Personal communication with Brandon Adams. 2 October 2017. Bountiful, Utah: Pure Maintenance LLC.

Figure 11. Equipment to apply the dry-fog treatment.

The dry-fog technology is housed inside the metal box (Figure 12). Independent control of the flow rates and pressures for the liquid and air provides the patented ability to generate the dry-fog. The dry fog is made up of particles ranging from 6-8 microns in diameter. Mold spores generally vary from 10-30 microns in diameter (Peacock Enterprises 2017). The dry fog's small particle size (much smaller than the mold spores) provides a mechanism to treat areas inaccessible to liquid treatments, and ensures that the fog can physically infiltrate all spaces and porous materials available to mold spores.

Figure 12. Dry-fog technology apparatus.



Air compressors provide pressure to quickly distribute the dry fog. The dry fog disseminates rather readily covering 1000 sq ft having 8- to 10-ft ceiling heights in approximately 1 hour (i.e., 10,000 cu ft per hour [cu ft/hr]). This is accomplished with minimal manpower requirements. A single individual can completely treat, including mobilizing and demobilization, a 2000 sq ft single-story facility/space in approximately 3 hours. Larger treatment volumes take correspondingly longer treatment times for a given number of air compressors and spray nozzles.

Bldg. 2261 took approximately 5 hours to treat. This included mobilization, surface and air sampling, and demobilization. Bldg. 6733 took a total of approximately 4 hours to treat and accomplish the same tasks.

The dry-fog technology is relatively inexpensive when compared to current mold removal procedures and their labor intensive requirements. Costs for the treatment of a one story building are estimated at approximately $0.90–$1.20/sq ft. This estimate does not include travel costs by the vendor. Actual costs will be higher or lower depending on travel time, on multi- versus single-story buildings, and on special circumstances such as the geographical location, building use(s), and building layout.

Appendix A includes Material Specifications and Data Sheets (MSDSs) for InstaPURE and EverPURE. Given the chemical make-up of these liquids and the application process, i.e., the addition of deionized water and atmospheric air, there are no (and to date have not been) adverse effects to humans or the contents within the treated buildings. The vendor (and others) have treated thousands of residential, commercial, and industrial buildings with these products with no negative effects on inhabitants or materials within treated buildings.

The dry-fog technology is currently available via licensing from the vendor. The vendor provides startup equipment, training (in person and online), and access to chemicals, local/national marketing materials, and business development support.

The treatment is performed by introducing the dry-fog via spray nozzles (Figures 13-15).

Figure 13. Dry-fog being applied via spray nozzle in Bldg. 2261.

Figure 14. Dry-fog being applied to intake of HVAC ducting Bldg. 2261.

Figure 15. Dry-fog being applied via spray nozzles in Bldg. 6733.

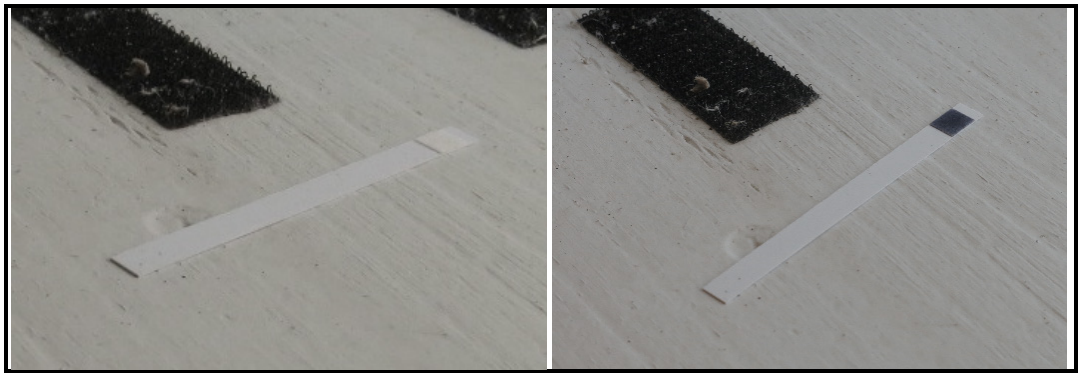
Figure 16 shows an example of minimalistic plastic barriers put in place to generate enough back pressure to provide positive pressure and to ensure coverage when doing smaller areas within larger, more spacious rooms. Although these barriers do not completely contain the dry-fog, they do allow the dry fog to accumulate sufficiently to provide treatment (Figure 17).

Figure 16. Positive pressure at various points within Bldg. 2261.

Figure 17. Dry-fog accumulation in kitchen area within Bldg. 2261.

Indicator strips are placed at various locations within the treatment area to ensure coverage. The strips are initially white and turn black (Figure 18) as the dry-fog fills the air at a concentration sufficient to indicate full treatment. HVAC systems are operated long enough to ensure complete coverage (i.e., multiple duct system volumes) throughout the duct work and associated filters/vents.

Figure 18. Indicator strips signify treatment (i.e., white to black).



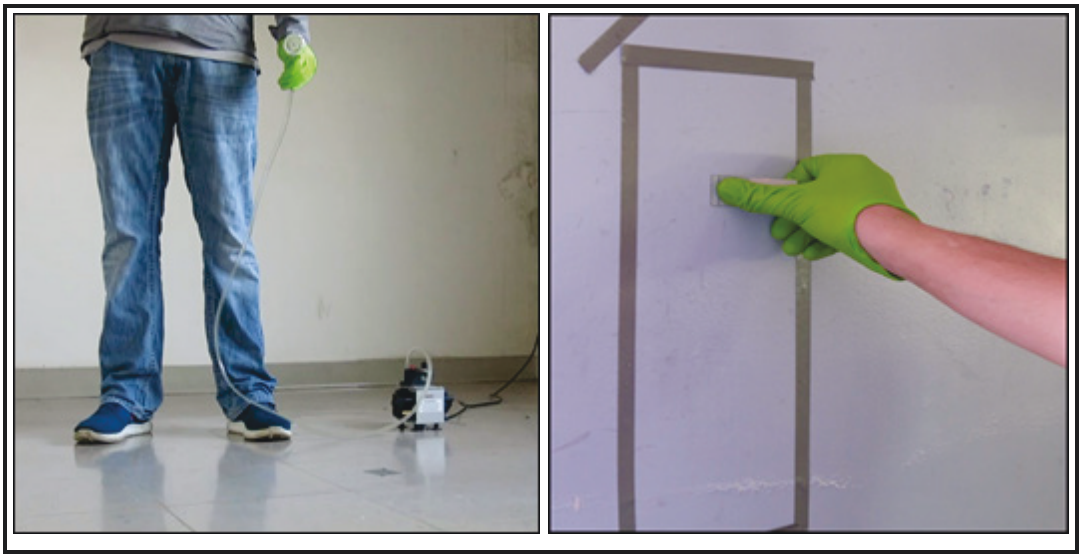
Note that the treatment does not remove the black appearance of mold (Figure 19). Even though the treatment has eliminated the mold spores, treated surfaces will still appear "moldy" so it is essential that air and surface sampling be performed (before and after treatment) to provide quantitative measurements of the treatment's removal effectiveness. An additional advantage of the dry-fog treatment is that surfaces can be cleaned with typical household cleaning products rather than with the more hazardous chemicals used for traditional mold treatment and cleaning.

Figure 19. Mold growing near duct vents in Bldg. 2261.

2.4 Verification sampling and analysis

After the dry-fogging application, Pure Maintenance, LLC (with members of the project team present) conducted air and surface sampling (Figure 20). Continued sampling occurred at 1 month (25 April 2017), 3 months (22 June 2017), and 6 months (12 September 2017) following treatment. Chapter 3 of this report includes results and analyses of these sampling events. Appendix B includes all raw laboratory analysis results.

Figure 20. Air and surface sampling.



3 Results

3.1 Summary results

The dry-fog treatment was successful in reducing and maintaining mold at below background levels over the 6-month demonstration period. Figures 21 to 23 show and Table 7 lists the results of air sampling and surface sampling at Bldg. 2261. Figures 24 to 26 show and Table 8 lists the results of air sampling and surface sampling at Bldg. 6733. Sections 3.1 and 3.2 give detailed results specific to individual surface and air sampling locations within each building.

Figure 22 shows that the total spore count weighted across all air sampling locations associated with Bldg. 2261 decreased from 64,126 spores/m^3 before treatment, to 3,067 spores/m^3 at 6 months after treatment. Over this same time period, the outdoor/background total spore count increased from 590 spores/m^3 before treatment, up to 19,000 spores/m^3 at 6 months after treatment. Simply put, while the outdoor/background total spore count increased 3,120%, the indoor (i.e., treated space) total spore count decreased 95.21%.

Figure 25 shows that the total spore count weighted across all air sampling locations associate with Bldg. 6733 decreased from 556,057 spores/m^3 before treatment, to 3,044 spores/m^3 at 6 months after treatment. Over this same time period, the outdoor/background total spore count increased from 3,100 spores/m^3 to 20,000 spores/m^3 at 6 months after treatment. As the outdoor total spore count increased 545.2 %, the indoor (i.e., treated space) total spore count decreased by 99.45%

Figure 21. Bldg. 2261 Stachybotrys/Chaetomium vs. Stachybotrys/Chaetomium (background).

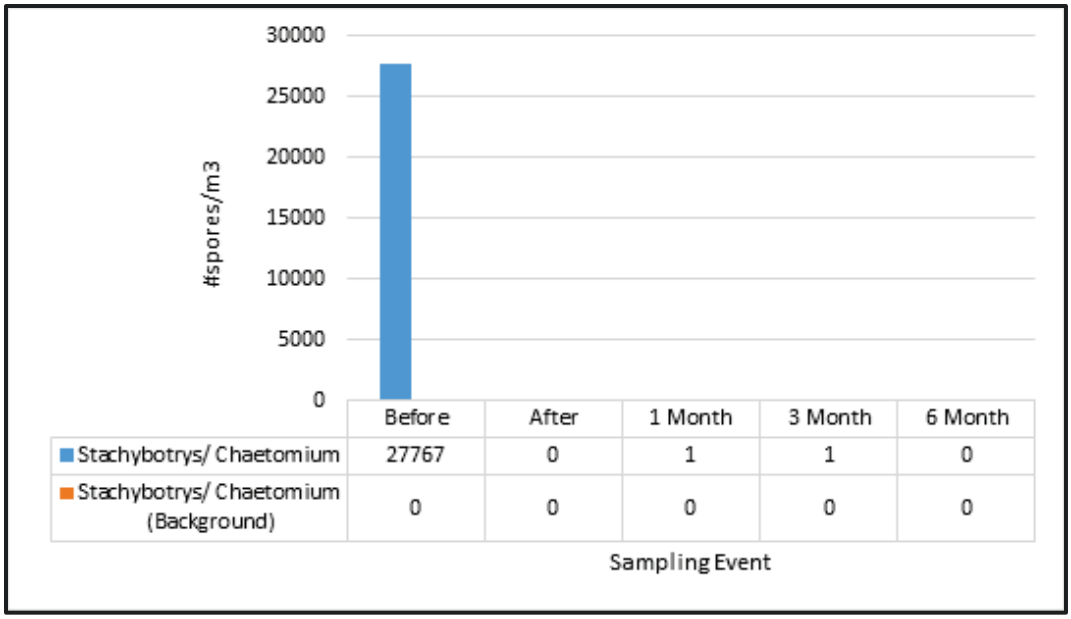


Figure 22. Bldg. 2261—Total Spores vs. Total Spores (background).

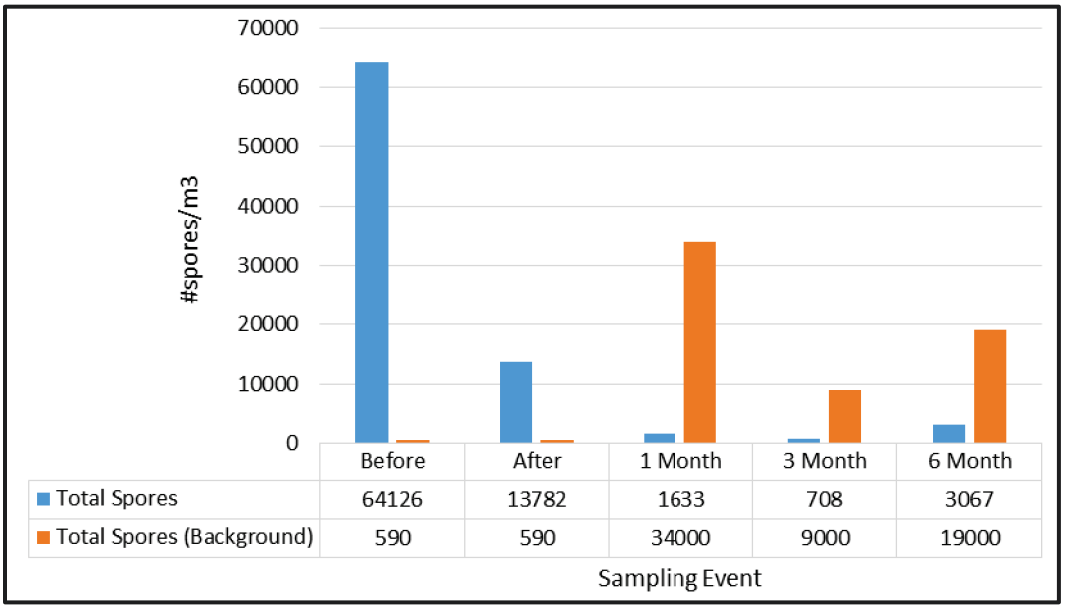


Figure 23. Bldg. 2261—Hyphal Fragments vs. Hyphal Fragments (background).

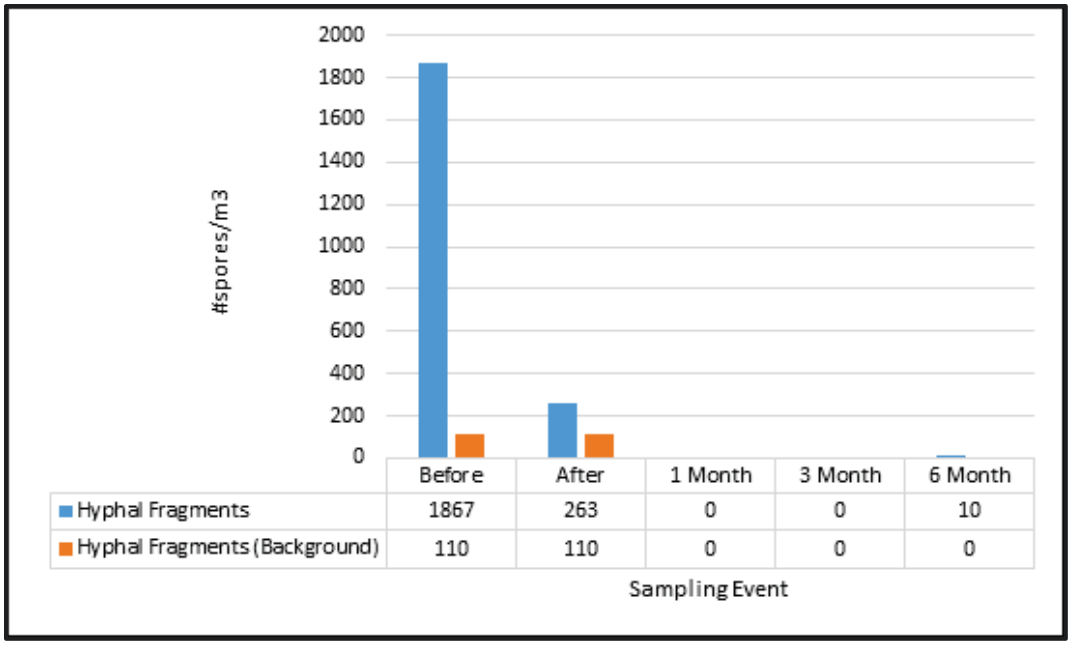


Table 7. Surface sampling results in Bldg. 2261.

Fungal Type	Before	After	1 Month	3 Month	6 Month
Cladosporium	6+	<1	0	0	0
Penicillium/Aspergillus	0	0	0	0	0
Total	very few	very few	very few	0	0

Figure 24. Bldg. 6733—Stachybotrys/Chaetomium vs. Stachybotrys/Chaetocmium (background).

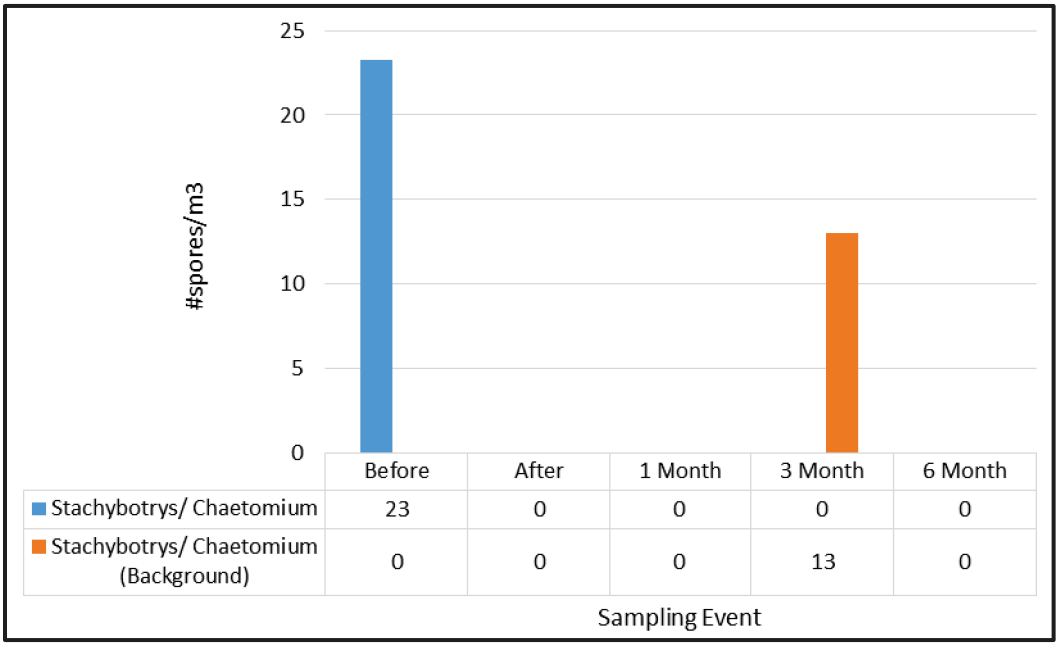


Figure 25. Bldg. 6733—Total Spores vs. Total Spores (background).

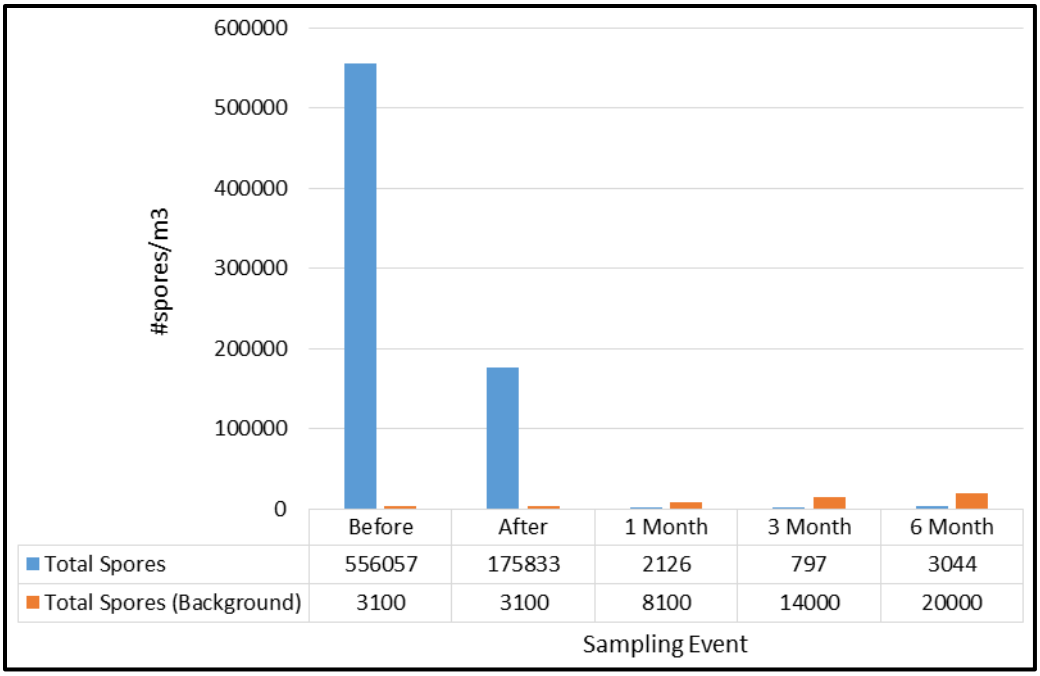


Figure 26. Bldg. 6733—Hyphal Fragments vs. Hyphal Fragments (background).

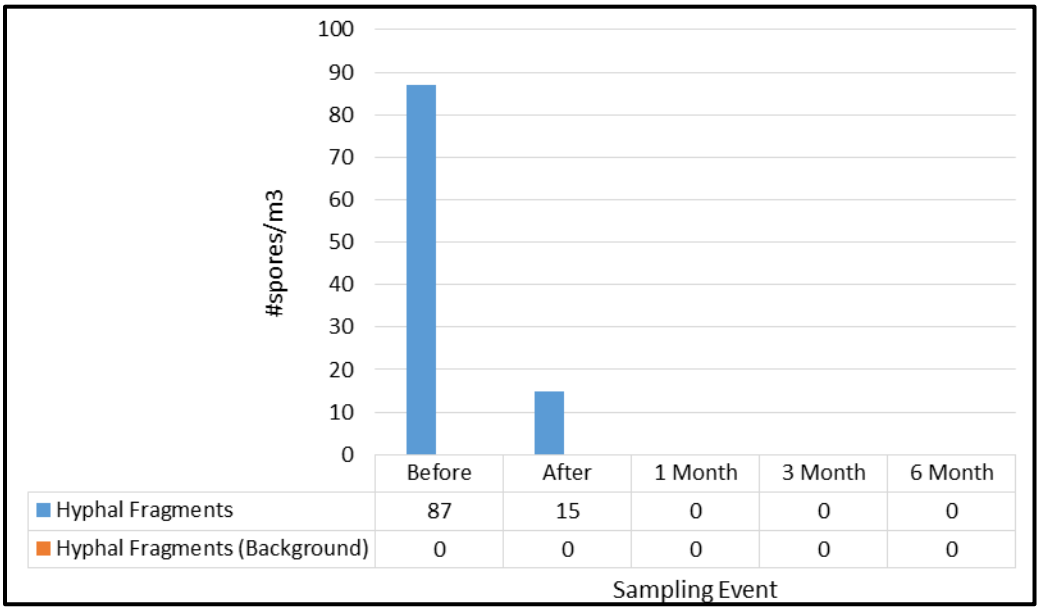


Table 8. Surface sampling results in Bldg. 6733.

Fungal Type	Before	After	1 Month	3 Month	6 Month
Cladosporium	10+	<1+	0	0	0
Penicillium/Aspergillus	0	2+	0	0	0
Total	very few	very few	very few	0	very few

3.2 Dining facility – Bldg. 2261

3.2.1 Air sampling

Table 9 lists the results of the air sampling at Bldg. 2261. Each sampling location was allocated a representative number of square feet within the total square footage treated. A summation of the #spores/m^3 at each sampling location within the building, multiplied by the associated square feet for each sample, divided by the total number of square feet treated, provides a weighted average of the sampling results, which comprises a single value for each fungal type for each building. The efficacy of the treatment is determined by comparing these values to the background levels at the time of each sampling. Values at or below background levels indicate that the treatment and/or removal was (and continues to be) effective.

Table 9. Air sampling results (#spores/m^3) for Bldg. 2261.

ID	Associated Area (sq ft)	Fungal Type	Before	After	1 Month	3 Month	6 Month
#1	2268	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	19000	15000	1500	170	2800
		Hyphal Fragments	1300	430	0	0	0
#2	756	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	48000	12000	1400	480	4300
		Hyphal Fragments	2000	0	0	0	0
#3	486	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	110000	12000	2000	2800	2500
		Hyphal Fragments	2700	0	0	0	53
#4	198	Stachybotrys/ Chaetomium	520000	0	13	13	0
		Total	530000	11000	2000	2600	2800
		Hyphal Fragments	5800	0	0	0	53
#5	Outdoor/ Background	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	590	590	3400	9000	19000
		Hyphal Fragments	110	110	0	0	0

Samples #3 and #4 show an increase in hyphal fragments at the 6-month sampling event (highlighted in yellow). Even though the levels increased (from zero for the previous sampling events), they are still well below the levels before treatment. However, levels are above the background level of zero. Ideally, a future sampling round could potentially determine if this is an increasing trend, or an increase due to activity within the room where Sample #4 was taken, and adjacent to the area represented by Sample #3.

While performing the 3-month sampling event, team members encountered demolition activities in the room represented by Sample #4. Figure 27 shows the debris and the meter reading showing 100% moisture content on the wall surface. The wall was damp to the touch and clearly saturated with water. The adjacent room, represented by Sample #3, had recently began to leak from the ceiling (Figure 28). It is believed that these changes to the interior environmental/structural conditions played a role in the increased total spore count. However, it should be noted that the background total spore count continued to increase beginning with the 1-month sampling event through the 6-month sampling event, where background was between four and seven times greater than the indoor sample results.

Figure 27. Wall surface moisture content of 100% near Sample Location #4.

Figure 28. Leakage from ceiling piping or roofing.

3.2.2 Surface sampling

Table 10 lists the results of the surface sampling at Bldg. 2261. Initially all surfaces indicated the presence of mold. Immediately after treatment, only a "very few" total spore count was present at Sample Locations #6 and #7. Sample Location #8 showed $\leq$ 1+. No surface mold was detected at any surface sample location for the 3-month sampling event. Mold levels at all sample locations remained zero thru the 6-month sampling event.

Table 10. Surface sampling results for Bldg. 2261.

ID	Fungal Type	Before	After	1 Month	3 Month	6 Month
#6	Cladosporium	2+	0	0	0	0
	Penicillium/ Aspergillus	0	0	0	0	0
	Total	very few	very few	0	0	0
#7	Cladosporium	2+	0	0	0	0
	Penicillium/ Aspergillus	0	0	0	0	0
	Total	very few	very few	0	0	0
#8	Cladosporium	2+	<1+	0	0	0
	Penicillium/ Aspergillus	0	0	0	0	0
	Total	very few	very few	very few	0	0

3.3 Barracks—Bldg. 6733

3.3.1 Air sampling

Table 11 lists the results of the air sampling at Bldg. 6733. Each sampling location was allocated a representative number of square feet within the total square footage treated. A summation of the #spores/m^3 at each sampling location within the building, multiplied by the associated square feet for each sample, divided by the total number of square feet treated provides a weighted average of the sampling results, which comprises a single value for each fungal type for each building. The efficacy of the treatment is determined by comparing these values to the background levels at the time of each sampling. Values at or below background levels indicate that the treatment and/or removal was (and continues to be) effective.

Table 11. Air sampling results (#spores/m^3) for Bldg. 6733.

ID	Associated Area (sq ft)	Fungal Type	Before	After	1 Month	3 Month	6 Month
#10	1458	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	110000	210000	1200	430	93
		Hyphal Fragments	0	0	0	0	0
#11	768	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	1400000	100000	1100	480	210
		Hyphal Fragments	150	0	0	0	0
#12	648	Stachybotrys/ Chaetomium	80	0	0	0	0
		Total	3400	13000	3300	1200	10000
		Hyphal Fragments	110	53	0	0	0
#17	Outdoor/ Background	Stachybotrys/ Chaetomium	0	0	0	0	0
		Total	3100	3100	8100	14000	20000
		Hyphal Fragments	0	0	0	0	0

Note that between the 3-month and 6-month sampling events, the Fort Campbell personnel and/or contractor personnel began to renovate the building. It is very likely that ingress and egress of these personnel had some effect on the existing conditions. However, no monitoring or oversight was in place to account for these differing site conditions. This may explain the drastic increase of total spores for the 6-month sampling event (1200 spores/m^3 to 10,000 spores/m^3) at Location #12 (basement of the administrative area) in Bldg. 6733, which represents a 733% increase while the background spore count only increased by 42.9%. Despite this drastic increase, indoor levels were only 50% of the background level suggesting continued treatment.

3.3.2 Surface sampling

Table 12 lists the results of the surface sampling at Bldg. 6733. Initially all surfaces indicated the presence of mold, specifically cladosporium. One month after treatment, only a "very few" total spore count was present at Sample Locations #14 and #16. Three months following treatment, "very few" were reported for Location #14 and no mold spores were present at Locations #15 and #16. Levels appeared to be rising between the 3-month and 6-month sampling events. During this time, the building's interior changed from an uninhabited space to a space undergoing renovation. This change in environment, combined with added occupancy and ongoing renovation activities, created varying conditions that could have triggered an increased total spore count. Continued monitoring and sampling could have provided greater insight as to whether this trend would continue. Unfortunately, the scope of work did not include this continued work.

Table 12. Surface sampling results for Bldg. 6733.

ID	Fungal Type	Before	After	1 Month	3 Month	6 Month
#14	Cladosporium	2+	0	0	0	0
	Penicillium/ Aspergillus	0	0	0	0	0
	Total	very few	very few	very few	very few	very few
#15	Cladosporium	4+	0	0	0	0
	Penicillium/ Aspergillus	0	2+	0	0	0
	Total	0	very few	0	0	very few
#16	Cladosporium	4+	<1+	0	0	0
	Penicillium/ Aspergillus	0	0	0	0	0
	Total	0	very few	very few	0	few

4 Conclusions and Recommendations

The sampling results of this demonstration indicate that the dry-fog technology was capable of rapidly eliminating mold spores. Results also showed that the second step of the dry-fog technology's (application of EVERpure) continued to reduce mold spore levels over time; with minor exceptions, while total spore counts outdoors increased throughout the demonstration, indoor levels continued to decrease. However, the increased values for hyphal fragments at Locations #3 and #4 in Bldg. 2261 during the 6-month sampling event did not conclusively confirm the technology's treatment effectiveness beyond 6 months.

This work concluded that the dry-fog technology provides rapid and quantifiable improvements to indoor air quality, and also that it drastically reduces exposure of Army building occupants and maintenance workers to harmful chemicals resulting from current mold remediation practices.

Current rough estimates for application of the dry-fog technology are approximately $1.00/sq ft. Actual costs would deviate from this estimate dependent on location and proximity to the vendor. It is likely that an installation could achieve additional cost savings by acquiring an in-house capability to apply the treatment. Implementing the dry-fog technology at Army installations would be relatively straightforward. The equipment could be purchased and the vendor engaged to train personnel in its use. Ongoing in-house training could be planned to disseminate additional treatment systems across Army installations. Treatment systems could be purchased for use at each installation, or for use on a regional basis to share the technology across installations in neighboring geographic locations.

It is recommended that additional demonstration(s) be completed for longer periods (12 to 24 months). Ideally the demonstration(s) would be conducted in buildings where the indoor environment and building usage would remain constant throughout the demonstration period. It is also recommended that the dry-fog technology be demonstrated at new construction sites where it could potentially serve as a preventive measure.

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Acronyms and Abbreviations

Term	Definition
ACSIM	Assistant Chief of Staff for Installation Management
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
CEERD	US Army Corps of Engineers, Engineer Research and Development Center
CERL	Construction Engineering Research Laboratory
DoD	U.S. Department of Defense
ERDC	U.S. Army Engineer Research and Development Center
ERDC-CERL	Engineer Research and Development Center, Construction Engineering Research Laboratory
FEMA	Federal Emergency Management Agency
HVAC	Heating, Ventilating, and Air-Conditioning
IAQ	Indoor Air Quality
ID	Identification
ITTP	Installation Technology Transition Program
LLC	Limited Liability Company
MBL	Mold & Bacteria Consulting Laboratories
MEL	Maximum Exposure Limit
MSDS	Material Safety Data Sheet (OSHA)
NAVFAC	Naval Facilities Engineering Command
NSN	National Supply Number
OACSIM	Office of the Assistant Chief of Staff for Installation Management
OMB	Office of Management and Budget
PMO	Program Management Office
PPE	Personal Protective Equipment
SAR	Same As Report
SF	Standard Form
TR	Technical Report
UFGS	Unified Facilities Guide Specification
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USAPHC	U.S. Army Public Health Command

Appendix A: Material Safety Data Sheets for INSTAPure and EVERPure

Pure Maintenance
Mr Brandon Adams
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Suite 300

PURE MAINTENANCE

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Approved by:

Joshua T. Cox

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 03-27-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall Fort Campbell Before Treatment
Date of Sampling: 03-20-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: #1 North West Corner BT		2: #2 Middle West Side BT		3: #3 South East Kitchen BT	
Comments (see below)	None		None		None	
Lab ID-Version‡:	7921457-1		7921458-1		7921459-1	
Analysis Date:	03/27/2017		03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-	-	-
Basidiospores	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-
Cladosporium	345	18,000	175	47,000	203	110,000
Fusarium	-	-	-	-	-	-
Penicillium/Aspergillus types	1	53	18	960	-	-
Stachybotrys	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Others	6	320	7	370	2	110
§ Total:		19,000		48,000		110,000
Additional Information:						
Hyphal fragments	1,300		2,000		2,700	
Skin cells	80 - 4,000		80 - 4,000		80 - 4,000	
Pollen	53		< 13		110	
Background debris (1-4)†	3		4		3	
Limit of detection	13		13		13	
Sample volume (liters)	75		75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall Fort Campbell Before Treatment
Date of Sampling: 03-20-2017
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Date of Report: 03-27-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	4: #4 South West Office BT		9: Outside #5 Air Sample	
Comments (see below)	None		None	
Lab ID-Version‡:	7921460-1		7921461-1	
Analysis Date:	03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	10	530	2	110
Chaetomium	-	-	-	-
Cladosporium	33	1,800	9	480
Fusarium	-	-	-	-
Penicillium/Aspergillus types	69	3,700	-	-
Stachybotrys	390	520,000	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	2	110	-	-
§ Total:		530,000		590
Additional Information:				
Hyphal fragments	5,800		110	
Skin cells	80 - 4,000		13 - 67	
Pollen	< 13		370	
Background debris (1-4)†	2		1	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall Fort Campbell Before Treatment
Date of Sampling: 03-20-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	5: #6 Middle Divider Wall	6: #7 West Wall	7: #8 Kitchen Wall
Comments (see below):	None	None	None
Lab ID-Version‡:	7921454-1	7921455-1	7921456-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	2+	2+	2+
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	Very few	Very few	Very few
Other particles detected§:			
Skin cells	Very few	Very few	Very few
Pollen	-	-	-
Background Debris and/or Description:**	Moderate	Moderate	Moderate

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head Fort Campbell Before Treatment
Date of Sampling: 03-21-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: #10 North West Classroom BT		2: #11 Mens Bathroom BT	
Comments (see below)	None		None	
Lab ID-Version‡:	7921647-1		7921648-1	
Analysis Date:	03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	-	-	1	53
Chaetomium	-	-	-	-
Cladosporium	2,672	1,400,000	1	53
Fusarium	-	-	-	-
Penicillium/Aspergillus types	-	-	197	110,000
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	3	40	-	-
Others	1	13	1	53
§ Total:		1,400,000		110,000
Additional Information:				
Hyphal fragments	160		110	
Skin cells	13 - 67		80 - 4,000	
Pollen	< 13		< 13	
Background debris (1-4)†	1		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head Fort Campbell Before Treatment
Date of Sampling: 03-21-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	3: #12 Basement BT		10: #17 Outside Hammerhead	
Comments (see below)	None		None	
Lab ID-Version‡:	7921649-1		7921650-1	
Analysis Date:	03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	19	1,000	23	1,200
Chaetomium	1	13	-	-
Cladosporium	30	1,600	22	1,200
Fusarium	-	-	-	-
Penicillium/Aspergillus types	8	430	4	210
Stachybotrys	5	67	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	6	320	10	530
§ Total:		3,400		3,100
Additional Information:				
Hyphal fragments	110		-	
Skin cells	80 - 4,000		13 - 67	
Pollen	< 13		110	
Background debris (1-4)†	2		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head Fort Campbell Before Treatment
Date of Sampling: 03-21-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
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Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	5: #14 Basement South Wall BT	6: #15 Mens Bathroom South Wall BT	7: #16 North Wall Of North West Classroom BT
Comments (see below):	None	None	None
Lab ID-Version‡:	7921644-1	7921645-1	7921646-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	2+	-	4+
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	4+	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	Very few	-	-
Other particles detected§:			
Skin cells	Very few	-	-
Pollen	-	-	-
Background Debris and/or Description:**	Light	Scant	None

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall Fort Campbell After Treatment
Date of Sampling: 03-20-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
EMLab P & K
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Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: #1A North West Corner AT		2: #2A Middle West Side AT		3: #3A South East Kitchen AT	
Comments (see below)	None		None		None	
Lab ID-Version‡:	7925892-1		7925893-1		7925894-1	
Analysis Date:	03/27/2017		03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-	-	-
Basidiospores	2	110	2	110	2	110
Chaetomium	-	-	-	-	-	-
Cladosporium	92	4,900	42	2,200	25	1,300
Fusarium	-	-	-	-	-	-
Penicillium/Aspergillus types	185	9,900	187	10,000	198	11,000
Stachybotrys	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Others	-	-	2	110	-	-
§ Total:		15,000		12,000		12,000
Additional Information:						
Hyphal fragments	430		-		-	
Skin cells	80 - 4,000		13 - 67		80 - 4,000	
Pollen	53		< 13		< 13	
Background debris (1-4)†	2		1		2	
Limit of detection	13		13		13	
Sample volume (liters)	75		75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall Fort Campbell After Treatment
Date of Sampling: 03-20-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
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Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	4: #4A South West Office AT		9: Outside #5 Air Sample	
Comments (see below)	None		A	
Lab ID-Version‡:	7925895-1		7921561-0	
Analysis Date:	03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	-	-	2	110
Chaetomium	-	-	-	-
Cladosporium	11	590	9	480
Fusarium	-	-	-	-
Penicillium/Aspergillus types	197	11,000	-	-
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	-	-	-	-
§ Total:		11,000		590
Additional Information:				
Hyphal fragments	-		110	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		370	
Background debris (1-4)†	1		1	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments: A) Data transferred from EMLab ID: 1699377 at client's request.

Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall Fort Campbell After Treatment
Date of Sampling: 03-20-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
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Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	5: #6A Middle Divider Wall AT	6: #7A West Wall AT	7: #8A Kitchen Wall AT
Comments (see below):	None	None	A
Lab ID-Version‡:	7921486-1	7921487-1	7921488-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	< 1+
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	Very few	Very few	Very few
Other particles detected§:			
Skin cells	Very few	Very few	Very few
Pollen	-	-	-
Background Debris and/or Description:**	Light	Light	Light

Comments: A) A few Penicillium/Aspergillus group spores detected.

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head Fort Campbell After Treatment
Date of Sampling: 03-21-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

MoldREPORT
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Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: #10A North West Classroom AT		2: #11A Mens Bathroom AT	
Comments (see below)	None		None	
Lab ID-Version‡:	7921657-1		7921658-1	
Analysis Date:	03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	-	-	-	-
Fusarium	-	-	-	-
Penicillium/Aspergillus types	388	210,000	191	100,000
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	-	-	1	53
§ Total:		210,000		100,000
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		< 13	
Background debris (1-4)†	1		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head Fort Campbell After Treatment
Date of Sampling: 03-21-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

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Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	3: #12A Basement AT		10: #17 Outside Hammerhead	
Comments (see below)	None		A	
Lab ID-Version‡:	7921659-1		7921660-0	
Analysis Date:	03/27/2017		03/27/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	-	-	23	1,200
Chaetomium	-	-	-	-
Cladosporium	189	10,000	22	1,200
Fusarium	-	-	-	-
Penicillium/Aspergillus types	53	2,800	4	210
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	-	-	10	530
§ Total:		13,000		3,100
Additional Information:				
Hyphal fragments	53		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		110	
Background debris (1-4)†	2		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments: A) Data transferred from EMLab ID: 1699368 at client's request.

Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head Fort Campbell After Treatment
Date of Sampling: 03-21-2017
Date of Receipt: 03-24-2017
Date of Report: 03-27-2017

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Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	5: #14A Basement South Wall AT	6: #15A Mens Bathroom South Wall AT	7: #16A North Wall Of North West Classroom AT
Comments (see below):	None	None	None
Lab ID-Version‡:	7921654-1	7921655-1	7921656-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	< 1+
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	2+	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	Very few	Very few	Very few
Other particles detected§:			
Skin cells	Very few	Very few	Few
Pollen	-	-	-
Background Debris and/or Description:**	Scant	Light	Light

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Pure Maintenance
Mr Brandon Adams
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Suite 300
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(801) 529-2976

EMLab P & K

www.MoldREPORT.com

info@MoldREPORT.com

Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Spore trap: 04-28-2017

Service SOPs: MoldReport Spore trap (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall 1 Month Post Treatment
Date of Sampling: 04-25-2017
Date of Receipt: 04-27-2017
Date of Report: 04-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: Northwest Corner A1		2: Middle West Side A1		3: South West Office A1	
Comments (see below)	None		None		None	
Lab ID-Version‡:	8012803-1		8012804-1		8012805-1	
Analysis Date:	04/28/2017		04/28/2017		04/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-	-	-
Basidiospores	5	270	10	530	14	750
Chaetomium	-	-	-	-	1	13
Cladosporium	13	690	7	370	-	-
Fusarium	-	-	-	-	-	-
Penicillium/Aspergillus types	5	270	5	270	17	910
Stachybotrys	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Others	7	370	4	210	6	320
§ Total:		1,600		1,400		2,000
Additional Information:						
Hyphal fragments	-		-		-	
Skin cells	80 - 4,000		80 - 4,000		80 - 4,000	
Pollen	< 13		< 13		53	
Background debris (1-4)†	2		2		2	
Limit of detection	13		13		13	
Sample volume (liters)	75		75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall 1 Month Post Treatment
Date of Sampling: 04-25-2017
Date of Receipt: 04-27-2017
Date of Report: 04-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	4: South East Kitchen A1		6: Outside 5A1	
Comments (see below)	None		None	
Lab ID-Version‡:	8012806-1		8012807-1	
Analysis Date:	04/28/2017		04/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	14	750	99	26,000
Chaetomium	-	-	-	-
Cladosporium	-	-	17	910
Fusarium	-	-	-	-
Penicillium/Aspergillus types	10	530	3	160
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	13	690	122	6,500
§ Total:		2,000		34,000
Additional Information:				
Hyphal fragments	-		-	
Skin cells	80 - 4,000		13 - 67	
Pollen	< 13		750	
Background debris (1-4)†	2		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Pure Maintenance
Mr Brandon Adams
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Suite 300

EMLab P & K

www.MoldREPORT.com

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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 04-28-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall 1 Month Post Treatment
Date of Sampling: 04-25-2017
Date of Receipt: 04-27-2017
Date of Report: 04-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	7: Middle Divider Wall	8: Kitchen Wall	9: West Wall
Comments (see below):	None	A	None
Lab ID-Version‡:	8012800-1	8012801-1	8012802-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	-	Very few	-
Other particles detected§:			
Skin cells	Very few	Very few	Very few
Pollen	-	-	-
Background Debris and/or Description:**	Light	Scant	Light

Comments: A) A few Penicillium/Aspergillus group spores detected.

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Pure Maintenance
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EMLab P & K
www.MoldREPORT.com
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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Spore trap: 04-28-2017 and 04-28-2017

Service SOPs: MoldReport Spore trap (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammerhead 1 Month Post Treatment
Date of Sampling: 04-25-2017
Date of Receipt: 04-27-2017
Date of Report: 04-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: Mens Bathroom 11A1		2: Northwest Classroom 10A1	
Comments (see below)	None		None	
Lab ID-Version‡:	8013119-1		8013120-1	
Analysis Date:	04/28/2017		04/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	2	110	9	480
Chaetomium	-	-	-	-
Cladosporium	1	53	1	53
Fusarium	-	-	-	-
Penicillium/Aspergillus types	16	850	3	160
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	2	110	9	480
§ Total:		1,100		1,200
Additional Information:				
Hyphal fragments	-		-	
Skin cells	4,000 - 8,000		13 - 67	
Pollen	< 13		110	
Background debris (1-4)†	3		1	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammerhead 1 Month Post Treatment
Date of Sampling: 04-25-2017
Date of Receipt: 04-27-2017
Date of Report: 04-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	3: Basement 12A1		5: Outside 17A1	
Comments (see below)	None		None	
Lab ID-Version‡:	8013121-1		8013122-1	
Analysis Date:	04/28/2017		04/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	29	1,500	21	1,100
Chaetomium	-	-	-	-
Cladosporium	7	370	3	160
Fusarium	-	-	-	-
Penicillium/Aspergillus types	4	210	4	210
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	22	1,200	124	6,600
§ Total:		3,300		8,100
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		110	
Background debris (1-4)†	2		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Pure Maintenance
Mr Brandon Adams
596 w 750 s
Suite 300

INSPECT. ANALYZE. INTERPRET. MoldREPORT™

EMLab P & K

www.MoldREPORT.com

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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 04-28-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammerhead 1 Month Post Treatment
Date of Sampling: 04-25-2017
Date of Receipt: 04-27-2017
Date of Report: 04-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	6: Bathroom Southwall	7: Basement Southwall	8: Northwest Classroom
Comments (see below):	None	None	None
Lab ID-Version‡:	8013116-1	8013117-1	8013118-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	-	Very few	Very few
Other particles detected§:			
Skin cells	Very few	Very few	Very few
Pollen	-	-	-
Background Debris and/or Description:**	Scant	Light	Scant

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

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EMLab P & K
www.MoldREPORT.com
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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Spore trap: 06-28-2017

Service SOPs: MoldReport Spore trap (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head AT

Date of Receipt: 06-27-2017
Date of Report: 06-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: Outside		2: Basement	
Comments (see below)	None		A	
Lab ID-Version‡:	8171009-1		8171010-1	
Analysis Date:	06/28/2017		06/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	42	5,600	4	210
Chaetomium	-	-	-	-
Cladosporium	8	430	50	870
Fusarium	-	-	-	-
Penicillium/Aspergillus types	2	110	1	53
Stachybotrys	1	13	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	61	8,100	2	110
§ Total:		14,000		1,200
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		< 13	
Background debris (1-4)†	1		1	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments: A) 45 of the raw count *Cladosporium* spores were present as a single clump.

Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head AT

Date of Receipt: 06-27-2017
Date of Report: 06-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	3: N.W. Classroom		4: Mens Bathroom	
Comments (see below)	None		None	
Lab ID-Version‡:	8171011-1		8171012-1	
Analysis Date:	06/28/2017		06/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	3	160	1	53
Fusarium	-	-	-	-
Penicillium/Aspergillus types	3	160	5	270
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	2	110	3	160
§ Total:		430		480
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		< 13	
Background debris (1-4)†	1		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Pure Maintenance
Mr Brandon Adams
596 w 750 s
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EMLab P & K

www.MoldREPORT.com

info@MoldREPORT.com

Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 06-28-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammer Head AT

Date of Receipt: 06-27-2017
Date of Report: 06-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	7: Basement	8: Classroom	9: Mens Bathroom
Comments (see below):	None	None	None
Lab ID-Version‡:	8171006-1	8171007-1	8171008-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	Very few	-	-
Other particles detected§:			
Skin cells	Moderate	Very few	Very few
Pollen	Very few	-	-
Background Debris and/or Description:**	Light	Scant	Scant

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Pure Maintenance
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(801) 529-2976

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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Spore trap: 06-28-2017

Service SOPs: MoldReport Spore trap (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

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The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall AT
Date of Sampling: 06-22-2017
Date of Receipt: 06-27-2017
Date of Report: 06-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: Outside		2: N.W. Corner		3: S.W. Office	
Comments (see below)	None		None		None	
Lab ID-Version‡:	8171189-1		8171190-1		8171191-1	
Analysis Date:	06/28/2017		06/28/2017		06/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-	-	-
Basidiospores	97	5,200	2	27	7	370
Chaetomium	-	-	-	-	1	13
Cladosporium	10	530	-	-	24	1,300
Fusarium	-	-	-	-	-	-
Penicillium/Aspergillus types	2	110	9	120	5	270
Stachybotrys	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Others	60	3,200	2	27	13	690
§ Total:		9,000		170		2,600
Additional Information:						
Hyphal fragments	-		-		-	
Skin cells	13 - 67		13 - 67		13 - 67	
Pollen	< 13		< 13		< 13	
Background debris (1-4)†	3		1		2	
Limit of detection	13		13		13	
Sample volume (liters)	75		75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall AT
Date of Sampling: 06-22-2017
Date of Receipt: 06-27-2017
Date of Report: 06-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	4: Middle West		5: S.E. Corner	
Comments (see below)	None		None	
Lab ID-Version‡:	8171192-1		8171193-1	
Analysis Date:	06/28/2017		06/28/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	2	110	8	430
Chaetomium	-	-	-	-
Cladosporium	1	53	23	1,200
Fusarium	-	-	-	-
Penicillium/Aspergillus types	1	53	5	270
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	5	270	16	850
§ Total:		480		2,800
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		< 13	
Background debris (1-4)†	1		1	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 06-28-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall AT
Date of Sampling: 06-22-2017
Date of Receipt: 06-27-2017
Date of Report: 06-28-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	7: Kitchen	8: West Wall	9: Divider Wall
Comments (see below):	None	None	None
Lab ID-Version‡:	8171186-1	8171187-1	8171188-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	-	-	-
Other particles detected§:			
Skin cells	-	-	-
Pollen	-	-	-
Background Debris and/or Description:**	Scant	Light	Light

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

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info@MoldREPORT.com

Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Spore trap: 09-19-2017

Service SOPs: MoldReport Spore trap (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall AT 6 Months
Date of Sampling: 09-12-2017
Date of Receipt: 09-18-2017
Date of Report: 09-19-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: NW Corner		2: Sw Office		3: Middle West	
Comments (see below)	None		None		None	
Lab ID-Version‡:	8397804-1		8397805-1		8397806-1	
Analysis Date:	09/19/2017		09/19/2017		09/19/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-	-	-
Basidiospores	16	850	16	850	17	910
Chaetomium	-	-	-	-	-	-
Cladosporium	7	370	11	590	11	590
Fusarium	-	-	-	-	-	-
Penicillium/Aspergillus types	5	270	28	1,500	4	210
Stachybotrys	-	-	-	-	-	-
Trichoderma	-	-	-	-	-	-
Ulocladium	-	-	-	-	-	-
Others	25	1,300	26	1,400	15	800
§ Total:		2,800		4,300		2,500
Additional Information:						
Hyphal fragments	-		-		53	
Skin cells	13 - 67		13 - 67		80 - 4,000	
Pollen	< 13		< 13		< 13	
Background debris (1-4)†	2		2		2	
Limit of detection	13		13		13	
Sample volume (liters)	75		75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall AT 6 Months
Date of Sampling: 09-12-2017
Date of Receipt: 09-18-2017
Date of Report: 09-19-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	4: South East Office		5: Outside	
Comments (see below)	None		None	
Lab ID-Version‡:	8397807-1		8397808-1	
Analysis Date:	09/19/2017		09/19/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	15	800	148	7,900
Chaetomium	-	-	-	-
Cladosporium	16	850	45	2,400
Fusarium	-	-	-	-
Penicillium/Aspergillus types	2	110	4	210
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	20	1,100	164	8,700
§ Total:		2,800		19,000
Additional Information:				
Hyphal fragments	53		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		< 13	
Background debris (1-4)†	3		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Pure Maintenance
Mr Brandon Adams
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EMLab P & K

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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 09-19-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

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Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Mess Hall AT 6 Months
Date of Sampling: 09-12-2017
Date of Receipt: 09-18-2017
Date of Report: 09-19-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
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Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	6: West Wall	7: Kitchen Wall	8: Divider Wall
Comments (see below):	None	None	None
Lab ID-Version‡:	8397801-1	8397802-1	8397803-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	-	-	-
Other particles detected§:			
Skin cells	-	Very few	Very few
Pollen	-	-	-
Background Debris and/or Description:**	None	Scant	Light

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Pure Maintenance
Mr Brandon Adams
596 w 750 s
Suite 300
Bountiful, UT 84010 USA
(801) 529-2976

EMLab P & K
www.MoldREPORT.com
info@MoldREPORT.com

Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Spore trap: 09-19-2017 and 09-19-2017

Service SOPs: MoldReport Spore trap (EM-MY-S-1038)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammerhead 6 Months AT
Date of Sampling: 09-12-2017
Date of Receipt: 09-18-2017
Date of Report: 09-19-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	1: Northwest Classroom		2: Mens Restroom	
Comments (see below)	None		None	
Lab ID-Version‡:	8397836-1		8397837-1	
Analysis Date:	09/19/2017		09/19/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	2	27	1	53
Chaetomium	-	-	-	-
Cladosporium	-	-	-	-
Fusarium	-	-	-	-
Penicillium/Aspergillus types	1	13	2	110
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	4	53	1	53
§ Total:		93		210
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		< 13	
Background debris (1-4)†	1		2	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and outdoors (even in relatively clean, mold-growth-free, indoor environments). Levels vary based upon activity levels, dustiness, weather conditions, outside air exchange rates, and other factors.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

Client: Pure Maintenance
Contact: Mr Brandon Adams
Project: Hammerhead 6 Months AT
Date of Sampling: 09-12-2017
Date of Receipt: 09-18-2017
Date of Report: 09-19-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Spore Trap Analysis

Location:	3: Basement		4: Outside	
Comments (see below)	None		None	
Lab ID-Version‡:	8397838-1		8397839-1	
Analysis Date:	09/19/2017		09/19/2017	
Spore types detected:	raw ct.	per m3	raw ct.	per m3
Aureobasidium	-	-	-	-
Basidiospores	52	2,800	193	10,000
Chaetomium	-	-	-	-
Cladosporium	8	430	13	690
Fusarium	-	-	-	-
Penicillium/Aspergillus types	75	4,000	1	53
Stachybotrys	-	-	-	-
Trichoderma	-	-	-	-
Ulocladium	-	-	-	-
Others	55	2,900	164	8,700
§ Total:		10,000		20,000
Additional Information:				
Hyphal fragments	-		-	
Skin cells	13 - 67		13 - 67	
Pollen	< 13		53	
Background debris (1-4)†	1		1	
Limit of detection	13		13	
Sample volume (liters)	75		75	

Comments:
Basidiospores (basidiomycetes): Basidiospores are extremely common outdoors and originate from fungi in gardens, forests, and woodlands. It is rare for the source of basidiospores to be indoors. However, basidiospores may be an indicator of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors. Spores from Cladosporium are generally present in outdoor and indoor air, even in relatively clean, mold-growth-free, indoor environments. Levels vary based upon activity levels, weather conditions, dustiness, outside air exchange rates, and other factors.

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Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

Others: Molds in the "Others" category are generally found outdoors in moderate numbers, and are therefore not considered markers of indoor growth.

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† Background debris is an indication of the amounts of non-biological particulate matter present on the slide (dust in the air) and is graded from 1 to 4 with 4 indicating the largest amounts.

The analytical sensitivity is the spores/m^3 divided by the raw count, expressed in spores/m^3. The limit of detection is the analytical sensitivity (in spores/m^3) multiplied by the sample volume (in liters) divided by 1000 liters.

§ Total has been rounded to two significant figures to reflect analytical precision.

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Approved by:

Operations Manager
Joshua Cox

Dates of Analysis:
MoldReport Direct exam: 09-19-2017

Service SOPs: MoldReport Direct exam (EM-MY-S-1039)
AIHA-LAP, LLC accredited service, Lab ID #102297

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

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Contact: Mr Brandon Adams
Project: Hammerhead 6 Months AT
Date of Sampling: 09-12-2017
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Date of Report: 09-19-2017

MoldREPORT
EMLab P & K
1501 West Knudsen Drive, Phoenix, AZ 85027
(800) 651-4802 Fax (623) 780-7695

Laboratory Results

MoldREPORT: Direct Microscopic Examination

Location:	5: Basement	6: Mens Bathroom	7: NW Classroom
Comments (see below):	None	None	None
Lab ID-Version‡:	8397833-1	8397834-1	8397835-1
Spore types present (indicative of mold growth)§:			
Aureobasidium	-	-	-
Basidiospores	-	-	-
Chaetomium	-	-	-
Cladosporium	-	-	-
Fusarium	-	-	-
Lumber mold†	-	-	-
Penicillium/Aspergillus types	-	-	-
Stachybotrys	-	-	-
Trichoderma	-	-	-
Ulocladium	-	-	-
Spore types present (not indicative of mold growth)§:			
All spore types	Very few	Very few	Few
Other particles detected§:			
Skin cells	Few	Very few	Few
Pollen	-	-	Very few
Background Debris and/or Description:**	Moderate	Moderate	Moderate

Comments: None

Basidiomycetes: Commonly found outdoors. Occasionally may grow indoors, mostly as agents of wood decay.

Cladosporium: One of the most commonly found molds outdoors and frequently found growing indoors.

Penicillium/Aspergillus types: Penicllium and Aspergillus are among the most common molds found growing both indoors and out.

Stachybotrys and other marker types: Certain types of mold, such as Aureobasidium, Chaetomium, Fusarium, Trichoderma, and Ulocladium, are generally found in very low numbers outdoors. Consequently their presence indoors, even in relatively low numbers, is often an indication that these molds are originating from growth indoors. When present, these mold types are often the clearest indicator of a mold problem.

†Lumber mold: Fungi in the Ceratocystis/Ophiostoma group are commonly called "Lumber mold". Lumber mold is present on the wood framing of most homes that are built with lumber. Their presence alone is not indicative of an indoor water problem.
**Background debris is an indication of the amounts of non-biological particulate matter present. This background material is graded and described as Scant, Moderate, Heavy, or Very Heavy. Very heavy background debris may obscure visibility for the analyst. Some sample types are not graded for background debris, in which case a brief description of the material is reported..
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".
The limit of detection is < 1+ when mold growth is detected.
§All readers are advised to refer to the document "Understanding Direct Microscopic Examination Results" which is available at our website, www.moldreport.com, or by request from the laboratory.

Appendix B: Laboratory Analytical Reports

Material Safety Data Sheet **PM 2301**
InstaPURE Cold Sterilant

Compilation date: 15 April 2009

01. Identification of Product and Company

Product name:
Article numbers: 78397-982 / 78397-983 / 78398-229 / 78400-377
Application: Disinfection liquid
REACH: 05-2117310704-54-0000
Company name:

Phone:
Fax:
E-mail: info@puremaintenance.com
Home page:
Emergency Number: CHEMTREC +1-703-527-3887

02. Hazards Identification

Component	EINECS	CAS	Amount w/w [%]	Symbol/ R-phrases
Hydrogen Peroxide	231-765-0	7722-84-1	20-24	O, C, R 22-41
Peracetic Acid	201-186-8	79-21-0	4-6	Xi, R 34
Acetic Acid	200-580-7	64-19-7	8-10	Xi, R 36/38

03. Composition/Information on Ingredients

The product is an Oxidizer and Corrosive that can cause burns. Direct contact could cause irreversible damage to eyes and skin tissue. Irritating to the respiratory system.

04. First Aid Measures

General
If clothing is contaminated, remove clothing, and wash clothing before reusing.

Eyes and skin
Flush immediately with excess water for at least 15 minutes. If burn or irritation has occurred, seek medical attention.

Ingestion
Drink large amounts of water. Do not induce vomiting. Seek medical attention if necessary.

Inhalation
Move to fresh air and breathe deeply. Seek medical attention if necessary.

05. Fire Fighting Measures
Extinguishing Media
Water spray / Foam / CO_2 / dry chemicals

Extinguishing Media to Avoid
Direct water jet.

Exposure Risks from Combustion Product / Gases
Danger of developing toxic Pyrolyse products.

Special Equipment for Fire-fighters
Protect the respiratory ways. Use visors and gloves.

Additional Measures
Cool risky containers with water spray. Damaged products and contaminated water shall be disposed according to local laws and requirements.

06. Accidental Release Measures

Personal Precautions
Put on eye protection, protective gloves, boots, clothing and a respirator if air contamination is above the permitted levels. Arrange sufficient ventilation of air. People should move away from any vapors in the contaminated area.

Environmental Precautions
In case of accidental spillage, contain the spill and neutralize it with sodium bicarbonate or sodium carbonate.

If allowed by local legislation:
Flush spill to the sewer. If mops, towels, paper towel or similar material is used, insure that these items are thoroughly rinsed with large amounts of water. Do not reuse the liquid material.

07. Handling and Storage

Handling
Keep container closed by using a vented cap. Do not transfer product from original container and once the product has been removed, do not return to the original container. Exhaust required at point of use.

Fire- and Explosion
Degradation of this product produces oxygen; keep away from heating/ignition sources. Do not smoke.

Storage
Store in a cool dry area (below 24ºC) away from heating sources. Heating will lead to pressure increase and danger of bursting the container. Floor needs a protective coating against acid.

Combined Storage
Do not store with flammable materials, metals, oxidizing or caustic materials.

08. Exposure Controls/Personal Protection

Technical Measures
Assure sufficient air exhaust and supply of fresh air.

Exposure limits at work place Component
Acetic Acid MAK/TLV: 10ppm, MAK/TLV: 25 mg/m3, F=1=(DFG, EU) **Hydrogen Peroxide** MAK/TLV: 1ppm, MAK/TLV: 1,4 mg/m3, F=1=(DFG)
MAK = maximum work place concentration, TLV = Threshold Limit Value, F = Factor, Short Limit value.

Respiratory protection
If air contamination is above the permitted levels, use a mask for acid vapors, Combination filter B-P2.

Hand protection
Protective gloves. (e.g. nitrite, latex, neoprene) Refer to glove manufacturer specifications for compatibility.

Eye protection
Safety glasses or goggles. A face shield should be worn when splashes are likely.

Skin protection
Protective apron should be worn when splashes are likely. Rubber boots should be used for spill response.

General Measures
Avoid contact with eyes and skin. Do not breathe gases / vapors / aerosols.

Hygienic Measures
Do not eat, drink, or smoke. Immediately remove contaminated clothing. Wash hands before breaks and at end of shift. Preventive hand care by hand crème.

Limitation and Monitoring of Environmental Emission
Not determined.

09. Physical and Chemical Properties

Physical state:	liquid
Appearance:	clear
Odor:	acid, pungent
pH:	0,8 ± 0,3
Boiling point [ºC]:	Not determined
Flashing point [ºC]:	Not determined
Ignition conditions:	Not determined
Lower explosion limit:	Not determined
Upper explosion limit:	Not determined
Fire fortifying:	Yes
Vapor pressure at 50ºC [kPA]:	<110
Vapor density [g/ml]:	Not determined
Specific gravity (H_2O) [kg/l]:	1.090 – 1.140
Solubility in water (by weight):	complete
Ratio n-Octanol / Water:	Not determined
Viscosity:	Not determined
Relative vapour density relative to air:	Not determined
Evaporation rate:	Not determined
Freezing point [ºC]:	Not determined
Melting point [ºC]:	Not determined
Self-reactivity:	Not a self reactive substance

10. Stability and Reactivity

Materials to Avoid
Avoid heavy metals including iron, copper, copper alloys, brass and aluminium, salts, flammable organics, alkalis, caustics, chlorine and formaldehyde.

Stability
Product is stable.

Conditions to Avoid
Avoid direct sunlight, heat and hot storage (>24°C).

Hazardous Decomposition
Oxygen & Heat. Do not mix with chlorinated products as this could liberate toxic corrosive chlorine gas.

Hazardous Polymerisation
Will not occur

11. Toxicological Information

Effects from Eye Contact
Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, significantly impaired vision or potentially a complete loss of vision.

Effects from Skin Contact
Corrosive (Skin Burns): Signs/symptoms may include turning the skin chalky white, swelling, itching, intense pain, blistering, and potential tissue destruction.

Effects from Inhalation
Upper Respiratory Tract Irritation: Signs/ symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Effects from Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

12. Environmental Information
This product has been tested and determined to be toxic to fish and aquatic invertebrates:
• Daphnia Magna / Water Flea: LC50 2.61 mg ai/L
• Rainbow Trout: LC50 6.68 mg ai/L
• Bluegill: LC50 4.25 mg ai/L

13. Disposal Considerations

Product Disposal
Dispose of this product in accordance with all applicable European and Local regulations.

Disposal of Bottle and Packaging
Bottles and packaging can be disposed according European and Local regulations. Bottles should be thoroughly rinsed before disposal.

14. Transportation Information
14.1 Classification according to ADR

ADR class:	5.1
Proper Shipping Name:	UN3149 Hydrogen Peroxide and Peracetic Acid Mixture, Stabilized 5.1 (8) II
UN number:	UN 3149
Factor, ADR 1.1.3.6:	3
Transport Emergency Card:	58
Labeling:	5.1 & 8
LQ, ADR 3.4.6:	LQ10
Vapor pressure [kPa]:	<110, [50°C]

14.2 Classification according to IMDG

IMDG-Code Number:	5.1
Proper Shipping Name:	Hydrogen Peroxide and Peracetic Acid Mixture, Stabilized 5.1 8 UN 3149 II
Classification:	Hydrogen Peroxide and Peracetic Acid Mixture, Stabilized UN 3149
EmS:	5.1-02
Labeling:	5.1 & 8
LQ, ADR [l/kg]	0,5

14.3 Classification according to IATA
Forbidden for transported by air.

15. Regulatory Information
The product is classified and marked according to EC-Guidelines

In accordance with Directives 67/548/EEC and 1999/45/EC this product is classified as corrosive and oxidising,

Risk Phrases
R 22: Harmful if swallowed.
R 34: Causes burns.
R 36/38: Irritating to eyes and skin.
R 41: Risk of serious damage to eyes.

Safety Phrases
S 3/7: Keep container tightly closed in a cool place. Only use vented caps.
S 14: Keep away from identified in Section 7: *Handling and Storage*.
S 23: Do not breathe gas/fumes/vapour/spray.
S 26: In case of contact with the eyes, rinse immediately with plenty of water and seek medical advice.
S 28: After contact with skin immediately flush affect area with copious amounts of water.
S 36/37/39: Wear suitable protective clothing, gloves and eye/face protection
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 61: Avoid release to the environment. Refer to Section 13: *Disposal Considerations*.

National Legislation
Follow all relevant national laws or other national relevant measures

16. Other information
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge. This information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated in this document and may not be valid if the product is used in combination with any other materials or processes, unless specified in the text.

Guidelines
- 2001/58/EC
- 67/548/EEC
- 1999/45/EC
- 91/689/EEC
- 1907/2006/EC
- ADR (2003)
- IMDG-Code (30. Amdt.)
- IATA-DGR (2003)

EverPURE

MATERIAL SAFETY DATA SHEET

I. IDENTIFICATION:

MANUFACTURER ..... PureShield Inc.
.....
.....
.....
info@puremaintenance.com
.
EMERGENCY PHONE NUMBER ....InfoTrac 800-535-5053 (day/night)
PRODUCT NAME .....
CHEMICAL FAMILY .....Organosilane
EPA Registration # 87583-2
Last Revision Date 7/8/2011

II. PHYSICAL DATA

BOILING POINT.....	>210°F	SOLUBILITY (WATER).....	Soluble
VAPOR PRESSURE	N/A	ODOR.....	Mild
VAPOR DENSITY	N/A	APPEARANCE.....	Clear liquid
% VOLATILES.....	ND	EVAPORATION RATE	(water =1)
pH of PRODUCT	approx 5.0	SPECIFIC GRAVITY	1.003

III. CHEMICAL COMPONENTS

	COMPONENT	C.A.S.#	HAZARD	from% - to%	T.L.V.
(1)	3-(Trimethoxysilyl) propyldimethyloctadecyl ammonium	27668-52-6	Irritant	5.00 %	None

IV. FIRE AND EXPLOSION DATA

FLASH POINT (°F)..... N/A
FLAMMABLE LIMITS: (upper) N/A (lower) N/A
EXTINGUISHING MEDIA .. Dry chemicals, foam, carbon dioxide, water spray.
SPECIAL FIRE-FIGHTING PROCEDURES ....Must be equipped with self contained breathing apparatus.
Cool heated drums with water spray to prevent bursting.
UNUSUAL FIRE AND EXPLOSION HAZARDS... None

V. HEALTH HAZARD DATA

Harmful if swallowed, inhaled or absorbed through the skin.
TLV..... NO ACGIH TLV PUBLISHED PEL..... NO OSHA PEL PUBLISHED
EYES..... Prolonged contact may cause irritation.
SKIN ..... Prolonged contact may cause irritation.
INHALATION Harmful if inhaled.
INGESTION .. Harmful if swallowed.
EFFECTS OF OVEREXPOSURE...Not known

********** **FIRST AID** **********

EYES: Flush with plenty of water for at least 15 minutes. If irritation persists, get medical attention.

SKIN: Remove clothing if necessary, rinse skin, if irritation persists get medical attention.

INHALATION: Remove to fresh air. If not breathing, Call 911 and then give artificial respiration.

INGESTION: Do not induce vomiting. Call a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not give anything to an unconscious person.

In all cases call Poison Control Center or Doctor for treatment advice.

VI. REACTIVITY DATA

STABILITY ..... STABLE
CONDITIONS TO AVOID ..... Do not mix with cleaners, do not freeze, and avoid heat.

INCOMPATIBILITY..... Sodium oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS:
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID:

VII. SPILL OR LEAK PROCEDURES

__X__ STOP FLOW	__X__ AVOID SKIN CONTACT	_____ BURY IN REMOTE AREA
_____ NEUTRALIZE	_____ ELIMINATE ALL SOURCES OF IGNITION OR FLAME	__X__ OBSERVE FEDERAL SPILL & WATER QUALITY REGULATIONS
__X__ ABSORB OR SCRAPE UP MATERIAL	_____ WASH AWAY WITH WATER	
__X__ AVOID INHALATION	_____ VACUUM UP	_____ USE AS LANDFILL

DISPOSAL CONSIDERATION

Product/Soil/Water maybe subject to RCRA/OSHA hazardous waste. Landfill solids at permitted sites.
Follow all federal, state and local waste management regulations.. Where permissible, consider discharge to TW, biological treatment, or incineration.
To inactivate product, add anionic surface or detergent in equal amount to the product.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY..... Utilize respiratory equipment in accordance to 29 CFR1910.134 if other protective measures do not control adequately control exposures.
SKIN..... Rubber or plastic gloves
EYES..... To avoid eye contact wear goggles
VENTILATION..... __X__General Ventilation _____Local Exhaust
OTHER PROTECTION Consider long sleeves, long pants, and apron. Eye wash and safety shower should be in area of use.

IX. SPECIAL PRECAUTION

No special precautions beyond routine prudent safe handling of chemical substances are necessary.

X. REGULATORY INFORMATION

DOT SHIPPING NAME..... NOT REGULATAED BY DOT
HAZARD CLASS / # ..... NONE / PACKING GROUP:
UN/NA ..... NONE REPORTABLE QTY /
S.A.R.A. ..... See Section III
T.S.C.A..... All chemicals are listed on the TSCA inventory
O.S.H.A. HAZARD CLASS: HEALTH .....2 REACTIVITY.....1
FLAMMABILITY .....0 PERSONAL PROTECTION .....B

XI. MISCELLANEOUS

COMPANY CONTACT: Dan Hill

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14. ABSTRACT

Mold is an ongoing problem for Army installations and contingency basing locations. This work was undertaken to demonstrate the effectiveness of a two-step dry-fog mold remediation process technology to remove mold spores and provide long-term mold prevention in two buildings at Fort Campbell, KY. Treating each test building took 5 to 6 hours and included: mobilization, air and surface sampling before and after the application, and demobilization. This work concluded that the dry-fog technology provides rapid and quantifiable improvements to indoor air quality, and reduces exposure of personnel to harmful chemicals resulting from current mold remediation practices. Results indicated that the dry-fog technology could potentially support mold remediation needs resulting from indoor air quality maintenance and from natural hazards. Current rough estimates for application of the dry-fog technology are approximately $1.00/sq ft. Early project results were shared with Region IV of the Federal Emergency Management Agency (FEMA) and the Huntington District of the U.S. Army's Corps of Engineers.

15. SUBJECT TERMS
Molds (Fungi)—Control, Indoor air quality, Indoor air pollution—Research, Military bases, Buildings

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