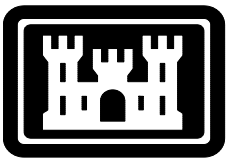

US Army Corps
of Engineers
Baltimore District

ENVIRONMENTAL HEALTH FACILITY ASSESSMENT

Ft. Myer Building 248
Joint Base Myer-Henderson Hall, VA

Prepared: 3 December 2018

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Executive Summary

Joint Base Myer-Henderson Hall (JBM-HH) recently identified mold in a number of their facilities. The Installation requested USACE perform a Hazardous Material (HAZMAT) survey and facility evaluation for all occupied facilities. The HAZMAT survey examined indoor air quality, including mold spore trap sampling; and asbestos, lead based paint, polychlorinated biphenyls (PCBs), and Mercury. High-priority facilities were identified by the Installation and are being surveyed by an in-house USACE team. This environmental health facility assessment is the product of a multi-disciplinary in-house USACE team that consisted of two components. The first component were the industrial hygienists from the Environmental and Munitions Design Center (EMDC) who were tasked with conducting the HAZMAT survey using non-destructive sampling techniques. The second team were architects and engineers from the Military Design Branch, tasked with evaluating the facility to determine which elements or systems are contributing to mold production by permitting water infiltration or uncontrolled humidity.

An extensive vermin infestation was evident in the basement and first floor; the team recommended relocating tenants until the problem is under control. The team was able to identify multiple locations in Building 248 where mold spore count was elevated, with eight rooms at a level 10 times that of the background (ambient outdoor) spore concentration. The primary cause of this mold growth is an HVAC system failing to control temperature, humidity, and to properly ventilate the facility. Exhaust fans and drain piping were also failing to remove moisture and vapors. This report describes the team's findings and offers several recommendations for both short-term and long-term solutions.

Building 248, Fort Myer
78,803 SQFT
Barracks

CONTAMINANTS IDENTIFIED

[X] Rodents	[X] Mold	[ ] Lead Paint
[ ] PCBs	[ ] Asbestos	[ ] Sewer Gases
[ ] Mercury	[ ] Radon	[ ] Radioactive Material

User-Level Recommendations Summary

- Sanitize all nonporous surfaces
- Use dehumidifiers inside affected areas
- Resolve AHU-1 fault
- Relocate tenants in vermin infested areas
- Repair and sanitize all AHUs and FCUs

Short-Term Recommendations Summary

- Remove vermin and decontaminate areas
- Stop water leaks
- Repair fan coil units and replace filters
- Replace water damaged ceiling tiles
- Provide air conditioner and purge inside air
- Repair exhaust equipment
- Replace damaged pipe, duct, and fitting insulation, ceiling tiles, and dry wall
- Weekly snaking of basement mechanical room sump pump line. Provide proper ventilation.
- Grade 5% away from building and create swales
- Seal all building seams and windows
- Ensure proper downspout function
- Repair gutter and inspect roof
- Improve HVAC O&M practices (see details)
- Repair pneumatic controls air compressor, replace CHU, fan belt, and air dryer. Drain water out of existing lines.

Total $ 709K

Long-Term Recommendations Summary

- Replace sump pump line
- New exhaust system in shower and dressing areas
- Provide adequate make up air in living quarters
- Replace roof, windows, and foundation wall
- Replace all FCUs with year-round 4-pipe units
- Convert hydronic system from 2-pipe to 4-pipe
- Consider cross-connecting Chilled Water Plan 252 and 255 and operating at least one plant year-round.
- Replace exhaust fans in attic and rebalance exhaust air ductwork
- Provide new AHUs
- Install new air systems dedicated to steam press room capable of dehumidification and cooling year-round.

Total $ 9.1M

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Site Location Map

Report Narrative

1.0 GENERAL

1.1 Facility: Building 248 at Fort Myer, Virginia

1.2 General Facility Information:

Facility Total Occupied Square Footage: 78,800 sqft (does not include attic)

Number of Stories Below-Grade: Basement

Number of Stories Above-Grade: 3 (occupied attic)

Approximate Date of Construction: 1930

Facility Use/Function: Barracks. Ancillary uses are Storage, Offices, and Utility Spaces.

Construction Type: Masonry exterior walls, reinforced concrete frame, wood timber roof construction with slate shingles, interior partitions mixed between CMU and wood-stud

Known Significant Recent Rehabilitation Projects:

- Major Renovation in 1998

1.3 General Facility Description:

Building 248 serves as living quarters as well as office area for the soldiers attached to both Bravo and Hotel Company of the Old Guard (TOG). The building is divided into two sides. The A and B sides are populated by the Hotel and Bravo Company, respectively. Office spaces are located in the upper floors.

1.4 Environmental Health Contaminants Summary:

Lead Paint: Not found

Asbestos: Not found

Rodents: Extensive vermin infestation was identified on the first floor and in the basement

Mold: Mold located throughout

Gases: Uncovered sump pump pit identified in basement

1.5 Cost Estimating:

Long Term Solution: The Design Build fee is estimated $640,000, or 7% of the ROM construction cost. PACES was used to calculate costs associated with all long term recommendations within the facility. This software is used to determine parametric level cost estimates based on building size and type and the level of work for various disciplines. Site improvements were estimated by developing quantities and using MII software. The cost estimate is parametric level and should be viewed as a rough order of magnitude. It is not possible to accurately estimate costs without a more definitive scope of work. The following assumptions were made in development of the IGE:

- 60% of the HVAC system needs to be replaced, but some elements (like piping and ductwork) just require reinsulating and re-balancing and maybe some minor extensions or reconfigurations.
- 40% of plumbing may need repair, including modifying DW&V systems for IAQ and repair/replace grinder pump.
- 30% of ceilings may need to be patched/replaced.
- 10% of lighting and electrical fixtures may need replacement due to water/mold damage.
- 10% of plumbing fixtures, including shower pans, sinks, and water fountains may need replacement.
- 10% of wall finishes needs patch/repair work.

  Total ROM for construction cost (including 25% Design Contingency) is $9.1 million.

Short Term Solution: MII software was used to estimate the costs based on site survey and visual inspection. The following assumptions were made in developing the costs for short term solution:

- Concrete Joint. Assume the whole length where the exterior wall meets concrete pavement. ($5,200)
- Re-grade the needed exterior areas to divert water away from bldg. ($6,000)
- Minor gutter repairs. ($2,000)
- Caulking all windows ($19,000)
- Encapsulate lead paint at exterior stairwells ($4,200).
- Unclog floor drains and grinder pump pipe. Assume 3 each. ($2,600)
- Replace gypsum wall board where mold growth is visual. Assume 500 SF ($2000)
- Replace duct insulation and pipe insulation as needed. Assume (500 sf of duct insulation and 260 lf of pipe insulation. ($54,300)

- Roof inspections ($5,100).
- Replace damaged ceiling tiles. Assume 230 SF. ($4,100)
- Service chiller ($6,300)
- Chiller controls and temperature balance. Assume 100 points. ($214,000)
- Replace 2 windows ($5,200).
- Replace FCUs and Condensers. Assume 50 each ($263,000)
- Misc HVAC Repairs ($116,000)

Total ROM cost of short term solution is $709,000

2.0 Industrial Hygiene: Indoor Air Quality (IAQ) and Hazardous Material (HAZMAT)

NOTE: This narrative is a summary of the IAQ and HAZMAT Report contained in Attachment D, which was written by USACE in-house industrial hygienists.

2.1 Indoor Air Quality Assessment

2.1.1 Ventilation, Humidity, and Temperature Measurements

Methods: A calibrated IAQ monitor was used to measure temperature, relative humidity (rH), carbon monoxide (CO), and carbon dioxide (CO_2) levels inside of Building 248. These measurements were made in each area where spore trap samples were collected (see section 2.2.2 below).

Temperature and Humidity: On October 5, 2018 the temperature from readings from Building 248 ranged from 76 deg-F to 81 deg-F. The indoor relative humidity ranged from 41% to 70% (refer to Attachment D Table 1). Humidity readings also showed that the elevated temperature and relative humidity are conducive of condensation in cool surface area and uninsulated pipes above suspended ceiling. The areas exposed to condensation and excessive moisture are susceptible to mold growth which was evident in various areas throughout Building 248.

Carbon Monoxide (CO): Direct reading instruments showed CO levels measured in the various spaces to be between 0.0 and 0.7 parts per million (ppm) with the majority at 0.4 ppm. There is a possibility that the oxygen may be depleted due to the off gassing of the uncovered sewer pump in the basement where the levels are slightly higher. No specific sources were identified and these levels were well below the indoor CO concentration of nine (9) ppm adopted by ASHRAE from the EPA National Ambient Air Quality Standard (NAAQS) outdoor air standards (refer to Attachment D Table 1).

Carbon Dioxide (CO_2): Levels of CO_2 ranged from 460 to 1087 parts per million (ppm) with many readings similar to outdoor levels (i.e., ~460 ppm). Humans are the primary source of CO_2 in the indoor environment and when they are not present indoor levels can approach outdoor levels. The ASHRAE standard recommends maintaining a CO_2 concentration no greater than 700 ppm above outside air (OA) levels. Outside air levels during the site visit varied from 375 to 460 ppm; this means that indoor levels should be maintained below ~700 ppm. Measurements were not taken overnight during periods of typical occupancy.

2.1.2 Mold Visual Inspection and Spore Trap Samples

Methods: This survey consisted of spore trap sampling. Spore trap sampling was used to determine the ambient airborne concentration of viable and nonviable mold spores. Each sample was run for 5 minutes at 15 L/min for a total air volume of 75 liters. Outdoor background samples were also collected at the end of indoor air sampling. Including the background outdoor sample, a total of eight (8) spore trap air sample were collected during the assessment of the Building 248 to capture a representative picture of possible fungal and/or particulate contamination within the building. All indoor samples were collected 4–5 feet above the ground and no closer than 3 feet to any vertical obstructions such as walls or room dividers.

Spore Trap Sampling Results:

- On October 4-5, 2018 the total viable and non-viable fungal spore concentration in Building 248 ranged from 2,580 counts/m^3 to 36,280 counts/m^3. Out of the twelve (12) rooms sampled, few were found to be below the background/outdoor concentration of 35,150 counts/m^3. On the

other hand, indoor spore count was found to be elevated in eight (8) rooms at more than ten (10) times above the background.

- The overall composition and diversity of fungi in these rooms was not entirely similar to that of the outdoor air. Specifically, *Aspergillus/Penicillium, Cladosporium, Basidiospores, Myxomycetes/Periconia/Smut,* and *Pithomyces* species were identified in some of the indoor samples but not outdoors. Some of the spores identified indoors do have the potential to cause allergies, hay fever, asthma, and hypersensitivity pneumonitis in individuals and could have originated from outdoor sources. *Aspergillus/Penicillium,* fungal spores that are good indicators of water damage in buildings, were the most dominant spore type found throughout the building.

Discussion:

- In Building 248, the spore levels measured indoors were recorded in elevated numbers for the Aspergillus/Penicillium, which can causes allergic reactions, respiratory infections, and hypersensitivity pneumonitis, an inflammation of the lungs.

- There was little to no ventilation throughout the building. Due to the poor ventilation and the various activities performed in the building such as uniform pressing in the Pressing Room, laundry, showers, and bathrooms, the moisture and steam generated for these functions has no proper way to be exhausted or eliminated from the building thereby elevating the moisture and humidity in the building.

2.2 HAZMAT Survey

2.2.1 Asbestos

Survey:

- A non-destructive asbestos survey inspection was conducted of suspected asbestos containing material (ACM) inside Office Areas, Sleeping Quarters, Hall Passageways, Mechanical Room, pipe chases, above the suspended ceiling, and inside any void where suspected ACM may be found.

- Twenty (20) confirmatory bulk samples were collected and submitted for analysis.

Results:

- The results for the material collected and sampled for Building 248 were “No Asbestos Detected” (NAD).

- Refer to Attachment D “Asbestos Sample Laboratory Results,” which also contains a summary table of the results and the description and quantity of the material.

2.2.2 Lead Paint

Survey:

- Survey was done by a lead inspector licensed in the State of Virginia from October 9-10, 2018.

- An XRF Analyzer was used for this effort. 119 XRF readings were taken in the building.

Results:

- No component types were found to be positive according to standard regulatory requirements.
- Refer to Attachment D “Lead XRF Data” for results.
- The XRF sampling data provided here is representative, but not necessarily comprehensive. Paint surfaces not inspected should be assumed to contain lead-based paint unless the data presented in this report or other data concludes that lead-based paint is not present.

2.2.3 Polychlorinated Biphenyls (PCBs)

Survey:

- A survey/inspection of light fixtures for polychlorinated biphenyls (PCBs) containing ballast inside Building 248 was conducted.

Results:

- During the random survey/inspection no PCB ballasts were observed in the existing light fixtures of accessible Office Areas, Storage Rooms, Hall Passageway, and Mechanical Rooms.

2.2.4 Mercury

Survey:

- Mercury is used in several building components, including fluorescent lamps and liquid thermometers. In fluorescent lighting, mercury-containing dust forms from the mercury vapor found within the lamps.

Results:

- Numerous fluorescent lamps were observed during the building inspection in the aforementioned Building 248. The approximate number of fluorescent bulbs in the building is 800 bulbs. It is recommended that fluorescent lamps be removed and recycled before renovation or demolition of the building. These materials can be managed in place if they will not be disturbed during renovation activities.
- No mercury Thermostat or exit signs were observed or identified.

2.2.5 Radioactive Material

Survey:

- Radioactive material is sometimes found in smoke detectors and exit signs. These elements were visually inspected during the site survey.

Results:

- No smoke detectors containing radioactive material were observed.
- No exit signs containing radioactive material were observed.

2.2.5 Radon

A Health Physicist review of available 1989 radon data for numerous facilities located on the installation indicates that the majority of the test results are well below the EPA Guidelines of 4pCi/L. Given the upcoming maintenance and renovation of the buildings assigned for assessment, coupled with the historic testing results, there is no imminent need for additional testing. See Attachment E for available data.

USACE recommends that post maintenance/renovation radon testing be included in respective scopes of work to be performed. Further, recommend that every effort be made to recover all radon records for all installation facilities and that an installation Toxic Management Team be established per TB 200-1-244 guidance.

2.2.6 Pest Control

- Personnel noted that the odor of vermin excrement and urine was pronounced in the basement and first floor of building 248.
- There was an extensive amount of visible droppings throughout the basement and first floor of the building. Droppings were present in some of the first floor fan coil units and above the suspended ceiling.
- No vermin infestation was witnessed beyond the basement and first floor.

2.3 User-Level Recommendations:

2.3.1	Sanitize all nonporous surfaces
2.3.2	Use a dehumidifier inside affected areas (Note: Additional individual dehumidifying units will increase the temperature and increase nuisance noise pollution in the spaces.)

2.4 Short-Term Recommendations (See IH Report for Additional Details):

2.4.1	Until the vermin infestation is under control all ceiling tiles should be removed completely on the Basement and First Floors of this building and not replaced until the active vermin issue is under control. In addition to removing suspended ceiling tile, all associated suspended ceiling metal grid will need to be HEPA vacuumed followed by being sanitized as it harbors dry vermin feces and urine. We highly recommend that the ceiling tiles along the areas affected by vermin infestation not be replaced until the building is properly treated and sealed as it provides a harboring and breeding space for the vermin. The current pest control site visits should be increased until the vermin infestation is brought under control. The personnel currently in Office areas and living quarters on the Basement and First Floors of the building should be relocated until the active vermin issue is brought under control. The basement supplies consisting of MRE food items should be relocated to an area with solid walls and ceiling to prevent vermin infestation. All penetrations into the building should be sealed to prevent vermin from entering the building. Kitchen and areas that harbor food should be kept clean and free of food debris as prevention measures to not attract the vermin to other occupied living spaces. Review and revise pest control contracts to reflect the need of carcass disposal and maintenance at Building 248. Seek professional help for rat feces and urine cleanup and removal. When performing decontamination after complete rat removal is accomplished, it's preferable that you wear gloves, a full biohazard suit, and a HEPA filter mask. Rat decontamination is a serious task; therefore, it is recommended that specialized, professional, and trained staff is hired to handle the remediation.
2.4.2	Stop water leaks into affected areas.
2.4.3	Repair and sanitize fan coil units, replace filters.
2.4.4	Remove and replace all water damaged ceiling tiles
2.4.5	Provide air conditioner for the area and purge the air inside with a mini HEPA unit for 24-48 hours. Follow this action by collecting spore trap air samples inside the affected areas and outside the building.
2.4.6	Repair exhaust equipment

2.4.7	Remove and replace water damaged pipe and fitting insulation, ceiling tiles, and dry wall impacted with mold.
2.4.8	Basement mechanical room sump pump line should be snaked out weekly to maintain an open line. Provide ventilation exhaust fan to vent area and provide a cover for the sump pump waste water holding area.

2.5 Long-Term Recommendations:

2.4.1	Replace HVAC and fan coil units, provide make up air inside affected areas.
2.4.2	Replace sump pump line.
2.4.3	New exhaust system in shower and dressing areas.
2.4.4	Provide adequate make up air in all living quarters.

3.0 Site

3.1 Description

Building 248 fronts to Sheridan Avenue on its East exposure. There is a grassy lawn approximately 30-ft in width between the facility and the road. It is bordered on it's other sides by alleys: Macomb Place on the South, Wainwright Road on the West, and Kendall Place on the North. Building 248 is a U-shaped Barracks with a brick paver courtyard in the rear of the facility (West).

3.2 Observations and Discussion:

1. Grading: Several areas grade steeply toward the building.

2. Windows: Several window sills are at grade or below.

3. Drains: Area drains in the courtyard are 2" above grade.

4. Pavement Seams: Seams between the building concrete pavements are open and allow water to gather next to the wall.

5. Roof Drains: There are several problems with the downspouts that allow water to pond next to the building.

3.3 User-Level Recommendations: (none)

3.4 Short-Term Recommendations:

3.4.1	Grade 5% away from the building along all exterior walls and create swales to carry the water away.
3.4.2	Lower the grade around the windows so the entire sills are above the ground. Grade away to prevent water from ponding next to the exterior wall.
3.4.3	Lower the tops of the area drains and grade shallow sumps around the drains.
3.4.4	Seal all seams against the building.
3.4.5	Make sure all downspout ends have 45 degree bends, splash blocks or pipe extensions, and slope away from the building without ponding.

3.5 Long-Term Recommendations:

3.5.1	Add retaining walls where necessary to eliminate steep grades toward the building.

4.0 Architecture

4.1 Description

Building 248 is a U-shaped mixed use office and barracks building located on Sheridan Ave north of the intersection with Gorgas St. The roof is a pitched slate roof with copper gutters and downspouts. Windows and doors are wooden.

4.2 Observations and Discussion:

Roof: The roof on Building 248 appears to be in poor condition when visually inspected. There was a leak noticed on the roof of the south wing.

Gutters, Downspouts, and Roof Drains: Most are in decent condition, however, a bent gutter on the inner courtyard side of the roof dumps water onto the stair landing next to the basement door. Water infiltrates the door, flooding a portion of the basement.

Exterior Walls: Repoint Foundation wall.

Windows and Doors: The sealant around many of the windows is failing and the windows need replaced. In some instances, drafty windows may be contributing to mold issues.

Indoor Air Quality: Air throughout building is humid, this issue is especially noticeable in the basement as mold/mildew is growing on clothes.

Finishes: Stains on ceilings, particularly in corridors. Several instances of mold in offices along south wing. Sprawling concrete of basement “ceiling” near chimney.

4.3 User-Level Recommendations: (none)

4.4 Short-Term Recommendations:

4.4.1	Roof inspection to identify roof condition more precisely and any potential leaks that were not observed during the visual inspection.
4.4.2	Check for bent gutters and ensure downspouts are directing water away from building. Repair gutter at inner courtyard that dumps water onto stair landing next to basement door.
4.4.3	Seal around windows. Replace 2 broken windows.
4.4.4	Replace ceiling tiles once source of staining/mold is identified and issue is resolved.

4.5 Long-Term Recommendations:

4.5.1	Replace roof

4.5.2	Replace windows
4.5.3	Repoint Foundation wall

5.0 Mechanical

5.1 Description

Survey: The survey of the mechanical systems in this facility focused only on heating, ventilation, and air conditioning (HVAC) systems and plumbing systems. The survey consisted of visual observations only. It was not possible to fully survey the entire system(s) due to time constrains, occasional locked doors, and an inability to access above-ceiling spaces. We were instructed not to disturb the suspended ceiling tiles in order not to introduce excessive amounts of dust and contaminants (e.g. rat feces) to the continuously occupied facility.

Ventilation:

Building 248 is ventilated by three air handling units (AHU) located in the Basement. During our survey we were only able to access AHU-1, which was down on a duct smoke alarm at the time. Due to lack of reliable gauges we were not able to determine the supply air temperatures being produced. We were not able to assess the condition of the ductwork. During the walkthrough several exterior doors and stair doors were propped open in addition to multiple open windows. For this reason it was not possible to determine if all parts of the building were being adequately ventilated; however, from a cursory review of the plans it seemed that adequate ventilation is occurring at least in the sleeping rooms. A more comprehensive review of the system (including exhaust systems) is required to determine if adequate ventilation is being provided to maintain an appropriate air balance, adequate air changes, slight positive building pressure relative to the outside, and adequate makeup air to negative pressure zones like rest rooms and locker rooms.

Unit Tag	Location	Area Serving	Description
AHU-1	Mech Rm 0001 (Basement Central)	East half of the 1st, 2nd, and 3rd floors	Constant volume AHU with heating and cooling coil (4-pipe)
AHU-2	Mech Rm 0014 (Basement SW Corner)	South Wing of Basement, 1st, 2nd, and 3rd Floors	Constant volume AHU with heating and cooling coil (4-pipe)
AHU-3	Mech Rm 0020 (Basement NW Corner)	South Wing of Basement, 1st, 2nd, and 3rd Floors	Constant volume AHU with heating and cooling coil (4-pipe)

Exhaust: There are multiple exhaust fans (EF) within the facility.

- EFs at 3rd Floor Attic level that serve restrooms, shower rooms, and laundry rooms.
- Wall-mounted EFs for steam press rooms 0027, 0017
- An EF located in the stairwells (4x, one in each stair) and doors to these stairs have been propped open. The EF is a wall-mounted direct-driven prop fan. This fan is controlled by a digital scheduler and was observed operating.
- One each (3 total) exhaust fans located within the basement mechanical room.

Temperature Control:

- Temperature control in individual zones is achieved by 2-pipe fan coil units (FCUs). Most FCUs are non-recessed console-type and sit on the floor under window sills. Some FCUs are ceiling-hung exposed or above suspended ceilings – these are located in utility spaces, laundry rooms, and steam press rooms.

- Utility spaces are semi-heated by hot water unit heaters.

- 4x small residential-style DX air-cooled condenser unit are located outside in the courtyard. It was not clear which interior zone this unit serves, though it is likely serving the steam press rooms.

- Many window-units were observed around the building, indicating widespread failure of the fan coil units to control temperature in the summer months. 20 units on the S. side (+3 at attic level), 1 on the W. side, 21 units on the N. side (+3 at attic level), 8 units on the E. side, and 22 units in the courtyard facing exposures (+1 at attic level).

Natural Gas Service: This facility has natural gas service. The meter and service entry is on the E. Side of the building near the front door. Gas service goes to the heating hot water (HHW) boilers and the single domestic hot water (DHW) boiler.

Automatic Controls: Controls in this building are a mix of direct digital control and closed-loop pneumatic control.

- The air compressor is located in the central basement mechanical room. This unit has two belt-driven reciprocating compressors (one functional and one not).

- Honeywell DDC controls are used for the boiler plant and the summer/winter switchover. The boiler plant and Honeywell controls are owned by PGov.

Central Chilled Water (CHW) Plant: The facility is served by a chilled water plant located on post. This plant (Building 252) is a “windowless” sub-grade facility located south of this site on Sheridan Ave. The plant consists of two water-cooled chillers and two cooling towers and serves Buildings 251, 250, 249, 248, 247, 246, and 416. This plant is owned and operated by Constellation. There are PGov tags on equipment in the plant. This plant is operated seasonally (not during heating season) since the buildings it serves are configured as 2-pipe systems. During the site investigation a Carrier chiller technician was servicing one of the chillers (oil change and filter replacement).

- Chillers: Carrier Mod. No. 23XRV3030NRVAA5 (x2, identical)
  Installed 2011
  Nominal Capacity: 300 Tons (each)
  CHWS Temp: 45.1 deg-F CHWR Temp: 53.4 deg-F
  Live Current: 43%

- Cooling Towers: BAC Mod. No. 3436A-2 (x2, identical)
  Installed 2011
  Condenser Water Temperatures: 79.0 deg-F / 84.3 deg-F

- CHW Pumps: Toshiba Mod. No. B0254VLF2UMH01 (x2, identical)
  720 GPM, 90 FT. HD., 25 HP, 1800 RPM

- Condenser Pumps: Toshiba Mod. No. B0204DLF1USH01 (x2, identical)
  256 GPM, 66 FT. HD., 7.5 HP, 1800 RPM

- CHW Supply Temperature: CHW supply temperature was confirmed to be 45 deg-F at a temperature gauge in the attic of Building 249. When this observation was made, outdoor temperature was 85 deg-F w/ 40% rH and only one chiller and one tower was operating.

Heating Hot Water (HHW) Plant: There are two boilers located in the Basement Mechanical Room. The HHW boilers are operated only in heating season. Both boilers are manually disabled.

- HHW Boilers: Lochinvar Mod. No. IBN 2000 (x2, identical)

Dual-Temperature (DT) Hydronic System: This facility has a summer/winter manual switch located in the basement mechanical room. Two (2) distribution pumps are located in the same room. One pump is down but both were enabled.

- Dual Temp Pumps: Bell & Gossett (x2, identical)
  270 GPM, 40 FT. HD., 5 HP, 1800 RPM

Domestic Booster Pump: A duplex-style domestic water booster pump with tank is located in the basement mechanical room.

Domestic Hot Water (DHW) Heating: The domestic hot water (DHW) plant consists of a boiler and a storage tank. The plant was observed to be operating normally.

- DHW Boiler: Lochinvar Mod. No. AWN 601PM

5.2 Observations and Discussion:

Mold growth is occurring in this facility for a combination of the following reasons. Unfortunately it is not possible to rank these causes in terms of how much they are contributing to the larger issue, so the recommendations are intended to address all of the below.

- Rain water infiltration occurring at roof leaks, around un-sealed windows, and through the basement wall in one location. There is a major failure of the roof gutter that is allowing rain water to spill down the exterior wall in the courtyard and enter the basement at the basement entrance areaway. Rain water enters the fire pump room through a large crack in the deck above. And there appears to be grading issues on the SW corner of the building that may be causing rainwater infiltration through the basement wall in that section of the facility. There is damage to the foundation wall at the NE corner of the facility that may be admitting rainwater.

- Water infiltration is also occurring at windows due to high numbers of window AC units

- Unconditioned outdoor air infiltration. This is occurring through exterior doors and windows that are left open when the HVAC systems fail to control temperature adequately. It is also occurring around window units which have damaged sashes. Air infiltration occurs around windows and doors even when they are closed due the need for weather-stripping and sealing. When the doors are kept closed, it appears that the HVAC system causing excessive air infiltration by creating negative air pressure in some zones relative to the outdoor. Some parts of the building are under-ventilated and are therefore likely pressure neutral relative to outside. The ventilating AHUs require servicing and re-balancing. But some parts of the building, particularly the stair

tower and adjoining areas, are pressure negative due to the unusual presence of an exhaust fan in the stair.

- Humid ventilation. The ventilating AHUs, which are intended to introduce outdoor air into the facility, are not removing enough moisture from the air. In the summer this could be due to the fact that the unit itself is possibly under-sized and poorly balanced, though further evaluation is needed to confirm this. During the heating season, however, the unit is not capable of dehumidifying because it operates like a 2-pipe unit and only gets chilled water in the cooling season and hot water in the heating season. There will always be the odd day during the heating season where the weather outside is warm and humid. Some years this occurs frequently and for long periods of time. During those days, if the system is still set to heating season, the air handler will bring in humid outdoor air and will be unable to dehumidify it for lack of chilled water (the air must be cooled to 55 deg-F to cause the moisture to condense on the coil).

- Exhaust fans serving shower and locker rooms appear to be undersized or poorly balanced, resulting in insufficient air changes and mold/mildew growth in these spaces.

- There are several spaces in the building with high latent loads (moisture producing equipment) that do not have adequate ventilation/exhaust air changes and the terminal HVAC units serving these spaces are not capable of locally dehumidifying these zones year-round. These spaces include mechanical rooms, laundry rooms, kitchenettes, and especially steam press rooms. The systems serving these spaces are insufficient to control temperature and humidity in the space, for a number of reasons. First, for the same reason as the ventilating AHU above – some are 2-pipe FCUs and do not get chilled water during heating season. Second, fan coil units do not have deep enough coils to achieve optimal dehumidification. The steam press rooms are served by split-DX units that are reported to be slightly undersized. An HVAC system capable of providing air changes and locally dehumidifying the air year-round is required for the steam press zones.

- Temperatures in many areas of the facility are un-controlled due to failing HVAC terminal units (FCUs). The FCUs are nearing the end of their useful life. The most commonly failed components on the non-functioning units are the fans and controllers. In some cases the FCUs may be undersized. Failing and/or undersized FCUs tend to exacerbate the air infiltration issue because people then feel compelled to leave windows open or install window AC units that permit air infiltration around their sashes. There are a very high number of window units, indicating that the FCUs throughout are failing. The basement seems to be particularly bad – mold growth was observed on walls and floor deck above throughout the cage storage area and on furniture in the offices (particularly in platoon leaders office, 0117, and 0112).

- Damaged or poorly installed condensate pans and drains. A common source of water throughout the facility is damaged or failing condensate pans and drains that were leaking due to overflow and corrosion. There are likely sections of condensate drains that are poorly sloped, leaking, or discharging to clogged floor drains (though this was not noted during our visual inspection).

- Multiple pipe leaks were observed in sections of the 3rd floor (3110, 3011). Pipe leaks were observed in the central basement mechanical room behind the boilers.

- Multiple cracked shower pans were observed in shower rooms, which could be allowing moisture to accumulate inside of walls and floors. In one case wallboard had been removed to repair a leak but the work had not been completed and the wallboard had not been replaced.

- Piping insulation (both dual temperature and condensate drain piping) is in poor condition in many locations of this facility. In locations where the humid indoor air comes into close contact with the cold surface of the pipe, the humidity begins to sweat and drip. Throughout the facility is common to see water-damaged ceiling tiles and floor tiles where the condensate is dripping from the pipe. In some locations, fiberglass insulation was used on the dual-temperature piping. In these locations, damage to this material eventually causes degradation of the surrounding material as it wicks the moisture down the pipe. This exacerbates the problem and eventually whole sections of insulation must be replaced. The rodent problem appears to be exacerbating the piping insulation integrity issues, especially in the Basement above the ceiling.

5.3 User-Level Recommendations:

5.3.1	Resolve the fault in AHU-1 related to a duct smoke detector false alarm. This may require replacement of the device, replacement of the filters, and cleaning of the unit.
5.3.2	Resolve the rodent infestation to stop damage to piping insulation.
5.3.3	Repair and sanitize all three AHUs and all still-functional FCUs in this facility. Clean and remove debris from coil fins. Inspect condensate pans and snake drains to ensure that they are functional and not overflowing or leaking.

5.4 Short-Term Recommendations:

5.4.1	Remove and replace water damaged pipe and fitting insulation throughout.
5.4.2	Consider postponing winter switchover until later in the Fall and moving summer switchover to earlier in the Spring. Consult with Constellation to extend cooling season operation of Chiller Plant 252.
5.4.3	Request that Constellation increase service and O&M frequency on Chiller Plant 252 to prevent unanticipated outages during the cooling season.
5.4.4	Request logs from the 252 and 255 plant chiller controllers to obtain trending data for CHWS and CHWR temperature. Ensure that the plant CHWS temperature remains at 45 deg-F in peak summer months.
5.4.5	For indicated as having high mold counts (see IH section): replace the FCU and provide a temporary means of ventilating the space (a temporary fan to exchange air with the corridor while the room is occupied, perhaps).
5.4.6	Repair the pneumatic controls air compressor in the basement mechanical room. Replace the fan belt and the air dryer. Drain water out of all the existing air lines.

5.5 Long-Term Recommendations:

Taken together, the below recommendations represent a parametric-level design of an HVAC modification project that would address all of the current system's shortcomings regarding temperature and humidity. Much further site investigation is needed to fully develop this scope. Other options might become apparent during a design effort. Please also note that, while these items are a major system modification, they are not a complete gut renovation of the mechanical systems in the facility. Some systems elements, such as the existing boilers, dual temperature piping/pumps, and ductwork are assumed to be in acceptable condition to remain in use.

5.5.1	Replace all fan coil units with new 4-pipe FCUs capable of heating and cooling year-round depending on load conditions.
5.5.2	Convert the hydronic system from 2-pipe to 4-pipe. In order to make this possible, the Chiller Plant can no longer be seasonally operated. Additionally, the boiler plant in the basement must remain up year-round. This will also require the installation of 2 new pumps in the basement mechanical room and new pipes throughout the facility (which will likely require the replacement of the ceilings in the corridors and some other spaces). Replace all existing dual-temperature insulation with elastomeric.
5.5.3	Consider cross-connecting Chilled Water Plant 252 and 255 and operating at least one of the plants year-round. During the heating season the load on the plants will be low. It will increase efficiency if one plant, or possibly just one chiller, could carry the load during the heating season. It would also significantly increase reliability of site chilled water if the plants can back each other up in the event of an outage in one plant. Cross-connection could (and probably should) be manual since the plants have different owners.
5.5.4	Replace exhaust fans in attic (x2) and re-balance the exhaust air ductwork to ensure that adequate air is being exhausted from each grille. Increase exhaust and makeup airflow to restrooms, showers, locker rooms, steam press rooms, and mechanical rooms. Minimum flow rate should comply with ASHRAE 62.
5.5.5	In the basement mechanical room, replace the exhaust fan and ensure that adequate makeup air is available by installing a door louver. Size per ANSI/ASHRAE Standards. Ensure that the mechanical room is slightly negatively pressurized relative to adjoining interior corridors and spaces.
5.5.6	Provide new AHUs in the attic capable of ventilating the building to current ASHRAE 62 guidelines, as well as providing additional outdoor air to maintain a slight positive building pressure relative to ambient and to makeup air being exhausted. These AHUs both require year-round cooling capability, either by chilled water or by DX. Year-round chilled water would require acceptance of recommendation 5.4.2 and, preferably, recommendation 5.4.3 as well.
5.5.7	Install a new air systems dedicated to the steam press room. This unit must be capable of dehumidification and cooling year-round. If reliable year-round chilled water is not provided, this unit must be a dedicated split DX unit.

5.5.8	Replace the condensate drain piping throughout the facility. Provide new piping that it properly sized, routed, sloped, and insulated. Ensure that the drains discharge to indirect connections to the sanitary system, or to mop sinks, in accordance with IPC.
5.5.9	Demolish all pneumatic single-loop controls and install a building-wide DDC control system.
5.5.10	Increase frequency of O&M activities on mechanical systems throughout the facility to comply with or exceed manufacturer recommendations.

END OF REPORT

US Army Corps
of Engineers
Baltimore District

ENVIRONMENTAL HEALTH FACILITY ASSESSMENT

Ft. Myer Building 248
Joint-Base Myer Henderson Hall, VA

Attachment A:
Photographs


Blue
Rhino


85
30


SPLIT SYSTEM A.C. UNIT
SS-1
McQuay


Haier
A036-6


Haier

US Army Corps
of Engineers
Baltimore District

ENVIRONMENTAL HEALTH FACILITY ASSESSMENT

Ft. Myer Building 248

Joint-Base Myer Henderson Hall, VA

Attachment B:

Findings & Recommendations

User-Level Recommendations:

Industrial Hygiene	
2.3.1	Sanitize all nonporous surfaces
2.3.2	Use a dehumidifier inside affected areas (Note: Additional individual dehumidifying units will increase the temperature and increase nuisance noise pollution in the spaces.)
HVAC/Mechanical	
5.3.1	Resolve the fault in AHU-1 related to a duct smoke detector false alarm. This may require replacement of the device, replacement of the filters, and cleaning of the unit.
5.3.2	Resolve the rodent infestation to stop damage to piping insulation.
5.3.3	Repair and sanitize all three AHUs and all still-functional FCUs in this facility. Clean and remove debris from coil fins. Inspect condensate pans and snake drains to ensure that they are functional and not overflowing or leaking.

Short-Term Recommendations:

Industrial Hygiene	
2.4.1	Until the vermin infestation is under control all ceiling tiles should be removed completely on the Basement and First Floors of this building and not replaced until the active vermin issue is under control. In addition to removing suspended ceiling tile, all associated suspended ceiling metal grid will need to be HEPA vacuumed followed by being sanitized as it harbors dry vermin feces and urine. We highly recommend that the ceiling tiles along the areas affected by vermin infestation not be replaced until the building is properly treated and sealed as it provides a harboring and breeding space for the vermin. The current pest control site visits should be increased until the vermin infestation is brought under control. The personnel currently in Office areas and living quarters on the Basement and First Floors of the building should be relocated until the active vermin issue is brought under control. The basement supplies consisting of MRE food items should be relocated to an area with solid walls and ceiling to prevent vermin infestation. All penetrations into the building should be sealed to prevent vermin from entering the building. Kitchen and areas that harbor food should be kept clean and free of food debris as prevention measures to not attract the vermin to other occupied living spaces. Review and revise pest control contracts to reflect the need of carcass disposal and maintenance at Building 248. Seek professional help for rat feces and urine cleanup and removal. When performing decontamination after complete rat removal is accomplished, it's preferable that you wear gloves, a full biohazard suit, and a HEPA filter mask. Rat decontamination is a serious task; therefore, it is recommended that specialized, professional, and trained staff is hired to handle the remediation.
2.4.2	Stop water leaks into affected areas.
2.4.3	Repair and sanitize fan coil units, replace filters.
2.4.4	Remove and replace all water damaged ceiling tiles
2.4.5	Provide air conditioner for the area and purge the air inside with a mini HEPA unit for 24-48 hours. Follow this action by collecting spore trap air samples inside the affected areas and outside the building.
2.4.6	Repair exhaust equipment
2.4.7	Remove and replace water damaged pipe and fitting insulation, ceiling tiles, and dry wall impacted with mold.
2.4.8	Basement mechanical room sump pump line should be snaked out weekly to maintain an open line. Provide ventilation exhaust fan to vent area and provide a cover for the sump pump waste water holding area.
Site	
3.4.1	Grade 5% away from the building along all exterior walls and create swales to carry the water away.

3.4.2	Lower the grade around the windows so the entire sills are above the ground. Grade away to prevent water from ponding next to the exterior wall.
3.4.3	Lower the tops of the area drains and grade shallow sumps around the drains.
3.4.4	Seal all seams against the building.
3.4.5	Make sure all downspout ends have 45 degree bends, splash blocks or pipe extensions, and slope away from the building without ponding.
Architectural	
4.4.1	Roof inspection to identify roof condition more precisely and any potential leaks that were not observed during the visual inspection.
4.4.2	Check for bent gutters and ensure downspouts are directing water away from building. Repair gutter at inner courtyard that dumps water onto stair landing next to basement door.
4.4.3	Seal around windows. Replace 2 broken windows.
4.4.4	Replace ceiling tiles once source of staining/mold is identified and issue is resolved.
HVAC/Mechanical	
5.4.1	Remove and replace water damaged pipe and fitting insulation throughout.
5.4.2	Consider postponing winter switchover until later in the Fall and moving summer switchover to earlier in the Spring. Consult with Constellation to extend cooling season operation of Chiller Plant 252.
5.4.3	Request that Constellation increase service and O&M frequency on Chiller Plant 252 to prevent unanticipated outages during the cooling season.
5.4.4	Request logs from the 252 and 255 plant chiller controllers to obtain trending data for CHWS and CHWR temperature. Ensure that the plant CHWS temperature remains at 45 deg-F in peak summer months.
5.4.5	For indicated as having high mold counts (see IH section): replace the FCU and provide a temporary means of ventilating the space (a temporary fan to exchange air with the corridor while the room is occupied, perhaps).
5.4.6	Repair the pneumatic controls air compressor in the basement mechanical room. Replace the fan belt and the air dryer. Drain water out of all the existing air lines.

Long-Term Recommendations:

Industrial Hygiene	
2.4.1	Replace HVAC and fan coil units, provide make up air inside affected areas.
2.4.2	Replace sump pump line.
2.4.3	New exhaust system in shower and dressing areas.
2.4.4	Provide adequate make up air in all living quarters.
Site	
3.5.1	Add retaining walls where necessary to eliminate steep grades toward the building.
Architectural	
4.5.1	Replace roof
4.5.2	Replace windows
4.5.3	Repoint Foundation wall
HVAC/Mechanical	
5.5.1	Replace all fan coil units with new 4-pipe FCUs capable of heating and cooling year-round depending on load conditions.
5.5.2	Convert the hydronic system from 2-pipe to 4-pipe. In order to make this possible, the Chiller Plant can no longer be seasonally operated. Additionally, the boiler plant in the basement must remain up year-round. This will also require the installation of 2 new pumps in the basement mechanical room and new pipes throughout the facility (which will likely require the replacement of the ceilings in the corridors and some other spaces). Replace all existing dual-temperature insulation with elastomeric.
5.5.3	Consider cross-connecting Chilled Water Plant 252 and 255 and operating at least one of the plants year-round. During the heating season the load on the plants will be low. It will increase efficiency if one plant, or possibly just one chiller, could carry the load during the heating season. It would also significantly increase reliability of site chilled water if the plants can back each other up in the event of an outage in one plant. Cross-connection could (and probably should) be manual since the plants have different owners.
5.5.4	Replace exhaust fans in attic (x2) and re-balance the exhaust air ductwork to ensure that adequate air is being exhausted from each grille. Increase exhaust and makeup airflow to restrooms, showers, locker rooms, steam press rooms, and mechanical rooms. Minimum flow rate should comply with ASHRAE 62.
5.5.5	In the basement mechanical room, replace the exhaust fan and ensure that adequate makeup air is available by installing a door louver. Size per ANSI/ASHRAE Standards. Ensure that the

	mechanical room is slightly negatively pressurized relative to adjoining interior corridors and spaces.
5.5.6	Provide new AHUs in the attic capable of ventilating the building to current ASHRAE 62 guidelines, as well as providing additional outdoor air to maintain a slight positive building pressure relative to ambient and to makeup air being exhausted. These AHUs both require year-round cooling capability, either by chilled water or by DX. Year-round chilled water would require acceptance of recommendation 5.4.2 and, preferably, recommendation 5.4.3 as well.
5.5.7	Install a new air systems dedicated to the steam press room. This unit must be capable of dehumidification and cooling year-round. If reliable year-round chilled water is not provided, this unit must be a dedicated split DX unit.

US Army Corps
of Engineers
Baltimore District

ENVIRONMENTAL HEALTH FACILITY ASSESSMENT

Ft. Myer Building 248
Joint-Base Myer Henderson Hall, VA

Attachment C:
Field Notes

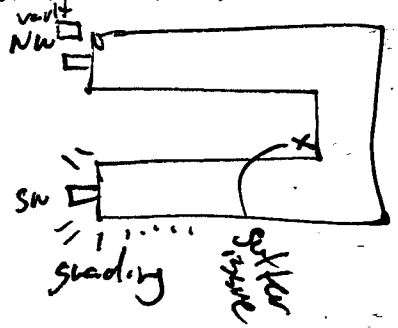
Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/3 11:00
75F Humid

- [x] Site Problems
  - [x] Topography grading S + W side
  - [x] Stormwater Drainage no issues reported but ↑
  - [x] Marshes, Bogs, and Open Water
- [x] Exterior Problems
  - [x] Exterior Building Walls
  - [x] Cooling Towers
  - [x] Roofs leak on S. side ; gutter issue
  - [x] Air Intakes 2 in basement, low grade
  - [x] Air Handling Units 1 in basement mech rm, operating, ~15yrs old
- [x] Interior Problems
  - [x] Interior Areas Near Visible Exterior Mold
  - [x] Interior Areas Near Exterior Swales and/or Drainage Systems
  - [x] Interior Areas Near Below Grade Exterior Walls
  - [x] Toilet Rooms and Bathrooms
  - [x] Kitchens
  - [x] Humidifiers (ERV's have humidifiers) x2 in attic
  - [x] Condensation/Drip Pans
  - [x] Crawl Spaces fire pump rm leak through slab
  - [x] Basements and Cellars
  - [x] Plumbing ok
  - [x] Fire Suppression Systems sprinklered
  - [x] Windows and Sliding Doors broken
  - [x] Attic Spaces inaccessible - finished/occupied attic - no access to above
  - [x] Interior Areas With Open Water or High Humidity
  - [x] Reservoir Misters
  - [x] Gas-fired and Oil-fired Heaters

Mold/Mildew Walkthrough Checklist Date: _____ Engineer: _____ Building No. 248

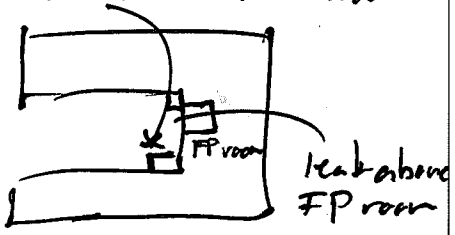
Observation	Short Term Recommendation	Long Term Recommendation
- S side exterior conns - conduit not sealed	- seal around conduit	
- low window sills like all other bldgs		
- window unit gaskets are damaged window units drip on lower windows	- repl. sash	- remove unit
- basement win daylt broken (S side) + weather stripping loose	- repair 2 windows	—
- big rat problem - nest in supply get into rooms through pipe conduits 240 rats recently removed		
- SW corner + S side - grade towards bldg + GR intake low to grade		
- SW areaway - drain looks OK		
- NW areaway drain looks bad		



Mold/Mildew Walkthrough Checklist Date: 10/3 Engineer: Burns Building No. 248

Observation	Short Term Recommendation	Long Term Recommendation
-N Basmt windows sill lower than sidewalk & corrosion on grating water sits @ windows		
- Gas; Serv. N side	"	"
- Foundation wall damage NE corner		- re-grout / monitor
- window units on E wall dripping down to 1st Flr windows		
- Small - Basement - Cage Storage + Supply Rm - mold on small 0131	- dehumidifiers working	
- Basement Stem Press Rm - AC slightly under-sized		
- 1st Plt room office - mold on furniture		
- 3rd Plt Office - 2nd Flr power receptacles are not working	- fix circuit	
- Rats above basement drop tiles multiple rat traps		
- 0112 - mold on furniture (chair) + on fans		
- 0117 mold on desk above		

Mold/Mildew Walkthrough Checklist Date: 16/3 Engineer: Burns Building No. 248

Observation	Short Term Recommendation	Long Term Recommendation
- AC is insufficient throughout basement +		
- 2nd platoon office - rats are bad here - eating pipe insul. - cadaverate - mold on fabrics/flags	- 2 rat traps	- seal bldg
- Basement mens RR mold on window sill		
- Basement Case Storage FCU dripping by window is wet/moldy (x2)	- limited repair made - gyp board removed - plastic up - leak still occurring	
- 0129 shower pan/drain leaking in deck above	- bucket there now	- repl. pan + drain
- gutter issue floods thru door  	- drain is OK in areaway - fix gutter - drainflow + caves down wall + under door - sandbags	
- Fire Pump Rm - water coming down from above (under porch?)		

Mold/Mildew Walkthrough Checklist Date: 10/3 Engineer: Burns Building No. 248

Observation	Short Term Recommendation	Long Term Recommendation
- shower room ~~2nd Flr~~ 3rd Flr (occupied attic) shower leak	- wall board removed + left open - leak still not fixed	
- 3110 major leak rear duct - possible roof leak - AC is not sufficient		
- Basement mech Rm HW pipe leaking behind boiler (lochinvar)	- Rx leak	
- 102 Shower Rm mold/mildew	- re-TAB EF up	
- Paint stand at basement int. Stair		
- 3011 - pipe leaken center of room		
- Shower room - no mold but cracked shower pan		

My 248 HVAC

☑ Gas Serv. N. side

☑ Window units S 20 (+3 Attic Dormer) W 1 N 21 (+3 Attic Dormer) E 8 (only 2nd Flr)
CY 22 (+1 Attic Dormer)

☑ Split Sys.
4u in CY. Thermalzone mod TZAA-342-2C757

☑ Controls old A.C. dryer down. 1 compr. down
Curtis Mod No. 6DA26-D 1 comp. up
DPC cont's. for DT sys. (Picture of schematic)

☑ DHW
Blr w/ Tank
Lochinvar Armor Mod. AWN 601PM (up)
(Alarm for pump failure)

☑ Site CHW

☑ Dual Temp
- Summer winter sw.
- ~~need to check plans for Attic AHU/ERU~~

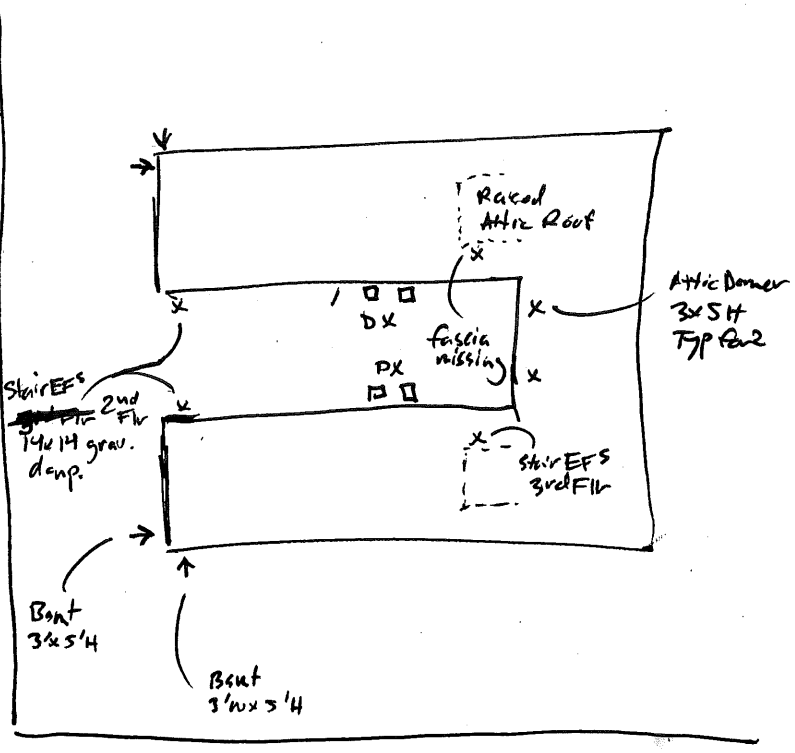
☐ Boilers
2x Lochinvar Mod IBN2000 (Disabled manually)
1x DHW

☑ DT Pumps
2x B&G 270 gpm 40 ft hd 5 hp 1800 rpm
1 is down, both enabled

☑ Other Pumps
- Domestic duplex booster station w/ tank

☑ AHUs
AHU-2 (Bsmt Mech Rm/Blr Rm)
McQuay Mod. CAH008FDAC (down) - Smoke Alarm

☐ Steam Press Rooms



☒ Sewer Gas Rare noted

☑ Ex Doors / Windows Open?
Doors + some windows

☑ Rep Co.
- Summer / Winter Sw

☒ Stair EFs
x4, none on.

☒ Locked doors
~~Bsmt~~ Basement Mech Rm open
- did not access attic space above occ. 3rd Flr

☑ Rat trap.
yes

* mech Rm EF down

DUNAMEE

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 3 Oct 2018

- ☐ Site Problems — RAT Issue
  - ☐ Topography — Low window sills; Poor grading south/west sides
  - ☐ Stormwater Drainage — —
  - ☐ Marshes, Bogs, and Open Water — —
- ☐ Exterior Problems — —
  - ☐ Exterior Building Walls — Repoint foundation wall
  - ☐ Cooling Towers — —
  - ☐ Roofs — Leak @ west end of south wing; bent gutter poors water to basement door
  - ☐ Air Intakes — —
  - ☐ Air Handling Units — —
- ☐ Interior Problems — —
  - ☐ Interior Areas Near Visible Exterior Mold — —
  - ☐ Interior Areas Near Exterior Swales and/or Drainage Systems — —
  - ☐ Interior Areas Near Below Grade Exterior Walls — Mold in offices along south wall
  - ☐ Toilet Rooms and Bathrooms — —
  - ☐ Kitchens — —
  - ☐ Humidifiers — —
  - ☐ Condensation/Drip Pans — —
  - ☐ Crawl Spaces — —
  - ☐ Basements and Cellars — Mold on furniture/uniforms; water infiltration @ basement door
  - ☐ Plumbing — —
  - ☐ Fire Suppression Systems — —
  - ☐ Windows and Sliding Doors — Windows cloudy; 2 broken on south side
  - ☐ Attic Spaces — —
  - ☐ Interior Areas With Open Water or High Humidity — Basement
  - ☐ Reservoir Misters — —
  - ☐ Gas-fired and Oil-fired Heaters — —

Mold/Mildew Walkthrough Checklist Date: 10/01/2018 Engineer: ULSAKER Building No. 248

Observation	Short Term Recommendation	Long Term Recommendation
EXTERIOR: -Gutter issues: back sides of bldg. along 2 opposite exterior walls have 2 gutters detached from the roof leaving same visible gaps between gutter and roof. -Concrete seals are needed where exterior walls meet the concrete slab surrounding the bldg. -Roof appears to be in bad shape with different patches of slate roofing (visible past roof repairs). -Most basement window have been replaced with Plywood. It is assumed that they were broken and this was a quick fix. -Most windows need caulking -All exterior floor drains need to be unclogged. -2 window need replaced: 1 has frame damage (rat hole), 1 has cracked glass -Back exterior brick wall has cracks (5-8 ft) long -North side of building has drain gutters splashing onto the sidewalk. I think that there was grass at grading at one point then they constructed a road with sidewalks since the sidewalk come directly to the basement windows and then a concrete barrier was constructed to stop water from leaking thru the casement. This concrete barrier does not allow the water to seep out. INTERIOR: -No smell of mildew and mold. However, tenants complained mold growth in window ACs. -Tenants stated most FCUs got fixed. Those that were not fixed were provided with window ACs. -When it rains heavily and continuously, water splashes through windows and doors in basement (approximately 5-6 rooms). -Leak pipes above ceiling (due to condensation?) on 1st and 2nd floors. -Top floor serves as a recreational area for soldiers and two window AC units per clerestory windows were all working.		

Mold/Mildew Walkthrough Checklist Date: _____ Engineer: _____ Building No. _____

Observation	Short Term Recommendation	Long Term Recommendation
-Front porch and stairs are very bad and need replacing. -Cracked paint everywhere on ceiling.		

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

- [x] Site Problems
  - [x] Topography
  - [x] Stormwater Drainage
  - [ ] Marshes, Bogs, and Open Water
- [ ] Exterior Problems
  - [ ] Exterior Building Walls
  - [ ] Cooling Towers
  - [ ] Roofs
  - [ ] Air Intakes
  - [ ] Air Handling Units
- [ ] Interior Problems
  - [ ] Interior Areas Near Visible Exterior Mold
  - [ ] Interior Areas Near Exterior Swales and/or Drainage Systems
  - [ ] Interior Areas Near Below Grade Exterior Walls
  - [ ] Toilet Rooms and Bathrooms
  - [ ] Kitchens
  - [ ] Humidifiers
  - [ ] Condensation/Drip Pans
  - [ ] Crawl Spaces
  - [ ] Basements and Cellars
  - [ ] Plumbing
  - [ ] Fire Suppression Systems
  - [ ] Windows and Sliding Doors
  - [ ] Attic Spaces
  - [ ] Interior Areas With Open Water or High Humidity
  - [ ] Reservoir Misters
  - [ ] Gas-fired and Oil-fired Heaters

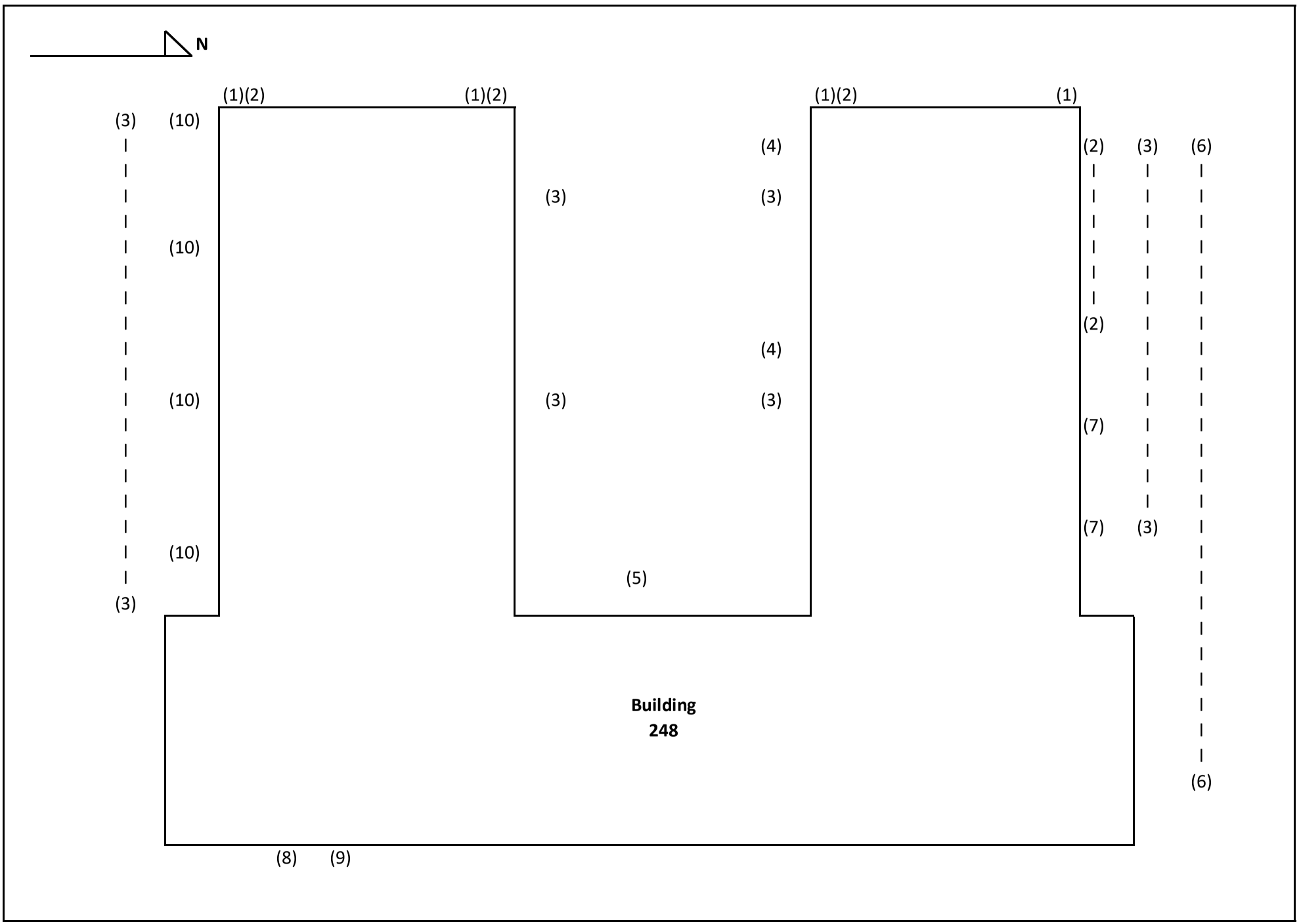
Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

Observations	Short Term Recommendations	Long Term Recommendations
(1) Grade drains steeply toward building.	Grade steeper and create a channel away from the building.	Add retaining wall and grade away from building.
(2) Window sills are at grade or below.	Lower grade around window sills. Grade away to maintain positive drainage.	
(3) Window air conditioner is causing damage to wall and window sills below.	Remove window air conditioners.	
(4) Area drains are 2" above grade	Remove drain cover, cut top 6" off of drain, replace drain cover, grade the surrounding area into a shallow sump.	
(5) Water damage due to drainage patterns		
(6) The seam where the building wall meet the concrete walk needs to be re-sealed.	Seal open crack between the wall and walk.	
(7) Roof drain outfalls directly to sidewalk with no 45 degree connection.	Add a 45 degree pipe deflection away from the wall.	
(8) Grading problem keeps water against the building.	Cut the high point out and smooth grade away from the building.	
(9) Roof drain splash block slopes toward the building.	Add dirt under the back of the splash block and provide a channel away from the building.	
(10) Roof drain downspouts do not go far enough down into the underdrain pipe.	Extend the roof drain down a few more inches.	

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18



Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(1) Grade drains steeply toward building.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(2) Window sills are at grade or below.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(3) Window air conditioner is causing damage to wall and window sills below.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(4) Area drains are 2" above grade

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(5) Water damage due to drainage patterns

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(6) The seam where the building wall meet the concrete walk needs to be re-sealed.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(7) Roof drain outfalls directly to sidewalk with no 45 degree connection.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(8) Grading problem keeps water against the building.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(9) Roof drain splash block slopes toward the building.

Mold and Mildew Walk Through Survey Summary Checklist

Building Name: 248 **Date:** 10/01/18

(10) Roof drain downspouts do not go far enough down into the underdrain pipe.

US Army Corps
of Engineers
Baltimore District

ENVIRONMENTAL HEALTH FACILITY ASSESSMENT

Ft. Myer Building 248
Joint-Base Myer Henderson Hall, VA

Attachment D:
IAQ & HAZMAT Report

INDOOR AIR QUALITY STUDY
AND HAZARDOUS MATERIAL SURVEY FOR BUILDING 248
AT
JOINT BASE FORT MYER- HENDERSON HALL
FORT MYER, VIRGINIA

Revision 1

October 2018

Prepared by

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Table of Contents

INTRODUCTION

U.S. Army Corps of Engineers (USACE), Baltimore District's Environmental and Explosives Safety Section (EESS) was retained by USACE Programs and Project Management Division (PPMD), to conduct a Hazardous Material (Hazmat) Survey for Building 248 in Joint Base Myer Henderson Hall (JBM-HH), Washington D.C. as a response to health concerns and upcoming renovations.

BACKGROUND

Most of the buildings at the north end of Fort Myer were built between 1895 and 1908. Many of those still standing have been designated historic landmarks by the U.S. Department of the Interior and the state of Virginia.

Building 248 serves as living quarters as well as office area for the soldiers attached to both Bravo and Hotel Company, of the Old Guard (TOG). The building is divided into two sides the A side which is populated by Hotel Company and the B side by Bravo Company respectively. Office spaces are located throughout the building's basement and the living quarters for soldiers are located in the upper floors.

PREFACE

On September 26, 2018, a visual walk through inspection of areas and rooms of Building 248 was conducted and the following conditions were observed or reported by the staff personnel:

1. Basement Room 0131 – Visible mold growth and water stained ceiling tiles, rat dropping on the floor, inside the non-working fan coil units, and above the suspended ceiling, openings around pipe runs through the walls providing access for rats to enter the building. First Floor hall passageway there was evidence of rat infestation above the suspended ceiling.

2. Basement mechanical room there appeared to be little ventilation into the room and vent fan was not working. There was a report by the Staff of black water back up inside the basement mechanical room on several occasions, which was reported to Fort Myer Department of Public Works (DPW), and the clogged line was snaked to remove the clog and black water receded. The cover to the sump pump area was open during the walkthrough visual inspection. Pipe and fitting insulation was fiber glass with plastic fittings, while ducts were covered with fiberglass batting insulation.

3. Basement Room 0117 there was signs of mold growth above the suspended ceiling and on water damaged ceiling tile.

4. Room Platoon Command –water stained ceiling tiles were observed.

These above conditions appear to be prevalent in many rooms of this building.

INVOLVED PARTIES

Mr. Stephen Epps, the lead Industrial Hygienist with EESS was tasked by PPMD with the hazardous survey for this project and preformed the field observation. Ms. Eleonor Gordon, an Industrial Hygienist and Project Manager with EESS assisted in performing field observations and reviewing the final report, conducted data analysis and reporting and coordinated the logistics of the project.

PURPOSE

An Indoor Air Quality (IAQ)/ Hazmat Survey was conducted in in order to identify and address concerns in Building 248. The data collected captures all the accessible hazmat material observed and confirmed through laboratory analysis of samples collected during the field observation. The HAZMAT survey will identify the following: Asbestos, Lead Based Paint, and Universal Waste Items.

STANDARDS

The *ANSI/ASHRAE Standard 55-2013: Thermal Environmental Conditions for Human Occupancy* specifies the combinations of indoor environmental and personal factors that produce acceptable thermal conditions to a majority of occupants within a space. Assuming slow air movement (less than 40 feet per minute) and 50% indoor relative humidity, the operative temperatures recommended by American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) range from 68.5ºF to 75ºF in the winter, and from 75ºF to 80.5ºF in the summer. ASHRAE also recommends that indoor relative humidity be maintained at or below 65%.

Carbon dioxide (CO_2) is a normal constituent of exhaled breath; thus, CO_2 will also increase during building occupancy. CO_2 levels are routinely collected in air quality studies because they can indicate whether a sufficient quantity of outdoor air is being introduced to an occupied space for acceptable odor control. The American National Standards Institute (ANSI) and ASHRAE have developed consensus standards and guidelines for HVAC systems, *ANSI/ASHRAE Standard 62.1-2013: Ventilation for Acceptable Indoor Air Quality.* In this standard, indoor CO_2 concentrations no greater than 700 parts per million (ppm) above outdoor CO_2 concentrations will satisfy a substantial majority (about 80%) of occupants. This would typically correspond to indoor concentrations below 1200 ppm since outdoor CO_2 concentrations usually range between 375 to 500 ppm.

Carbon Monoxide (CO) is an odorless, colorless, toxic gas. Various health organizations have established CO limits. The United States Environmental Protection Agency (USEPA) has set National Ambient Air Quality Standards (NAAQS) for Outdoor Air to be used in locating ventilation sources for buildings. In this standard, the exposure limits established for Carbon Monoxide is at a maximum of 35 ppm for one hour, not more than one time per year, or 9 ppm over any eight-hour period. The American Conference of Governmental Industrial Hygienist (ACGIH) and U.S. Occupational Safety and Health Administration (OSHA) have set Permissible

Exposure Limits (PEL), Time Weighted Average (TWA) (ACGIH) and Permissible Exposure Limit (PEL) (OSHA), for CO at 25 ppm and 50 ppm respectively.

METHODS

Ventilation Assessment

To evaluate IAQ a calibrated Q-TRAK Indoor Air Quality Monitor produced by TSI instruments and obtained from Pine Environmental Services (SN# 0746007) was used to measure temperature, relative humidity (rH), carbon monoxide (CO), and carbon dioxide (CO2) levels. Temperature and rH were assessed within Building 248 to determine if the air quality parameters fall outside recommended ASHRAE ranges. Measurement of these parameters outside of recommended ranges can sometime be indicative of problems with building design or maintenance. These measurements were made in each area where spore trap samples were collected.

Spore Trap Sampling

Spore trap sampling is used to determine the ambient airborne concentration of viable and nonviable mold spores. Air-O-Cell cassettes, manufactured by Zefon Analytical and obtained from EMSL Analytical, Inc., were used to quantify the total viable and non-viable spores, pollen, animal- and insect-based particles, and other non-biological particles (e.g. Fiberglass).
The Spore Trap samples were collected by first calibrating a SKC QuikTake 30™ obtained from Pine Environmental (SN # 867741 and 867675) to a 15 Liter per minute (L/min) flow rate, using the Zefron Analytical rotameter provided with the pump. Then the tape seal from the Air-OCell™ cassette inlet and outlet were removed and the cassette was placed in the cassette housing of the pump. Each sample was run for 5 minutes at 15 L/min for a total air volume of 75 liters. The cassettes were removed from the pump, the tape placed back on the outlet and inlet. Outdoor background sample was also collected at the beginning or end of indoor air sampling. Including the background outdoor sample, a total of 14 spore trap air samples were collected during the assessment of the Building 248 to capture a representative picture of possible fungal and/or particulate contamination within the building. The samples were collected and submitted to the contracted laboratory, EMSL Analytical, Inc in Beltsville, MD for analysis by Phase Contrast Microscopy. EMSL is accredited by Environmental Microbiology laboratory Accreditation Program (EMLAP) of the American Industrial Hygiene Association (AIHA) for providing analysis of Mold, IAQ, Microbiological, and other analytical testing (Accreditation # 102891). All indoor samples were collected 4–5 feet above the ground and no closer than 3 feet to any vertical obstructions, such as walls or room dividers.

RESULTS

Ventilation Assessment Results

The assessment for building 248 registered ambient readings for temperature, relative humidity (rH), carbon dioxide (CO_2), and carbon monoxide (CO). On October 5, 2018 the temperature from readings from Building 248 ranged from76.0 to 81 degrees Fahrenheit (ºF). The indoor relative humidity (rH) ranged from 41 to 70.0 % (refer to table 1). Guidelines from ASHRAE Standard 55 indicate an acceptable temperature range of 68 to 75°F in winter and 73 to 79°F in summer with the rH level being kept below 65%. However, other factors such as clothing and air movement can impact occupant comfort. EPA recommends maintaining rH below 60% which

minimizes the potential for mold growth and ideally, levels should be maintained between 30% and 50%. The Unified Facilities Criteria (UFC) 3-410-01 specifies a maximum dew point of 55°F. Temperature and relative Humidity readings also showed that the elevated temperature and relative humidity are conducive of condensation in cool surface area and uninsulated pipes above suspended ceiling. The areas exposed to condensation and excessive moisture are susceptible to mold growth which was evident in various areas throughout Building 248.

Direct reading instruments showed CO levels measured in the various spaces to be between 0.0 and 0.7 parts per million (ppm) with the majority at 0.4 ppm. There is a possibility that the oxygen may be depleted due to the off gassing of the uncovered sump pump pit in the basement where the levels are slightly higher. No specific source was identified and these levels were well below the indoor CO concentration of nine (9) ppm adopted by ASHRAE from the EPA National Ambient Air Quality Standard (NAAQS) outdoor air standards (See Table1). Levels of CO^2 ranged from 460 to 1087 parts per million (ppm) with many readings similar to outdoor levels (i.e., ~460 ppm). Humans are the primary source of CO^2 in the indoor environment and when they are not present, indoor levels can approach outdoor levels. The ASHRAE standard recommends maintaining a CO^2 concentration no greater than 700 ppm above outside air (OA) levels. This concentration is not based upon health risk but is an indicator for human comfort (odor and stuffiness) and accumulation of other indoor generated contaminants. Outside air levels during the site visit varied from 375 to 460 ppm; this means that indoor levels should be maintained below ~700 ppm. Measurements were not taken overnight during periods of typical occupancy.

Spore Trap Sample Results

While there is no precise formula to distinguish ‘‘normal’’ or ‘‘typical’’ background levels or types of fungal spores from increased levels or an atypical mix of types. The evaluation of air sampling results is based on the comparison of the types and levels of fungi detected indoors versus those detected outdoors. Differences between indoor and outdoor results suggest, but do not confirm, that mold growth is present indoors. Currently, there are no EPA regulations, Threshold Limit Values (TLVs), or standards for airborne mold contaminants.

On October 4 - 5, 2018 the total viable and non-viable fungal spore concentration in building 248 ranged from 2580 counts/m^3 to 36,280 counts/m^3. Out of the 12 rooms sampled, few were found to be below the background/ outdoor concentration of 35,150 counts/m^3. On the other hand, indoor spore count were found to be elevated in eight (8) rooms, more than ten (10) times above the background.

The overall composition and diversity of fungi in these rooms were not entirely similar to that of the outdoor air. Specifically, *Aspergillus/Penicillium, Cladosporium, Basidiospores, Myxomycetes/Periconia/Smut* and *Pithomyces* species were identified in some of the samples indoors and not outdoors. Some of the spores identified indoors do have the potential to cause allergies, hay fever, asthma, and hypersensitivity pneumonitis in individuals and could have originated from outdoor sources. Fungal spores that are good indicators of water damage in buildings and most dominant spore type found throughout the building such was

Aspergillus/Penicillium were also found throughout the building. The (see Table 2 and Appendix A).

The overall dust loading on the spore trap samples was not heavy, background dust and particulate matter was between 1-25%. Skin fragment or cells made up 25-75% of the total background, which is a typical result of human occupancy.

DISCUSSION

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish safe" or "unsafe" levels (i.e., permissible exposure limits). It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions.

Molds are quantified as total non-viable and viable, and culturable. Viable spores are analogous to seeds used to plant flowers in a garden; they are living and growing organisms. Non-viable spores will not germinate or grow. Culturable spores are a subset of the viable molds that may begin to grow when a source of moisture and appropriate food is available. Both types of spores may contain allergens that can cause respiratory and skin reactions in allergic individuals. Generally, an area is considered to be normal or typical when the total quantity of spores/m^3 inside is less than the total quantity of spores/m^3 outside.

Generally, the types and amounts of mold spores indoors will be similar to that found outdoors. Low levels of certain mold species (one or two raw spore counts) found indoors but not outdoors are commonly seen and should not pose a reason for heightened concern. Depending on the species identified and absent a moisture source, species found outdoors are generally expected to be found indoors but in lesser quantities. This is because people enter buildings carrying the naturally occurring mold spores on them. Rooms with exterior doors and windows that are opened frequently during the day will have higher mold spore levels than interior rooms.

Common marker species found indoors and outdoors in dry (non-moist) environments include *Alternaria, Basidiospores* (mushrooms), *Cladosporium, Curvularia, Drechslera/Bipolaris* group, *Epicoccum, and Torula*. These molds grow on a wide variety of indoor materials specific to the genus. Common marker species found indoors and outdoors in damp, wet, or water-damaged environments include *Acremonium, Ascospores, Aspergillus, Aureobasidium* (mildew), *Chaetomium, Fusarium, Penicillium, Sporobolomyces, Stachybotrys*, and *Ulocladium*. These species require more than a basic moisture source to thrive. The moisture source is usually waterlogged/water-damaged material, prolonged dampness, or prolonged wetness. Generally, eliminating the moisture source, cleaning up the visible mold growth, and treating with a biocide

can prevent reoccurrence. *Rusts* and *Smuts* are common plant parasites, which cannot exist without the host plant. Airborne levels generally indicate that a plant in the area is diseased. Elimination of the diseased plants in an area with airborne rusts and smuts will eliminate the source and potential reoccurrence.

In building 248, the spore levels measured indoor were recorded in elevated numbers for the *Aspergillus/Penicillium,* which can causes allergic reactions, respiratory infections, and a condition called hypersensitivity pneumonitis, which causes inflammation of the lungs.

With regards to the building ventilation, there was little to no ventilation throughout the building. Due to the poor ventilation and the various activities performed in the building such as uniform pressing in the Pressing Room, laundry, showers and bathrooms the moisture and steam generated for these functions have no proper way to be exhausted and eliminated from the building thus, elevating moisture and humidity in the building.

RECOMMENDATIONS

Building 248 for rooms conference rooms on both sides , supply room in 248B, 106B, 103B, 203, 2nd Platoon office on the Hotel side, and room 206 the following recommendation based on spore trap sample results where results exceed outside background results up to ten times the outside sample results:

a. Short Term- stop water leaks into the areas, repair and sanitize fan coil unit, replace filter, sanitize all nonporous surfaces, remove and replace all water damaged ceiling tile, use a dehumidifier inside the affected area, provide air conditioner for the area, purge the air inside the area with a Mini HEPA unit (negative air machine) for 24-48 hours, followed by collecting spore trap air samples inside the affected areas and outside the building.
b. Long Term- replace the fan coil unit with a new one, provide make up air inside affected areas.

Based on general observation, there was concern due to the black water overflow in the basement mechanical room which compromises the breathing space of occupants. Sewage or “black water” according to OSHA and Center for Disease Control and Prevention (CDC) includes any wastes contaminated by human excrement and other effluent (liquid waste), such as from urinals and toilets. Biological hazards include pathogens (e.g., bacteria, viruses, protozoa, parasitic worms, fungi) and other infectious microorganisms that can cause illnesses such as hepatitis, typhoid fever, dysentery and cholera. Inhaling or ingesting contaminated mists may result in serious illnesses.
There was visible mold on walls, ceiling, and personnel clothing. In addition, a major issue is the nonworking HVAC, fan coil units impacted with debris and exhaust equipment for restroom shower areas, water damaged ceiling tile, pipe and fitting insulation.

Short term recommendations: Repair and sanitize HVAC and fan coil units, repair exhaust equipment, remove and replace water damaged pipe and fitting insulation, ceiling tile, dry wall material impacted by mold, provide dehumidifiers and room air conditioner until HVAC and fan coil units repaired and sanitized, items impacted by water and mold which cannot be sanitized

should be discarded and replaced with new. Basement mechanical room sump pump pipe line should be snaked out to keep the line open set up weekly schedule to maintain in an open condition. Provide ventilation exhaust fan to vent the mechanical room where the sump pump is located and provide a cover for the sump pump waste water holding area. ANSI/ASHRAE Standards state that mechanical and sewer areas shall be well ventilated and the exhaust should be at a capacity at least 10 air changes per hour (ACH). Sump pump cover was not closed at the time of the survey. Ensure that the cover is secured in place to minimize the amount of off-gassing that occurs in the surrounding areas.

Long term recommendation for this building is to replace the HVAC and fan coil units, replace with new the sump pump line. In order to remove moisture and smell from shower and dressing areas the exhaust ventilation must be at least 5-10 air changes per hour (ACH) which has not been observed in Building 248 and additional exhaust systems must be in place for the occupied areas that produce excessive moisture. Need to provide adequate make up air in all living quarters.

For the ventilation and exhaust of the shower areas and for the mechanical room regulation requires larger ventilation rates for rooms with larger volumes. Under steady-state conditions, the required ventilation rate is the same for two rooms with identical source strength regardless of volume. Under non-steady-state conditions, the ventilation rate is smaller, not larger, for rooms with larger volumes since pollutants have more volume in which to mix.

Note: Additional individual dehumidifying units will increase the temperature and increase nuisance noise pollution in the spaces. Such limitations for short term solutions must be taken into consideration as they add additional impact to the existing condition.

LIMITATIONS

Air sampling results are limited, in that they represent airborne concentrations at the time of sample collection only. Changes in weather, operating procedures, ventilation, temperature, humidity, practices and other conditions, including the inappropriate introduction of moisture, may cause variations in anticipated airborne chemical concentrations.

While this assessment was relatively comprehensive, it was non-intrusive and was limited to accessible areas. This survey did not include, interstitial wall cavities, examining behind wall covering material, or above suspended ceiling. At the time of the survey the building was occupied and samples were collected during working hours. It is possible that airborne contaminants may still be present that facilitate a faint, unpleasant odor, or an adverse reaction in some individuals. There is no universal reaction to a measured amount of a particular material. People simply have different tolerance levels, therefore it is difficult to assign standards or even guidelines to set acceptable versus unacceptable levels of literally thousands of airborne pollutants present in indoor environments. Undetected contaminants could be present in differing amounts that hyper-sensitive individuals will find irritating or otherwise unpleasant.

The idea of comparing outdoor with indoor air samples is controversial. However, this comparison gives an indication as to whether the spores recovered from indoor environment originated from indoor sources. During winter, this comparison serves only as a snap shot in time and cannot be extrapolated to represent spore counts during other seasons of the year.

It should be noted that air samples for Volatile Organic Compounds (VOC) were not conducted because they were not associated with the initial assessment. Air sampling for specific pollutant concentrations is expensive and might seem to be the logical response to occupant complaints; it seldom provides information about possible causes and can even be misleading. However, certain basic measurements, (e.g., temperature, relative humidity, CO_2, and air movement), can provide a useful "snapshot" of current building conditions and these measurements have indicated that they do not fall outside of the previously listed standards, nor do they pose any significance hazard to the average worker.

HAZMAT SURVEY

PURPOSE

A Hazmat Survey was conducted in preparation of upcoming scheduled renovations for Building 248. The data collected captures all the hazmat material observed and confirmed through laboratory analysis of conspicuous samples collected during the field observation. The HAZMAT survey will identify the following: Asbestos, Lead Based Paint, Pest Control and Universal Waste Items.

ASBESTOS

An asbestos survey inspection of suspected asbestos containing material (ACM) inside Office Areas, Sleeping Quarters, Hall Passageways, Mechanical Room, pipe chases, above the suspended ceiling, inside any void where suspected ACM may be found. During EESS HazMat for Asbestos, 20 confirmatory bulk samples were collected and submitted to AMA Analytical Services Inc. for analysis. Samples were analyzed by Polarized Light Microscopy/Dispersion Staining (PLM). Nondestructive sampling methods were employed in the performance of the building survey of Building 248. Tested material confirmed the presence of Asbestos material as can be seen in Attachment 2 – "Asbestos Sample Laboratory Results," which also contains a summary table of the results and the description and quantity of the material (see Table 3). The results for the material collected and sampled for building 248 were "No Asbestos Detected" (NAD) material.

LEAD BASED PAINT

Lead survey was conducted on October 9 - 10, 2018 by Stephen Epps (Virginia Licensed Lead Inspector # 3342000916), using the Innov-X Systems, Inc. Innov-X 600 Alpha Series XRF Analyzer (SN# 11762). The XRF was rented from Pine Environmental, whom maintains the Maryland Radioactive Material License and obtained reciprocity for the equipment to be transported to and utilized in the state of Virginia for this project.
Prior to and subsequent to each inspection event and at least every four hours, "standardization tests" and "calibration checks" were performed to ensure that the XRF measurements taken

during an inspection truly reflect lead levels at the inspection sample points. Standardization tests calibration check measurements on the National Institute of Standards and Technology (NIST) Standard Reference Material using the nominal 1.0 mg/cm2 (NIST 2573 - RED) and blank 0.0 mg/cm2 paint films (NIST 2570 - WHITE). The certified values for lead for the standard reference material SRM 2570 is lead concentration of < 0.001 mg/cm2. The certified values for lead for the standard reference material NIST 2573 is lead concentration of 1.040 ± 0.064 mg/cm2. In accordance with the Manufacturer's recommendations, each calibration check is for 20 nominal second sample of the NIST Standard Reference Material. Calibration checks limits are 1.0 mg/cm2 to 1.1 mg/cm2 in the inclusive range. The calibration check is considered out of range, if the average of three readings (rounded to 1 decimal place) is outside the acceptable calibration check range.

Readings equal to or greater than 1 mg/cm2 are considered "positive". When an inconclusive range is obtained, XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. If the instrument reads "> x mg/cm2", the value "x" is used for classification purposes, ignoring the ">". For example, a reading reported as ">1.0 mg/cm2" is classified as 1.0 mg/cm2.
A total of 119 XRF readings were taken in this building. All XRF readings are provided as an attachment to this report ("Lead XRF Data"). None of the component types were found to be positive according to standard regulatory requirements during this survey. The XRF sampling data provided here is "representative" but not necessarily comprehensive. Paint surfaces not inspected should be assumed to contain lead-based paint unless the data presented in this report or other data concludes that lead-based paint is not present. Inspector licenses are also included as attachments.

POLYCHLORINATED BIPHENYLS (PCB)

A survey/inspection of light fixtures for polychlorinated biphenyls (PCB) containing ballast, inside the aforementioned Building 248 was conducted. Light ballasts are the electrical components at the end of fluorescent light fixtures under a metal over-plate. Prior to 1978, ballast were commonly manufactured with PCB's and used in fluorescent light ballast because of their good electrical insulating capabilities. Ballast made after 1978 are usually marked "Non-PCB". As a result of the random survey/inspection **no** PCB's ballast were observed in the existing light fixtures of accessible Office Areas, Storage Rooms, Hall Passageway, and Mechanical Rooms.

MERCURY

Mercury is used in several building components including fluorescent lamps and liquid thermometers. In fluorescent lighting, mercury-containing dust forms from the mercury vapor found within the lamps. Numerous fluorescent lamps were observed during the building inspection in the aforementioned Building 248. The approximate number of fluorescent bulbs in

the building is 800 bulbs. No mercury containing thermostats observed or identified inside the building.

Recommendation:

These fluorescent lamps should be removed and recycled before renovation or demolition of the building. It should be noted that if these materials are not going to be disturbed during the renovation activities they can be managed in place.

SMOKE DETECTORS

There were no smoke detectors containing possible radioactive material observed inside of Building 248. Also, there were no fire exit signs containing possible radioactive material observed during the walk through visual inspection in the building.

PEST CONTROL

Observation: The odor of vermin excrement and urine is pronounced the basement and the first floor of building 248. There is an extensive amount of visible droppings throughout the Basement and First Floors of the building. The fan coil units have been keep fairly clean and the staff has been changing out filter membranes themselves. However, there was still evidence of rat droppings in some of the first floor individual units, and above the first floor suspended ceiling. There appeared to be no visible signs of vermin infestation beyond the Basement and First Floors of the building.

According to the Center for Disease Control (CDC) and the common wealth of Virginia Health Department there are various diseases associated with rat infestation that pose a threat to human health. Such threats are: Hantavirus Pulmonary Syndrome (HPS) – A disease carried by some rodents that is spread through direct contact or breathing in dust that is contaminated with rodent droppings and urine. Even healthy individuals are at risk for HPS infection if exposed to the virus. In the United States, Hantavirus infection is usually spread by inhaling the virus, which is in the droppings, urine and saliva of infected rodents. Although uncommon, the virus can also be passed to humans through a rodent bite, urine or droppings. Salmonellosis is a disease caused by a bacteria and it is spread by eating or drinking food and water contaminated by infected rat feces and bedding material. Salmonellosis causes diarrhea, fever, and abdominal cramps within eight (8) to 72 hours. Another potential hazard is rat- bite fever (RBF), caused by Strptobacillus moniliformis bacteria in infected rats, which causes a severe infectious disease through a rat bite or ingestion of contaminated food products.

Recommendation:

Short Term recommendations: Until the vermin infestation is under control all ceiling tiles should be removed completely on the Basement and First Floors of this building and not replaced until the active vermin issue is under control. In addition to removing suspended ceiling tile, all associated suspended ceiling metal grid will need to be HEPA vacuumed followed by being sanitized as it harbors dry vermin feces and urine. We highly recommend that the ceiling tiles along the areas affected by vermin infestation not be replaced until the building is properly treated and sealed as it provides a harboring and breeding space for the vermin. The current pest

control site visits should be increased until the vermin infestation is brought under control. The personnel currently in Office areas and living quarters on the Basement and First Floors of the building should be relocated until the active vermin issue is brought under control. The basement supplies consisting of MRE food items should be relocated to an area with solid walls and ceiling to prevent vermin infestation. All penetrations into the building should be sealed to prevent vermin from entering the building.

Kitchen and areas that harbor food should be kept clean and free of food debris as prevention measures to not attract the vermin to other occupied living spaces.

When performing decontamination after complete rat removal is accomplished, it's preferable that you wear gloves, a full biohazard suit, and a HEPA filter mask. Rat decontamination is a serious task, therefore is recommended that specialized, professional and trained staff is hired to handle the remediation.

Review and revise pest control contracts to reflect the need of carcass disposal and maintenance at building 248. Seek professional help for rat feces and urine cleanup and removal.

REFERENCES

29 Code of Federal Regulations Part 1910. Occupational Safety and Health Standards.

40 Code of Federal Regulations Part 50. National Primary and Secondary Ambient Air Quality Standards.

American Conference of Government Industrial Hygienists (ACGIH), TLV, BEI, Threshold Limit
Values for Chemical Substances and Physical Agents and Biological Exposure Indices. 2016 Cincinnati, OH, ACGIH

ANSI/ASHRAE (2013). Ventilation for acceptable indoor air quality, standard 62.1-2013. Atlanta, GA: American Society of Heating, Refrigeration, and Air-Conditioning Engineers.

ANSI/ASHRAE (2013). Thermal Environmental Conditions for Human Occupancy, Standard 55- 2013. Atlanta, GA: American Society of Heating, Refrigeration, and Air-Conditioning Engineers.

United Facilities Criteria (UFC) 3-410-01, *Heating, Ventilating, and Air Conditioning Systems, Change 3*, 25 January 2017.

Division of Health, Fairfax County, *Rats and Mice*, Retrieved (October 19, 2018) from https://www.fairfaxcounty.gov/health/environment/rats-mice

Army Public Health Center (APHC), Rodent Control Fact Sheet 18-080-0317, Retrieved (October 23, 2018) from https://phc.amedd.army.mil/PHC%20Resource%20Library/RodentControl_FS_18-080-0317.pdf

Department of the Army, US Army Corps of Engineers (USACE) EM 385-1-1, Health and Safety Manual 2014.

TABLE 1- INDOOR AIR QUALITY MEASURMENTS

Spore Trap Sample #	Sample Location (Room #)	Relative Humidity (% rH)	Temperature (ºF)	CO (ppm)	CO_2 (ppm)
248B ST-7	OUTSIDE	48.2	78.5	0.4	895
248B ST-1	CONFERENCE RM 0117 (BASEMENT)	70.6	76.3	0.4	515
	COMMANDER'S OFFICE	51.0	77.5	0.4	910
	1ST SGT RM 0111	48.7	75.9	0.4	952
	TRAINING RM 0115	54.3	76.1	0.3	943
	XO OFFICE RM 0109	54.7	75.6	0.3	910
	SUPPLY RM0130	53.6	76.8	0.2	928
	COMMAND POST	56.9	77.5	0.2	1035
	1ST PLT	54.1	78.7	0.2	980
	2ND PLT	54.9	78.5	0.2	1087
248B ST-2	SUPPLY RM 0131	41.1	41.1	79.0	751
	RM 107B	56.0	78.9	0.7	683
	RM 107A	57.1	78.5	0.5	803
248B ST-3	RM 106B	48.9	78.2	0.4	488
	RM 106A	62.7	78.9	0.3	620
	RM 108A	64.8	78.7	0.4	822

Spore Trap Sample #	Sample Location (Room #)	Relative Humidity (% rH)	Temperature (ºF)	CO (ppm)	CO_2 (ppm)
	RM 108 B	65.5	78.2	0.4	1009
	RM 104 A	48.4	76.1	0.3	482
	RM 104 B	64.2	76.2	0.4	475
248B ST-4	RM 103 B	61.0	77.0	0.2	449
	RM 103 A	50.2	76.4	0.2	430
	RM 102 B	70.7	79.4	0.1	447
	RM 102 A	68.8	81.5	0.0	443
	RM 101 B	38.3	77.5	0.4	437
	RM 101 A	47.9	76.6	0.3	437
	RM 202 A	50.5	73.2	0.2	504
	RM 202 B	49.0	73.2	0.3	545
	RM 203 B	69.1	77.1	0.3	526
	RM 203 A	68.9	77.2	0.2	491
248B ST-5	RM 204 A	53.1	76.9	0.2	451
	RM 204 B	66.9	77.9	0.1	576
	RM 205 A	54.5	78.0	0.1	460
	RM 205 B	52.8	77.1	0.1	462
248B ST-6	RM 207 A	43.9	75.7	0.1	494
	RM 207 B	43.1	71.1	0.5	475
	RM 210 A	63.5	75.9	0.1	676

Spore Trap Sample #	Sample Location (Room #) 248A	Relative Humidity (% rH)	Temperature (ºF)	CO (ppm)	CO_2 (ppm)
284A ST-1	OUSIDE 248A	53.5	71.6	1.0	420
248A ST-2	CONFERENCE RM 248A	68.7	74.5	0.4	634
	BASEMENT KITCHEN 248A	66.0	75.7	0.4	550
	BARBER RM 0029	59.5	80.1	0.2	484
	BASEMENT CORRIDOR	60.7	79.5	0.4	527
248A ST-3	BASEMENT 2ND PLT	59.3	77.0	0.7	942
	BASEMENT LATRINE	66.6	78.7	0.5	630
	BASEMENT STAIRWELL	57.2	78.3	0.3	549
	BASEMENT 1ST PLT	57.1	77.4	0.3	553
	BASEMENT CORRIDOR CONF	59.7	76.9	0.5	570
248A ST-4	248A RM 107 B	63.5	77.2	0.7	795
248A ST-5	248A RM206 B	63.5	77.5	0.4	565
248A ST-6	248A RM211 B	55.4	74.8	0.4	505
	248A COMMON AREA RM 211	60.0	73.7	0.5	633
	248A COMMON AREA RM 206	59.3	75.4	0.3	609
	248A RM213 B	43.6	76.3	0.4	953
	248A RM211 B COMMON AREA	46.6	76.7	0.4	953

Spore Trap Sample #	Sample Location (Room #) 248A	Relative Humidity (% rH)	Temperature (ºF)	CO (ppm)	CO_2 (ppm)
	HALLWAY by RM 213	52.06	76.9	0.2	727
	2nd FLR LAUNDRY	50.7	77.5	0.2	509
	HALLWAY BY RM 201	53.9	78.8	0.4	610
	RESTROOM 3RD FLR	54.0	79.6	0.3	607
	HALLWAY BY STAIR	52.2	78.7	0.2	748
	ESCORT PLT RM 3RD FLR	42.6	78.2	0.4	614
248A ST-7	RM 3011	40.6	78.4	0.4	563
	COMMON AREA RM 109	52.2	78.2	0.5	716
	RM 109 A	51.7	77.0	0.5	718
	1ST FLR LAUNDRAY	61.2	77.3	0.4	651
	1ST FLR KITCHEN	51.9	76.0	0.2	541
	HALLWAY BY KITCHEN	55.4	75.4	0.3	555
	END OF HALL 1ST FLR	55.2	77.0	0.3	681
	STAIRWELL 1ST FLR	55.0	77.7	0.3	689

TABLE 2- SPORE TRAP SAMPLE RESULTS

Building 248B

SAMPLE LOCATION	SAMPLE INFORMATION	FUNGAL SPORES AND PARTICULATES IDENTIFIED	
Outside/ background	Spore trap sampling pump was placed outside Building 248B Sample date: 04OCT18 Sample Time: 1515 - 1520 Sample volume: 75 Liters *Sample ID: **248B ST – 7***	Alternia (Ulocladium) Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Curvularia Fusarium Ganoderma Myxomycetes Cercospora Nigrospora Pyricularia Torula-like **Total Fungi**	40 counts/m^3 1400 counts/m^3 24200 counts/m^3 40 counts/m^3 7390 counts/m^3 40counts/m^3 200 counts/m^3 300 counts/m^3 400 counts/m^3 300 counts/m^3 40 counts/m^3 90 counts/m^3 40 counts/m^3 **35150 counts/m^3**
RM 0117	Spore trap sampling pump was placed in RM 017 in the basement's conference room Sample date: 04OCT18 Sample Time: 1337 -1342 Sample volume: 75 Liters *Sample ID: **248B ST – 1***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Myxomycetes **Total Fungi**	40 counts/m^3 1900 counts/m^3 200 40 400 **2580 counts/m^3**
RM 0131	Spore trap sampling pump was placed in RM 0131 basement's supply room Sample date: 04OCT18 Sample Time: 1341 - 1346 Sample volume: 75 Liters *Sample ID: **248B ST – 2***	Aspergillus/Penicillium Basidiospores Cladosporium Myxomycetes **Total Fungi**	2400 counts/m^3 90 counts/m^3 90 counts/m^3 200 counts/m^3 40 counts/m^3 **2620 counts/m^3**
RM 106B	Spore trap sampling pump was placed inside soldier's room 106B Sample date: 04OCT18 Sample Time: 1446 - 1451	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Ganoderma	90 counts/m^3 2900 counts/m^3 7740 counts/m^3 580 counts/m^3 90 counts/m^3

	Sample volume: 75 Liters *Sample ID:* ***248B ST – 3***	Myxomycetes Cercospora **Total Fungi**	200 counts/m^3 40 counts/m^3 **11640 counts/m^3**
RM 103B	Spore trap sampling pump was placed in RM 103B Sample date: 04OCT18 Sample Time: 1447 - 1452 Sample volume: 75 Liters *Sample ID:* ***248B ST – 4***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Fusarium Ganoderma Myxomycetes Pithomyces Cercospora Nigrospora Torula-like **Total Fungi**	400 counts/m^3 1300 counts/m^3 10900 counts/m^3 620 counts/m^3 90 counts/m^3 100 counts/m^3 200 counts/m^3 40 counts/m^3 40 counts/m^3 10 counts/m^3 40 counts/m^3 **13740 counts/m^3**
RM 203 A	Spore trap sampling pump was placed on furniture in RM 203A Sample date: 04OCT18 Sample Time: 1500 - 1505 Sample volume: 75 Liters *Sample ID:* ***248B ST – 5***	Aspergillus/Penicillium Basidiospores Myxomycetes **Total Fungi**	21700 counts/m^3 300 counts/m^3 40 counts/m^3 **22040 counts/m^3**
RM 207A	Spore trap sampling pump was placed RM 207A Sample date: 04OCT18 Sample Time: 1503 -1508 Sample volume: 75 Liters *Sample ID:* ***248B ST – 6***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Cladosporium Ganoderma Cercospora **Total Fungi**	40 counts/m^3 440 counts/m^3 2600 counts/m^3 750 counts/m^3 40 counts/m^3 300 counts/m^3 90 counts/m^3 **4260 counts/m^3**

Building 248A

SAMPLE LOCATION	SAMPLE INFORMATION	FUNGAL SPORES AND PARTICULATES IDENTIFIED	
Outside/ background	Spore trap sampling pump was placed outside Building 248A Sample date: 05OCT18 Sample Time: 1100 - 1105 Sample volume: 75 Liters *Sample ID: **248A ST – 1***	Alternia (Ulocladium) Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Curvularia Epicoccum Fusarium Ganoderma Myxomycetes Pithomyces Rust Arthrobotrys Cercospora Nigrospora Oidium Pestalotia/Pestalotiopsis Pyricularia Torula-like **Total Fungi**	90 counts/m^3 27000counts/m^3 300 counts/m^3 39000 counts/m^3 9030 counts/m^3 40 counts/m^3 100 counts/m^3 400 counts/m^3 90 counts/m^3 40 counts/m^3 40 counts/m^3 40 counts/m^3 40 counts/m^3 300 counts/m^3 100 counts/m^3 40 counts/m^3 40 counts/m^3 40 counts/m^3 40 counts/m^3 **76730 counts/m^3**
CONF RM	Spore trap sampling pump was placed in the Basement's conference room side A Sample date: 05OCT18 Sample Time: 1111 - 1116 Sample volume: 75 Liters *Sample ID: **248A ST – 2***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Fusarium Myxomycetes Nigrospora Pyricularia **Total Fungi**	3100 counts/m^3 1900 counts/m^3 14700 300 40 200 40 40 **20320 counts/m^3**
2nd PLT Office	Spore trap sampling pump was placed in basement's 2nd platoon's office Sample date: 05OCT18 Sample Time: 1122 - 1127 Sample volume: 75 Liters *Sample ID: **248A ST – 3***	Alternia (Ulocladium) Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Fusarium Ganoderma Myxomycetes Cercospora Pestalotia/Pestalotiopsis	90 counts/m^3 5570 counts/m^3 300 counts/m^3 7740 counts/m^3 890 counts/m^3 40 100 40 40 40

		Pyricularia Sporidesmium-like **Total Fungi**	40 40 **14930 counts/m^3**
RM 107B	Spore trap sampling pump was placed inside soldier's room 107B Sample date: 05OCT18 Sample Time: 1136 - 1141 Sample volume: 75 Liters *Sample ID: **248A ST – 4***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Fusarium Ganoderma Pestalotia/Pestalotiopsis **Total Fungi**	4470 counts/m^3 200 counts/m^3 31000 counts/m^3 490 counts/m^3 40 counts/m^3 40 counts/m^3 40 counts/m^3 **36280 counts/m^3**
RM 206B	Spore trap sampling pump was placed inside soldier's room 206B Sample date: 05OCT18 Sample Time: 1140 - 1145 Sample volume: 75 Liters *Sample ID: **248A ST – 5***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Ganoderma **Total Fungi**	840 counts/m^3 3800 counts/m^3 2500 counts/m^3 100 counts/m^3 10 counts/m^3 **7250 counts/m^3**
RM 211B	Spore trap sampling pump was placed inside soldier's room 211B Sample date: 05OCT18 Sample Time: 1147 - 1202 Sample volume: 75 Liters *Sample ID: **248A ST – 6***	Ascospores Aspergillus/Penicillium Basidiospores Cladosporium Ganoderma **Total Fungi**	2000 counts/m^3 40 counts/m^3 12400 counts/m^3 200 counts/m^3 40 counts/m^3 **14680 counts/m^3**
Escort PLT RM 3011	Spore trap sampling pump was placed inside common area in room 3011 Sample date: 05OCT18 Sample Time: 1205 - 1210 Sample volume: 75 Liters *Sample ID: **248A ST – 7***	Ascospores Aspergillus/Penicillium Basidiospores Ganoderma **Total Fungi**	660 counts/m^3 300 counts/m^3 3100 counts/m^3 90 counts/m^3 **4150 counts/m^3**

TABLE 3 – ASBESTOS

Sample	Material/ Location	Material Description	Quantity
248B A – 1	Ceiling Tile sampled in the basement conference area	2ft. X 2ft. white ceiling tile with fissures	No Asbestos Detected (NAD)
248B A – 2	Ceiling Tile sampled in the basement conference area	2ft. X 2ft. white ceiling tile with fissures	NAD
248B A – 3	Joint compound sample taken above ceiling tile in the hallway area	Drywall joint compound material	NAD
248B A – 4	Dry wall joint compound sample taken above suspended ceiling	Drywall joint compound material	NAD
248B A – 5	Dry wall joint compound sample taken above suspended ceiling room 0112	Drywall joint compound material	NAD
248B A – 6	Floor tile sample with mastic taken from room 0117	12in x 12in blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 7	Floor tile sample with mastic taken from room 0112	12in x 12in blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 8	Cove base with mastic sample taken in the basement area	tan cove base sample along the walls	NAD
248B A – 9	Cove base with mastic sample taken in the basement area	tan cove base sample along the walls	NAD
248B A - 10	floor tile sample from kitchen in the basement	12in x 12in white w/ blue speckles floor tile found in various rooms and offices throughout the building	NAD
248B A – 11	floor tile sample with mastic from kitchen in the basement	12in x 12in white w/ blue speckles floor tile found in various rooms and offices throughout the building	NAD

248B A – 12	Floor tile sample with mastic taken from room 105B	12in x 12in blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 13	Floor tile sample with mastic taken from room 105B	12in x 12in blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 14	Floor tile sample with mastic taken from room 105B	14in x 14in dark blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 15	Floor tile sample with mastic taken from room 105B	14in x 14in dark blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 16	Floor tile sample with mastic taken from room 202B	12in x 12in blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 17	Floor tile sample with mastic taken from room 202B	12in x 12in blue floor tile found in various rooms and offices throughout the building	NAD
248B A – 18	Dry wall joint compound sample taken above suspended ceiling room 105B	Drywall joint compound material	NAD
248B A – 19	Dry wall joint compound sample taken above suspended ceiling room 105B	Drywall joint compound material	NAD
248B A – 20	Dry wall joint compound sample taken above suspended ceiling room 202B	Drywall joint compound material	NAD
248B A – 21	Dry wall joint compound sample taken above suspended ceiling room 202B	Drywall joint compound material	NAD
248B A – 22	Dry wall joint compound above suspended ceiling in common area	Drywall joint compound material	NAD
248B A – 23	Dry wall joint compound above suspended ceiling near common area	Drywall joint compound material	NAD

TABLE 4 – LEAD

No.	Room Equivalent	Component Type/ Substrate/ Color	WC*	Reading mg/cm^2	condition	"+"
1	1ST Floor Lobby	Window Case/wood/white	A	0.0	Good	
2	1ST Floor Lobby	Window Sill/wood/white	A	0.0	Good	
3	1ST Floor Lobby	Wall/drywall/white	A	0.0	Good	
4	Room 107B	Wall/drywall/gray	D	0.0	Good	
5	Room 107B	Wall/drywall/gray	A	0.0	Good	
6	Room 107B	Wall/drywall/gray	B	0.0	Good	
7	Room 107B	Wall/drywall/gray	C	0.0	Good	
8	Room 107B	Door Case/Metal/blue	C	0.0	Good	
9	Room 107B	Bath Room Ceramic Wall/Tile/white	A	0.02	Good	
10	Room 107B	Bath Room Ceramic Wall/Tile/white	B	0.01	Good	
11	Room 107B	Bath Room Ceramic Wall/Tile/white	D	0.0	Good	
12	Room 107B	Bath Room Ceramic Wall/Tile/white	C	0.0	Good	
13	1ST Floor Laundry	Door Case/Metal/blue	C	0.0	Good	
14	1ST Floor Laundry	Ceramic Wall/Tile/white	B	0.01	Good	
15	1ST Floor Laundry	Ceramic Wall/Tile/white	C	0.01	Good	
16	1ST Floor Laundry	Ceramic Wall/Tile/white	D	0.0	Good	
17	1ST Floor Laundry	Window Case/wood/white	D	0.0	Good	
18	1ST Floor Laundry	Window Sill/wood/white	D	0.0	Good	
19	1ST Floor Laundry	Ceramic Wall/Tile/white	A	0.02	Good	
20	1ST Floor Laundry	Wall/drywall/white	A	0.0	Good	
21	Room 104	Door Case/Metal/blue	A	0.0	Good	
22	Room 104	Wall/drywall/gray	D	0.0	Good	

***WC = Wall Code**: A=bldg. entrance, B, C, D, = clockwise from building entrance. **"+" = Reading >1.0 mg/m^2**

No.	Room Equivalent	Component Type/ Substrate/ Color	WC*	Reading mg/cm^2	condition	"+"
23	Room 104	Wall/drywall/gray	A	0.0	Good	
24	Room 104	Wall/drywall/gray	B	0.0	Good	
25	Room 104	Window Case/wood/blue	B	0.0	Good	
26	Room 104	Window Sill/wood/blue	B	0.0	Good	
27	Room 104	Wall/drywall/gray	C	0.0	Good	
28	Room 202A	Door Case/Metal/blue	D	0.0	Good	
29	Room 202A	Wall/drywall/gray	D	0.0	Good	
30	Room 202A	Wall/drywall/gray	A	0.0	Good	
31	Room 202A	Wall/drywall/gray	B	0.0	Good	
32	Room 202A	Window Case/wood/blue	B	0.0	Good	
33	Room 202A	Window Sill/wood/blue	B	0.0	Good	
34	Room 202A	Wall/drywall/gray	C	0.0	Good	
35	Room 204A	Door Case/Metal/blue	D	0.0	Good	
36	Room 204A	Wall/drywall/gray	D	0.0	Good	
37	Room 204A	Wall/drywall/gray	A	0.0	Good	
38	Room 204A	Wall/drywall/gray	B	0.0	Good	
39	Room 204A	Window Case/wood/blue	B	0.0	Good	
40	Room 204A	Window Sill/wood/blue	B	0.0	Good	
41	Room 204A	Wall/drywall/gray	C	0.0	Good	
42	Off Post 3rd Floor	Wall/drywall/white	D	0.0	Good	
43	Off Post 3rd Floor	Door Case/Metal/blue	D	0.0	Good	
44	Off Post 3rd Floor	Door/Metal/blue	D	0.0	Poor	
45	Off Post 3rd Floor	Wall/drywall/white	C	0.0	Poor	
46	Off Post 3rd Floor	Locker door/wood/white	A	0.0	Good	
47	Off Post 3rd Floor	Wall/drywall/white	B	0.0	Good	

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No.	Room Equivalent	Component Type/ Substrate/ Color	WC*	Reading mg/cm^2	condition	"+"
48	Off Post 3rd Floor	Wall/drywall/white	A	0.0	Good	
49	248A Hotel	Window Case/wood/white	A	0.0	Good	
50	248A Hotel	Window Sill/wood/white	A	0.0	Good	
51	248A Hotel	Wall/drywall/white	A	0.0	Good	
52	248A Hotel	Wall/drywall/blue	A	0.0	Good	
53	Room 110A	Door Case/Metal/blue	A	0.0	Good	
54	Room 110A	Wall/drywall/gray white	B	0.0	Good	
55	Room 110A	Window Case/wood/white	A	0.0	Good	
56	Room 110A	Window Sill/wood/white	A	0.0	Good	
57	Room 110A	Wall/drywall/white	B	0.0	Good	
58	Room 110A	Wall/drywall/white	C	0.0	Good	
59	Room 110A	Wall/drywall/white	D	0.0	Poor	
60	Room 107A	Door Case/Metal/blue	B	0.0	Good	
61	Room 107A	Wall/drywall/gray	B	0.0	Good	
62	Room 107A	Wall/drywall/gray	A	0.0	Good	
63	Room 107A	Wall/drywall/gray	D	0.0	Good	
64	Room 107A	Window Case/wood/blue	D	0.0	Good	
65	Room 107A	Window Sill/wood/blue	D	0.0	Poor	
66	Room 107A	Hand Rail/metal/black	D	0.01	Good	
67	Room 107A	Stair Stringer/ metal/ black	D	0.02	Good	
68	Room 201A	Door Case/metal/blue	A	0.0	Good	
69	Room 201A	Wall/drywall/gray	A	0.0	Good	
70	Room 201A	Wall/drywall/gray	B	0.0	Good	
71	Room 201A	Wall/drywall/gray	C	0.0	Good	
72	Room 201A	Window Case/wood/blue	C	0.0	Good	

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No.	Room Equivalent	Component Type/ Substrate/ Color	WC*	Reading mg/cm^2	condition	"+"
73	Room 201A	Window Sill/wood/blue	C	0.0	Good	
74	Room 201A	Wall/drywall/gray	D	0.0	Good	
75	Room 210B	Door Case/metal/blue	B	0.0	Good	
76	Room 210B	Wall/drywall/gray	B	0.0	Good	
77	Room 210B	Wall/drywall/gray	C	0.0	Good	
78	Room 210B	Wall/drywall/gray	D	0.0	Good	
79	Room 210B	Window Case/wood/blue	D	0.0	Good	
80	Room 210B	Window Sill/wood/blue	D	0.0	Good	
81	Room 210B	Wall/drywall/gray	A	0.0	Good	
82	Off-Post Room 3rd FL	Door Case/metal/blue	D	0.0	Good	
83	Off-Post Room 3rd FL	Wall/drywall/blue	B	0.0	Good	
84	Off-Post Room 3rd FL	Wall/drywall/blue	A	0.0	Good	
85	Off-Post Room 3rd FL	Wall/drywall/blue	D	0.0	Good	
86	Off-Post Room 3rd FL	Wall/drywall/blue	C	0.0	Good	
87	Off-Post Room 3rd FL	Locker Door/Wood/white	C	0.0	Good	
88	Basement floor Common Area	Window Case/metal/blue	C	0.0	Good	
89	Basement floor Common Area	Wall/drywall/blue	C	0.0	Good	
90	Basement floor Common Area	Wall/drywall/blue	D	0.0	Good	
91	Basement floor Common Area	Window Case/wood/white	D	0.0	Good	
92	Basement floor Common Area	Window Sill/wood/white	D	0.0	Good	
93	Basement floor Common Area	Wall/drywall/blue	C	0.0	Good	
94	2nd Platoon Basement	Door case/ Metal/ blue	A	0.0	Good	

***WC = Wall Code**: A=bldg. entrance, B, C, D, = clockwise from building entrance. **"+" = Reading >1.0 mg/m^2**

No.	Room Equivalent	Component Type/ Substrate/ Color	WC*	Reading mg/cm^2	condition	"+"
95	2nd Platoon Basement	Wall/drywall/blue	A	0.0	Good	
96	2nd Platoon Basement	Wall/drywall/blue	D	0.0	Good	
97	2nd Platoon Basement	Window Case/wood/white	D	0.0	Good	
98	2nd Platoon Basement	Window Sill/wood/white	D	0.0	Good	
99	2nd Platoon Basement	Wall/drywall/blue	C	0.0	Good	
100	2nd Platoon Basement	Wall/drywall/blue	B	0.0	Good	
101	Basement Kitchen	Door case/ Metal/ blue	B	0.0	Good	
102	Basement Kitchen	Wall/drywall/blue	B	0.0	Good	
103	Basement Kitchen	Wall/drywall/blue	A	0.0	Good	
104	Basement Kitchen	Wall/drywall/blue	D	0.0	Good	
105	Basement Kitchen	Wall/drywall/blue	C	0.0	Good	
106	Basement Room 0131	Door case/ Metal/ blue	D	0.0	Good	
107	Basement Room 0131	Door / Metal/ blue	D	0.0	Good	
108	Basement Room 0131	Wall/cinder block/white	D	0.0	Good	
109	Basement Room 0131	Wall/cinder block/white	C	0.0	Good	
110	Basement Room 0131	Wall/cinder block/white	A	0.0	Good	
111	Basement Room 0131	Colum/concrete/ white		0.88	Poor	
112	Basement Room 0131	Wall/drywall/white	B	0.0	Good	
113	Bravo Conference RM	Door case/ Metal/ blue	D	0.0	Good	
114	Bravo Conference RM	Wall/drywall/blue	D	0.0	Good	
115	Bravo Conference RM	Wall/drywall/blue	A	0.0	Good	
116	Bravo Conference RM	Wall/drywall/blue	B	0.0	Good	

***WC = Wall Code**: A=bldg. entrance, B, C, D, = clockwise from building entrance. **"+" = Reading >1.0 mg/m^2**

No.	Room Equivalent	Component Type/ Substrate/ Color	WC*	Reading mg/cm^2	condition	"+"
117	Bravo Conference RM	Wall/drywall/blue	C	0.0	Good	
118	Bravo Conference RM	Window Case/wood/white	B	0.0	Good	
119	Bravo Conference RM	Window Sill/wood/white	B	0.0	Good	

***WC = Wall Code**: A=bldg. entrance, B, C, D, = clockwise from building entrance. **"+" = Reading >1.0 mg/m^2**

Attachment 1 – Spore Trap Sample Results

EXPANDED FUNGAL ASSESSMENTREPORT ™

Prepared Exclusively For

USACE

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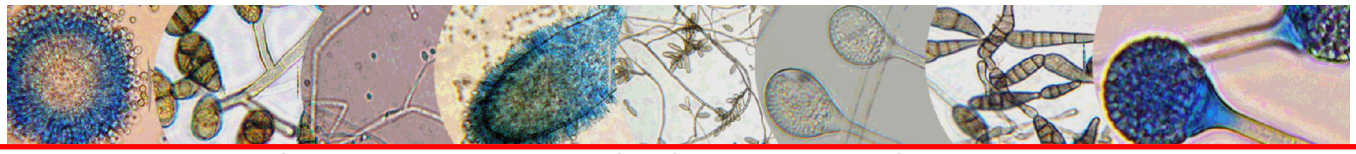
Phone:410-962-6758

Report Date:	**10/9/2018**
Project:	**FT MYER/FT MCNAIRE MOLD**
EMSL Order:	**191812854**

AIHA-LAP, LLC --EMLAP Accredted
#102891



EMSL Analytical, Inc.
10768 Baltimore Avenue Beltsville, MD 20705
Phone: (301) 937-5700 Fax: (301) 937-5701 Web: http://www.EMSL.com Email:beltsvillelab@emsl.com

Attn: Stephen B. Epps
USACE
2 Hopkins Place
Suite 09-E-06-EN 9th Floor
Baltimore, MD 21201

Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order: 191812854
Customer ID: USAC78
Collected: 10/04/2018
Received: 10/05/2018
Analyzed: 10/07/2018

1. Description of Analysis

Analytical Laboratory

EMSL Analytical, Inc. (EMSL) is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold, Indoor Air Quality, Microbiological, Environmental, Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services since 1981. Ranked as the premier independently owned environmental testing laboratory in the nation, EMSL puts analytical quality as its top priority. This quality is recognized by many well-respected federal, state and private accrediting agencies, such as AIHA-LAP, LLC's EMLAP and proficiency testing providers such as AIHA, LLC's EMPAT programs, and assured by our high quality personnel, including many Ph.D. microbiologists and mycologists.

EMSL is an independent laboratory that performed the analysis of these samples. EMSL did not conduct the sampling or site investigation for this report. The samples referenced herein were analyzed under strict quality control procedures using state-of-the-art microbiological methods. The analytical methods used and the data presented are scientifically and legally defensible.

The laboratory data is provided in compliance with AIHA-LAP, LLC policy modules and ISO-IEC 17025 guidelines for the particular test(s) requested, including any associated limitations for the methods employed. These data are intended for use by professionals having knowledge of the testing methods necessary to interpret them accurately.

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Air Samples - Spore traps:

Spore traps are commercially available sampling devices that capture airborne particles on an adhesive slide. Air is pulled through the device using a vacuum pump. Spores, as well as other airborne particles, are impacted on the collection adhesive. Using spore trap collection methods has inherent limitations. These collection methods are biased towards larger spore sizes.

The analysis for total spore counts is a direct microscopic examination and does not include culturing or growing the fungi. Therefore, the results include both viable and non-viable spores. Some fungal groups produce similar spore types that cannot be distinguished by direct microscopic examination alone (i.e., *Aspergillus/Penicillium*, and others). Other spore types may lack distinguishing features that aid in their identification. These types are grouped into larger categories such as Ascospores or Basidiospores.

Fungal spores are identified and grouped by morphological characteristics including color, shape, septation, ornamentation, and fruiting structures (if present) which are compared to published mycological identification keys and texts. EMSL reports provide spore counts per cubic meter of air to three significant figures. Please note that each spore category is reported to three significant figures. Due to rounding and the application of three significant figures the sum of the individual spore numbers may not equal the total spore count on the report. EMSL does not maintain responsibility for final volume concentrations (counts/m3) since this volume is provided by the field collector and can not be verified by EMSL.

EMSL analyzes spore traps using phase contrast microscopy. There is a wide choice of collection devices (Air-O-Cell, Micro-5, Burkhard, etc.) on the market. Differences in analytical method may exist between spore trap devices.

Spore trap results are reported in spores per cubic meter of air. Due to the other airborne particles collected with the spores, EMSL reports a background particle density. Background density is an indication of overall particulate matter present on the sample (i.e. dust in the air). High background concentrations may obscure spores such as the *Penicillium/Aspergillus* group. The rating system is from 1-5 with 1 = 1 - 25% of the background obscured by material, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76% - 99%, 5 = 100% or overloaded. A background rating of 4 or higher should be regarded as a minimum count since the actual concentrations may be higher than those reported. EMSL will not be held responsible for overloading of samples. Sample volumes are left to the discretion of the company or persons conducting the fieldwork.

Skin fragment density is the percentage of skin cells making up the total background material, 1 = 1 - 25%, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76-100%. Skin fragment density is considered an indication of the general cleanliness in the area sampled. It has been estimated that up to 90% of household dust consists of dead skin cells.

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2. Analytical Results

See attached data reports and charts.

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Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0001	Alternaria (Ulocladium)	-	-	-	
	Ascospores	1	40	1.6	☑ ✹
Client Sample ID	Aspergillus/Penicillium	43	1900	73.6	⚠ ✹
248B-ST-1	Basidiospores	5	200	7.8	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	1	40	1.6	☑ ✹
BASE CON RM	Curvularia	-	-	-	
	Epicoccum	-	-	-	
	Fusarium	-	-	-	
Sample Volume (L)	Ganoderma	-	-	-	
75	Myxomycetes++	9	400	15.5	☑ 🌲 ✹
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
Comments	Cercospora++	-	-	-	
	Nigrospora	-	-	-	
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	-	-	-	
	Sporidesmium-like	-	-	-	
	Torula-like	-	-	-	
	Total Fungi	**59**	**2580**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments: **2** 1 to 4 (low to high)
Fibrous Particulate: **1** 1 to 4 (low to high)
Background: **1** 1 to 4 (low to high); 5 (overloaded)

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

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

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

🌲 Not commonly found growing indoors, spores likely come from outside.
✹ Spores reported to be able to cause allergies in individuals.
☣ Potential for mycotoxin production exists with these fungi.
💧 These fungi are considered water damage indicators.

Initial report from: 10/09/2018 10:29:53

Stefanie Schneider, Microbiology Lab Manager
or Other Approved Signatory

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EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

191812854-0002

Client Sample ID
248B-ST-2

Location
SUPPLY RM

Sample Volume (L)
75

Sample Type
Inside

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria (Ulocladium)	-	-	-	
Ascospores	-	-	-	
Aspergillus/Penicillium	54	2400	91.6	⚠ ✹
Basidiospores	2	90	3.4	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	2	90	3.4	☑ ✹
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	1	40	1.5	☑ 🌲 ✹
Pithomyces++	-	-	-	
Rust	-	-	-	
Stachybotrys/Memnoniella	-	-	-	
Arthrobotrys	-	-	-	
Cercospora++	-	-	-	
Nigrospora	-	-	-	
Oidium	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Pyricularia	-	-	-	
Sporidesmium-like	-	-	-	
Torula-like	-	-	-	
Total Fungi	**59**	**2620**	**100**	☑
Other				
Hyphal Fragment	-	-	-	
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**1**	1 to 4 (low to high); 5 (overloaded)

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

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

☑ Concentration at or below background
⚠ Concentration above background
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Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0003	Alternaria (Ulocladium)	-	-	-	
	Ascospores	2	90	0.8	☑ ✹
Client Sample ID	Aspergillus/Penicillium	65	2900	24.9	⚠ ✹
248B-ST-3	Basidiospores	175	7740	66.5	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	13	580	5	☑ ✹
RM 106B	Curvularia	-	-	-	
	Epicoccum	-	-	-	
	Fusarium	-	-	-	
Sample Volume (L)	Ganoderma	2	90	0.8	☑ 🌲 ✹
75	Myxomycetes++	5	200	1.7	☑ 🌲 ✹
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
Comments	Cercospora++	1	40	0.3	☑ 🌲
	Nigrospora	-	-	-	
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	-	-	-	
	Sporidesmium-like	-	-	-	
	Torula-like	-	-	-	
	Total Fungi	**263**	**11640**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	1*	10*	-	☑ 🌲 ✹

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**2**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**2**	1 to 4 (low to high); 5 (overloaded)

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

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☑ Concentration at or below background
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	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0004	Alternaria (Ulocladium)	-	-	-	
	Ascospores	8	400	2.9	☑ ✹
Client Sample ID	Aspergillus/Penicillium	29	1300	9.5	⚠ ✹
248B-ST-4	Basidiospores	247	10900	79.3	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	14	620	4.5	☑ ✹
RM103B	Curvularia	-	-	-	
	Epicoccum	-	-	-	
Sample Volume (L)	Fusarium	2	90	0.7	☑ 🌲 ✹ ☣ 💧
	Ganoderma	3	100	0.7	☑ 🌲 ✹
75	Myxomycetes++	4	200	1.5	☑ 🌲 ✹
	Pithomyces++	1	40	0.3	☑ 🌲 ✹
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
Comments	Cercospora++	1	40	0.3	☑ 🌲
	Nigrospora	1*	10*	0.1	☑ 🌲
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	-	-	-	
	Sporidesmium-like	-	-	-	
	Torula-like	1	40	0.3	☑ 🌲 ✹
	Total Fungi	**311**	**13740**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**2**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
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191812854-0005

Client Sample ID
248B-ST-5

Location
RM 203A

Sample Volume (L)
75

Sample Type
Inside

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria (Ulocladium)	-	-	-	
Ascospores	-	-	-	
Aspergillus/Penicillium	490	21700	98.5	⊘ ✹
Basidiospores	7	300	1.4	☑ ▲ ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	-	-	-	
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	1	40	0.2	☑ ▲ ✹
Pithomyces++	-	-	-	
Rust	-	-	-	
Stachybotrys/Memnoniella	-	-	-	
Arthrobotrys	-	-	-	
Cercospora++	-	-	-	
Nigrospora	-	-	-	
Oidium	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Pyricularia	-	-	-	
Sporidesmium-like	-	-	-	
Torula-like	-	-	-	
Total Fungi	**498**	**22040**	**100**	☑
Other				
Hyphal Fragment	-	-	-	
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
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191812854-0006

Client Sample ID
248B-ST-6

Location
RM 207A

Sample Volume (L)
75

Sample Type
Inside

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria (Ulocladium)	-	-	-	
Ascospores	1	40	0.9	☑ ✹
Aspergillus/Penicillium	10	440	10.3	☑ ✹
Basidiospores	59	2600	61	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	17	750	17.6	☑ ✹
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	1	40	0.9	☑ 🌲 ✹
Myxomycetes++	6	300	7	☑ 🌲 ✹
Pithomyces++	-	-	-	
Rust	-	-	-	
Stachybotrys/Memnoniella	-	-	-	
Arthrobotrys	-	-	-	
Cercospora++	2	90	2.1	☑ 🌲
Nigrospora	-	-	-	
Oidium	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Pyricularia	-	-	-	
Sporidesmium-like	-	-	-	
Torula-like	-	-	-	
Total Fungi	**96**	**4260**	**100**	☑
Other				
Hyphal Fragment	1	40	-	☑
Insect Fragment	4	200	-	⚠
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**2**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**2**	1 to 4 (low to high); 5 (overloaded)

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

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

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

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Initial report from: 10/09/2018 10:29:53

Stefanie Schneider, Microbiology Lab Manager
or Other Approved Signatory

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10768 Baltimore Avenue Beltsville, MD 20705
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Attn: Stephen B. Epps
USACE
2 Hopkins Place
Suite 09-E-06-EN 9th Floor
Baltimore, MD 21201

Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0007	Alternaria (Ulocladium)	1	40	0.1	
Client Sample ID	Ascospores	31	1400	4	
248B-ST-7	Aspergillus/Penicillium	16	710	2	
	Basidiospores	546	24200	68.8	
	Bipolaris++	-	-	-	
Location	Chaetomium	-	-	-	
OUTSIDE	Cladosporium	167	7390	21	
	Curvularia	1	40	0.1	
	Epicoccum	-	-	-	
Sample Volume (L)	Fusarium	4	200	0.6	
75	Ganoderma	6	300	0.9	
	Myxomycetes++	9	400	1.1	
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
Background	Stachybotrys/Memnoniella	-	-	-	
	Arthrobotrys	-	-	-	
Comments	Cercospora++	7	300	0.9	
	Nigrospora	1	40	0.1	
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	2	90	0.3	
	Sporidesmium-like	-	-	-	
	Torula-like	1	40	0.1	
	Total Fungi	**792**	**35150**	**100**	
	Other				
	Hyphal Fragment	1*	10*	-	
	Insect Fragment	-	-	-	
	Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
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Concentration at or below background
Concentration above background
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Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

191812854-0008

Client Sample ID
248A-ST-1

Location
OUTSIDE

Sample Volume (L)
75

Sample Type
Background

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total
Alternaria (Ulocladium)	2	90	0.1
Ascospores	611	27000	35.2
Aspergillus/Penicillium	7	300	0.4
Basidiospores	882	39000	50.8
Bipolaris++	-	-	-
Chaetomium	-	-	-
Cladosporium	204	9030	11.8
Curvularia	-	-	-
Epicoccum	1	40	0.1
Fusarium	3	100	0.1
Ganoderma	8	400	0.5
Myxomycetes++	2	90	0.1
Pithomyces++	1	40	0.1
Rust	1	40	0.1
Stachybotrys/Memnoniella	-	-	-
Arthrobotrys	1	40	0.1
Cercospora++	6	300	0.4
Nigrospora	3	100	0.1
Oidium	1	40	0.1
Pestalotia/Pestalotiopsis	1	40	0.1
Pyricularia	1	40	0.1
Sporidesmium-like	-	-	-
Torula-like	1	40	0.1
Total Fungi	**1736**	**76730**	**100**
Other			
Hyphal Fragment	1	40	-
Insect Fragment	1	40	-
Pollen	3	100	-

Interpretation Guideline

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**2**	1 to 4 (low to high); 5 (overloaded)

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Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0009	Alternaria (Ulocladium)	-	-	-	
	Ascospores	69	3100	15.3	☑ ✹
Client Sample ID	Aspergillus/Penicillium	42	1900	9.4	⚠ ✹
248A-ST-2	Basidiospores	333	14700	72.3	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	7	300	1.5	☑ ✹
BASE CON RM	Curvularia	-	-	-	
	Epicoccum	-	-	-	
Sample Volume (L)	Fusarium	1	40	0.2	☑ 🌲 ✹ ☣ 💧
	Ganoderma	-	-	-	
75	Myxomycetes++	5	200	1	☑ 🌲 ✹
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
	Cercospora++	-	-	-	
Comments	Nigrospora	1	40	0.2	☑ 🌲
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	1	40	0.2	☑ 🌲
	Sporidesmium-like	-	-	-	
	Torula-like	-	-	-	
	Total Fungi	**459**	**20320**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	2	90	-	☑ 🌲 ✹

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**2**	1 to 4 (low to high); 5 (overloaded)

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

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Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

191812854-0010

Client Sample ID
248A-ST-3

Location
2ND PLATOON

Sample Volume (L)
75

Sample Type
Inside

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria (Ulocladium)	2	90	0.6	☑ ✹ ☣ 💧
Ascospores	126	5570	37.3	☑ ✹
Aspergillus/Penicillium	6	300	2	☑ ✹
Basidiospores	175	7740	51.8	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	20	890	6	☑ ✹
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	1	40	0.3	☑ 🌲 ✹ ☣ 💧
Ganoderma	3	100	0.7	☑ 🌲 ✹
Myxomycetes++	1	40	0.3	☑ 🌲 ✹
Pithomyces++	-	-	-	
Rust	-	-	-	
Stachybotrys/Memnoniella	-	-	-	
Arthrobotrys	-	-	-	
Cercospora++	1	40	0.3	☑ 🌲
Nigrospora	-	-	-	
Oidium	-	-	-	
Pestalotia/Pestalotiopsis	1	40	0.3	☑ 🌲
Pyricularia	1	40	0.3	☑ 🌲
Sporidesmium-like	1	40	0.3	⚠
Torula-like	-	-	-	
Total Fungi	**338**	**14930**	**100**	☑
Other				
Hyphal Fragment	-	-	-	
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**2**	1 to 4 (low to high); 5 (overloaded)

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Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0011	Alternaria (Ulocladium)	-	-	-	
	Ascospores	101	4470	12.3	☑ ✹
Client Sample ID	Aspergillus/Penicillium	5	200	0.6	☑ ✹
248A-ST-4	Basidiospores	700	31000	85.4	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	11	490	1.4	☑ ✹
RM 107B	Curvularia	-	-	-	
	Epicoccum	-	-	-	
Sample Volume (L)	Fusarium	1	40	0.1	☑ 🌲 ✹ ☣ 💧
	Ganoderma	1	40	0.1	☑ 🌲 ✹
75	Myxomycetes++	-	-	-	
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
	Cercospora++	-	-	-	
Comments	Nigrospora	-	-	-	
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	1	40	0.1	☑ 🌲
	Pyricularia	-	-	-	
	Sporidesmium-like	-	-	-	
	Torula-like	-	-	-	
	Total Fungi	**820**	**36280**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	1	40	-	☑ 🌲 ✹

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**2**	1 to 4 (low to high)
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Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
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Analyzed:	10/07/2018

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	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0012	Alternaria (Ulocladium)	-	-	-	
	Ascospores	19	840	11.6	☑ ✹
Client Sample ID	Aspergillus/Penicillium	85	3800	52.4	⚠ ✹
248A-ST-5	Basidiospores	57	2500	34.5	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	3	100	1.4	☑ ✹
RM 206B	Curvularia	-	-	-	
	Epicoccum	-	-	-	
	Fusarium	-	-	-	
Sample Volume (L)	Ganoderma	1*	10*	0.1	☑ 🌲 ✹
75	Myxomycetes++	-	-	-	
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
	Cercospora++	-	-	-	
Comments	Nigrospora	-	-	-	
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	-	-	-	
	Sporidesmium-like	-	-	-	
	Torula-like	-	-	-	
	Total Fungi	**165**	**7250**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	-	-	-	

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Analytical Sensitivity 300x *: **13*** counts/cubic meter

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Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order:	191812854
Customer ID:	USAC78
Collected:	10/04/2018
Received:	10/05/2018
Analyzed:	10/07/2018

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods MICRO-SOP-201, ASTM D7391)

	Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
191812854-0013	Alternaria (Ulocladium)	-	-	-	
	Ascospores	45	2000	13.6	☑ ✹
Client Sample ID	Aspergillus/Penicillium	1	40	0.3	☑ ✹
248A-ST-6	Basidiospores	280	12400	84.5	☑ 🌲 ✹
	Bipolaris++	-	-	-	
	Chaetomium	-	-	-	
Location	Cladosporium	5	200	1.4	☑ ✹
RM 211B	Curvularia	-	-	-	
	Epicoccum	-	-	-	
	Fusarium	-	-	-	
Sample Volume (L)	Ganoderma	1	40	0.3	☑ 🌲 ✹
75	Myxomycetes++	-	-	-	
	Pithomyces++	-	-	-	
Sample Type	Rust	-	-	-	
	Stachybotrys/Memnoniella	-	-	-	
Inside	Arthrobotrys	-	-	-	
	Cercospora++	-	-	-	
Comments	Nigrospora	-	-	-	
	Oidium	-	-	-	
	Pestalotia/Pestalotiopsis	-	-	-	
	Pyricularia	-	-	-	
	Sporidesmium-like	-	-	-	
	Torula-like	-	-	-	
	Total Fungi	**332**	**14680**	**100**	☑
	Other				
	Hyphal Fragment	-	-	-	
	Insect Fragment	-	-	-	
	Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13*** counts/cubic meter

Skin Fragments:	**2**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**1**	1 to 4 (low to high); 5 (overloaded)

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

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

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

🌲 Not commonly found growing indoors, spores likely come from outside.
✹ Spores reported to be able to cause allergies in individuals.
☣ Potential for mycotoxin production exists with these fungi.
💧 These fungi are considered water damage indicators.

Initial report from: 10/09/2018 10:29:53

Stefanie Schneider, Microbiology Lab Manager
or Other Approved Signatory

Samples received in good condition unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client.

Samples analyzed by EMSL Analytical, Inc. Beltsville, MD AIHA-LAP, LLC --EMLAP Accredted #102891

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191812854-0014

Client Sample ID
248A-ST-7

Location
RM 3011

Sample Volume (L)
75

Sample Type
Inside

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria (Ulocladium)	-	-	-	
Ascospores	15	660	15.9	☑ ✹
Aspergillus/Penicillium	6	300	7.2	☑ ✹
Basidiospores	71	3100	74.7	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	2	90	2.2	☑ ✹
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	-	-	-	
Pithomyces++	-	-	-	
Rust	-	-	-	
Stachybotrys/Memnoniella	-	-	-	
Arthrobotrys	-	-	-	
Cercospora++	-	-	-	
Nigrospora	-	-	-	
Oidium	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Pyricularia	-	-	-	
Sporidesmium-like	-	-	-	
Torula-like	-	-	-	
Total Fungi	**94**	**4150**	**100**	☑
Other				
Hyphal Fragment	-	-	-	
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
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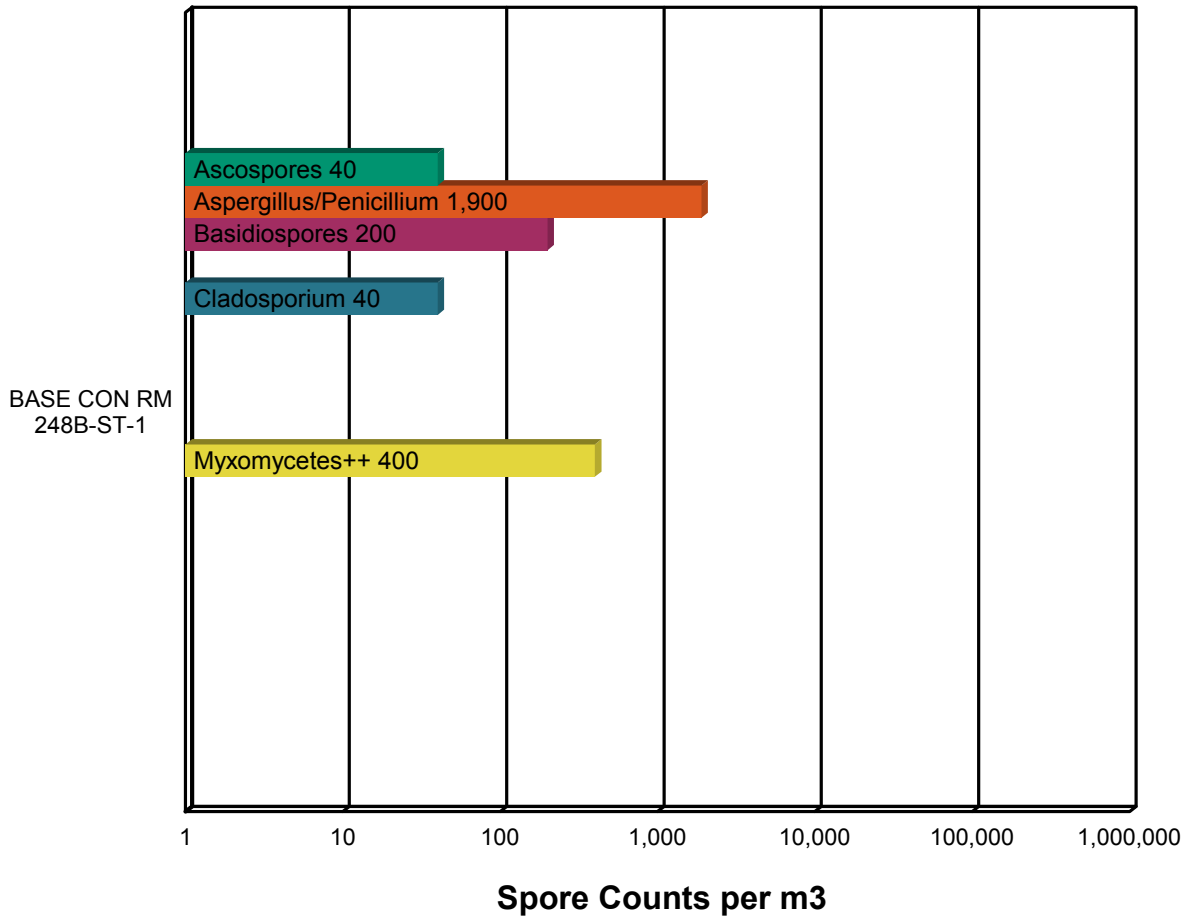

Alternaria (Ulocladium)
Arthrobotrys
Ascospores
Aspergillus/Penicillium
Basidiospores
Cercospora++
Cladosporium
Curvularia
Epicoccum
Fusarium
Ganoderma
Myxomycetes++
Nigrospora
Oidium
Pestalotia/Pestalotiopsis
Pithomyces++
Pyricularia
Rust
Sporidesmium-like
Torula-like

* The chart is displayed using a logarithmic scale. Bar size is not directly proportional to the number of spores.

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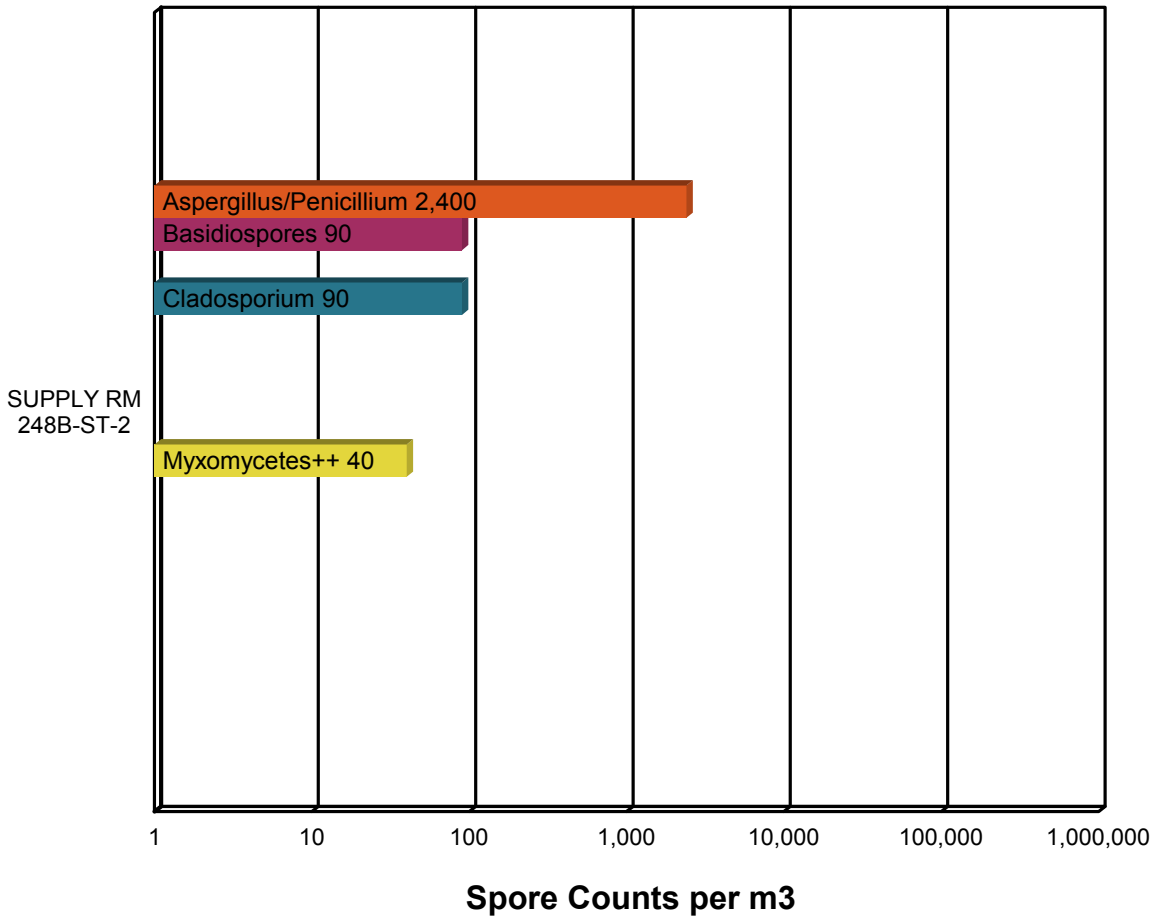

Alternaria (Ulocladium)	Arthrobotrys	Ascospores
Aspergillus/Penicillium	Basidiospores	Cercospora++
Cladosporium	Curvularia	Epicoccum
Fusarium	Ganoderma	Myxomycetes++
Nigrospora	Oidium	Pestalotia/Pestalotiopsis
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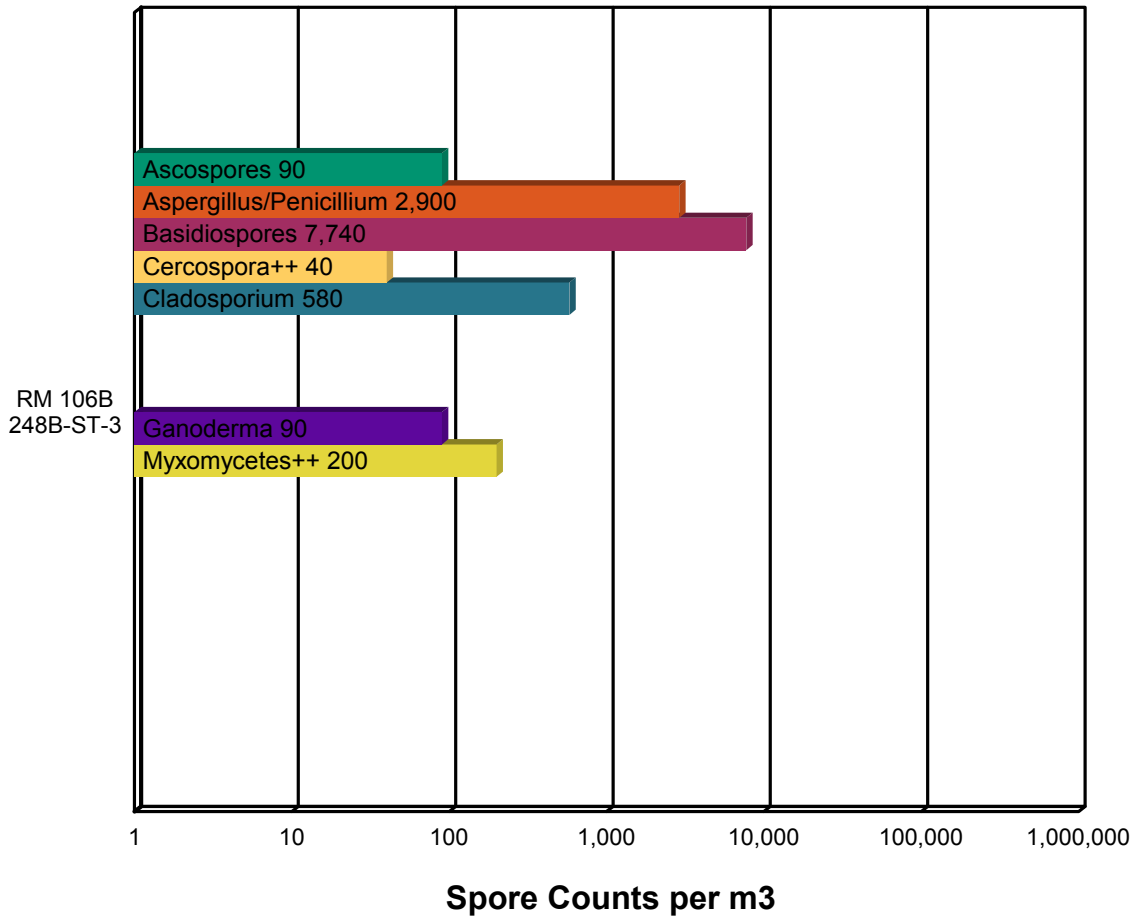

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Aspergillus/Penicillium
Basidiospores
Cercospora++
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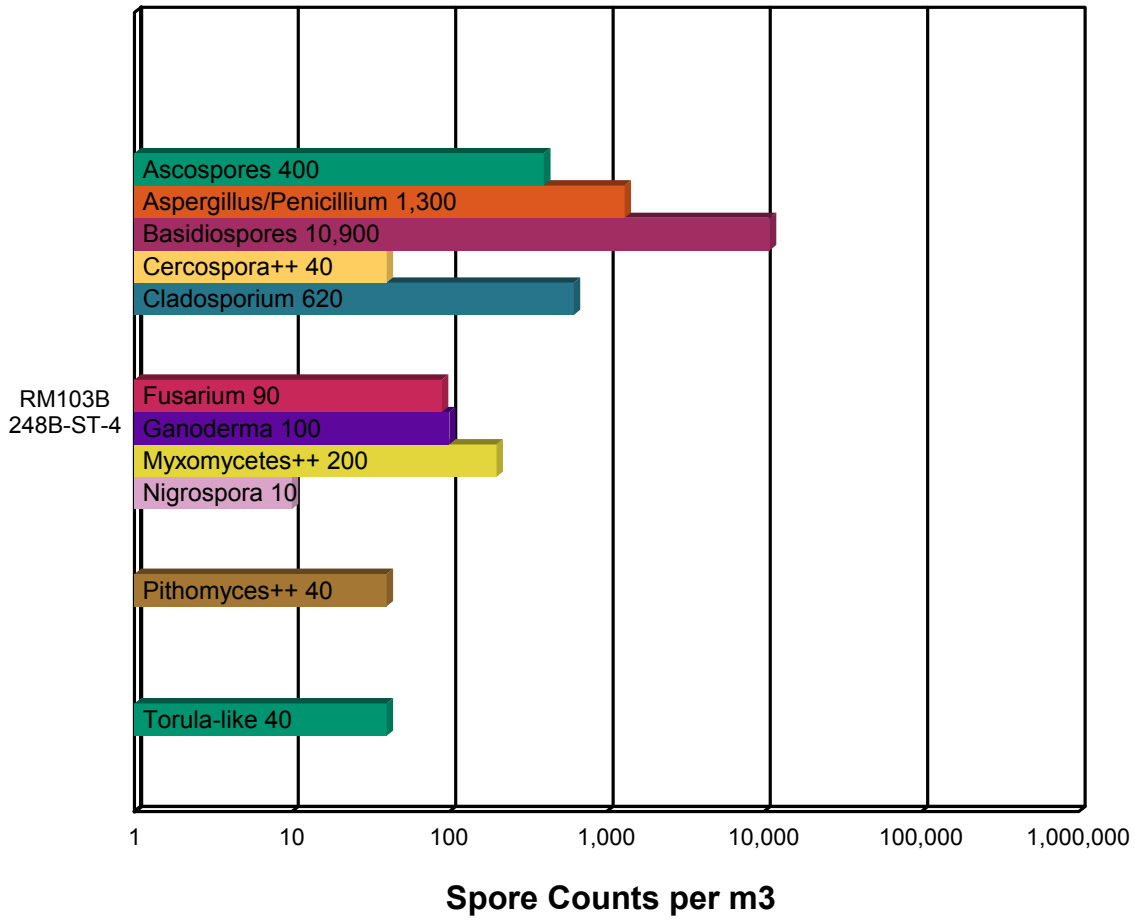

Alternaria (Ulocladium)
Aspergillus/Penicillium
Cladosporium
Fusarium
Nigrospora
Pithomyces++
Sporidesmium-like
Arthrobotrys
Basidiospores
Curvularia
Ganoderma
Oidium
Pyricularia
Torula-like
Ascospores
Cercospora++
Epicoccum
Myxomycetes++
Pestalotia/Pestalotiopsis
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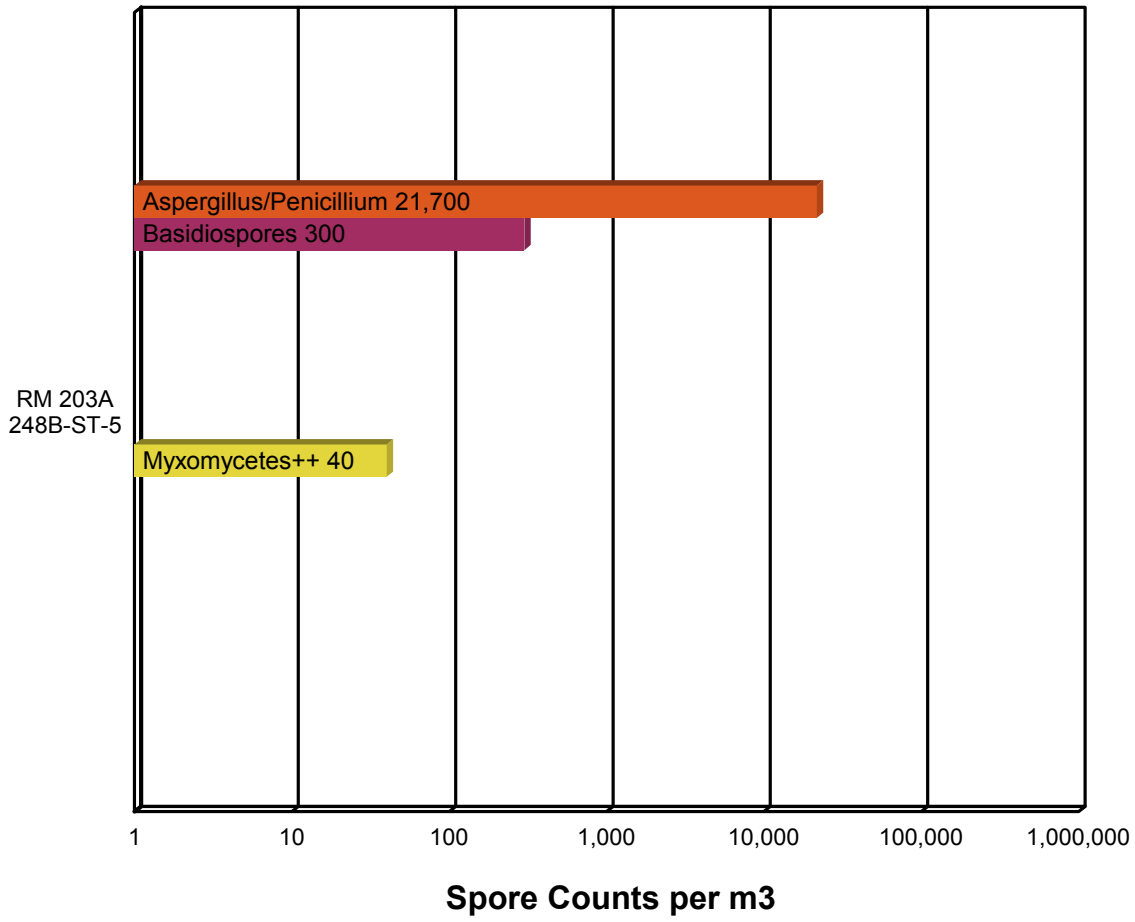

Alternaria (Ulocladium)	Arthrobotrys	Ascospores
Aspergillus/Penicillium	Basidiospores	Cercospora++
Cladosporium	Curvularia	Epicoccum
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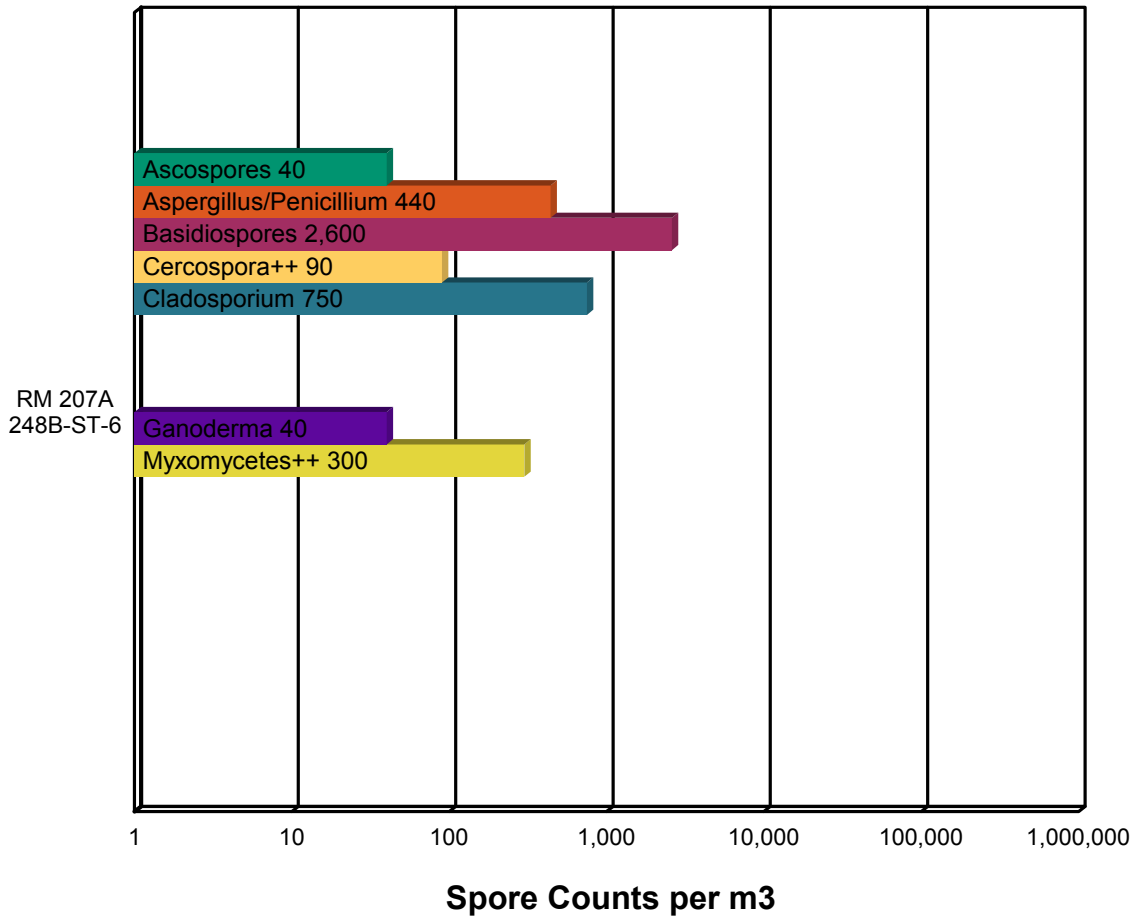

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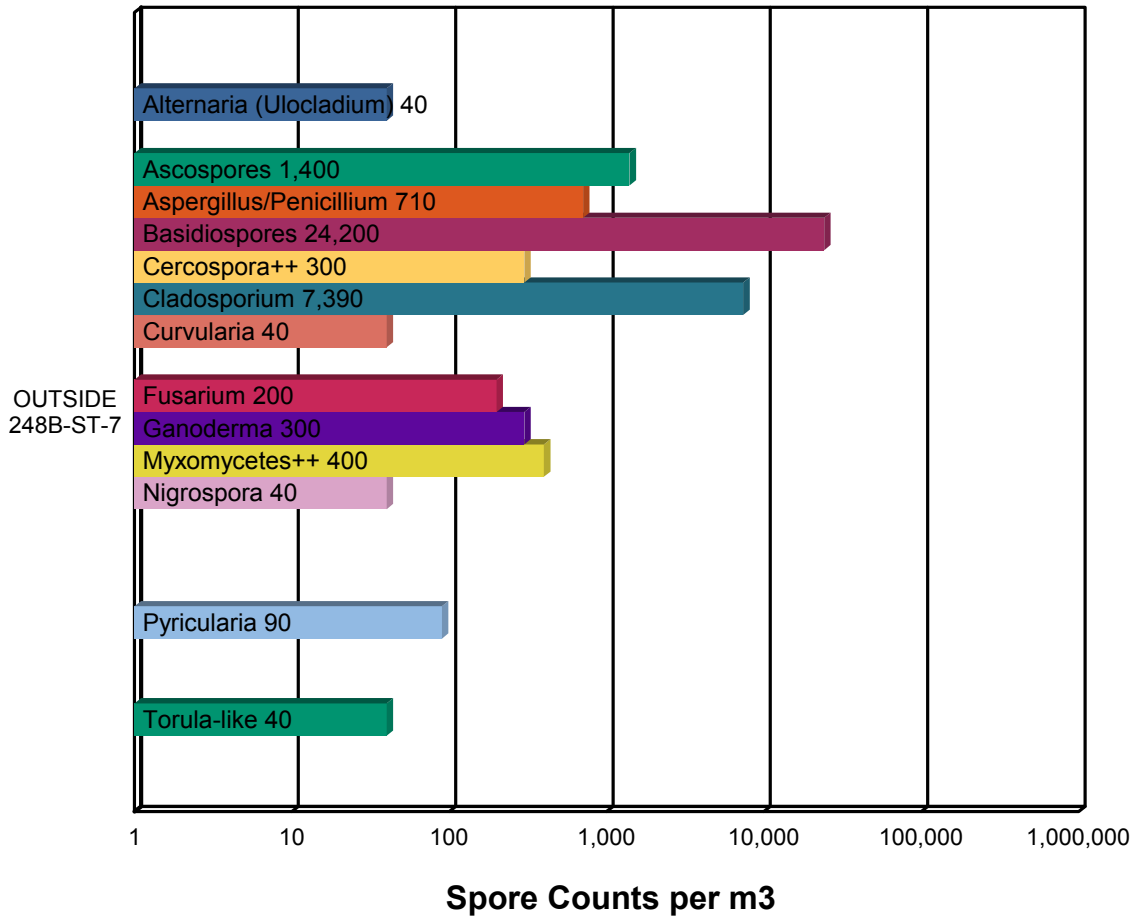

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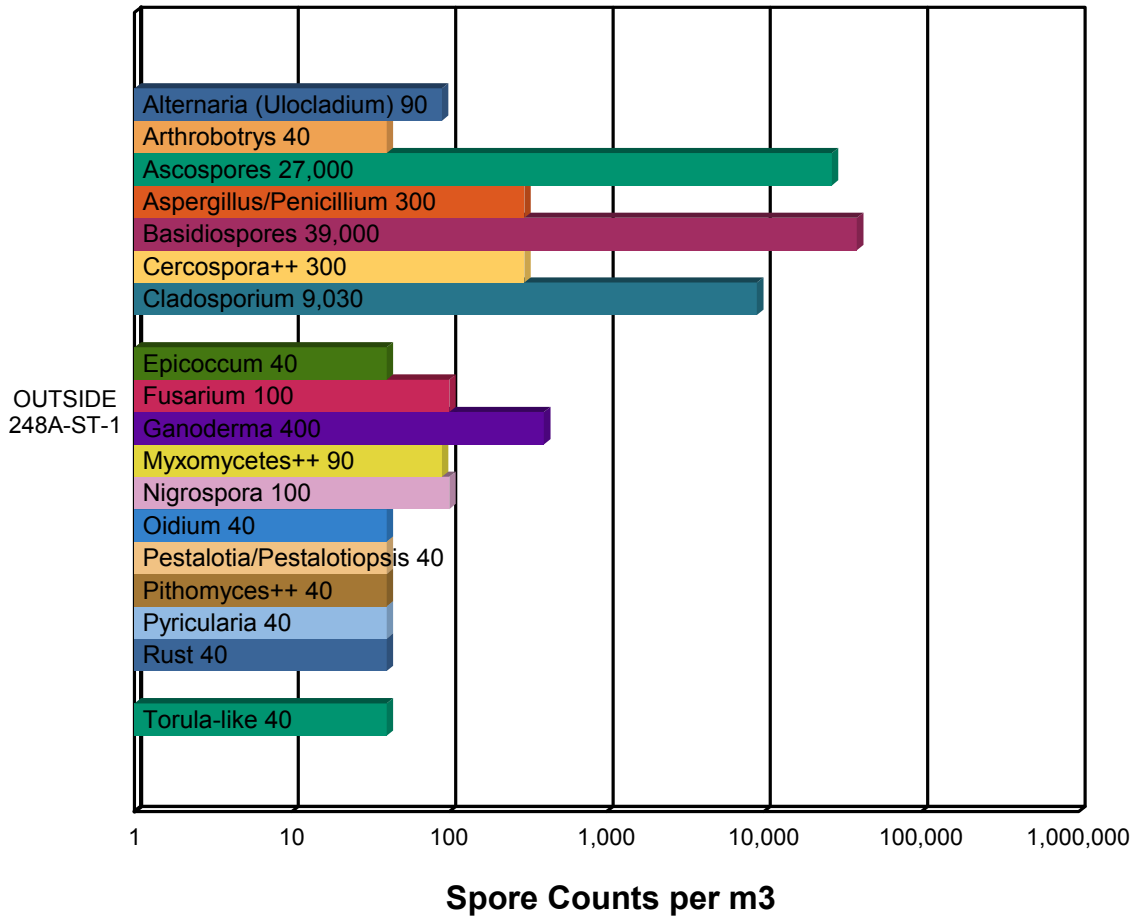

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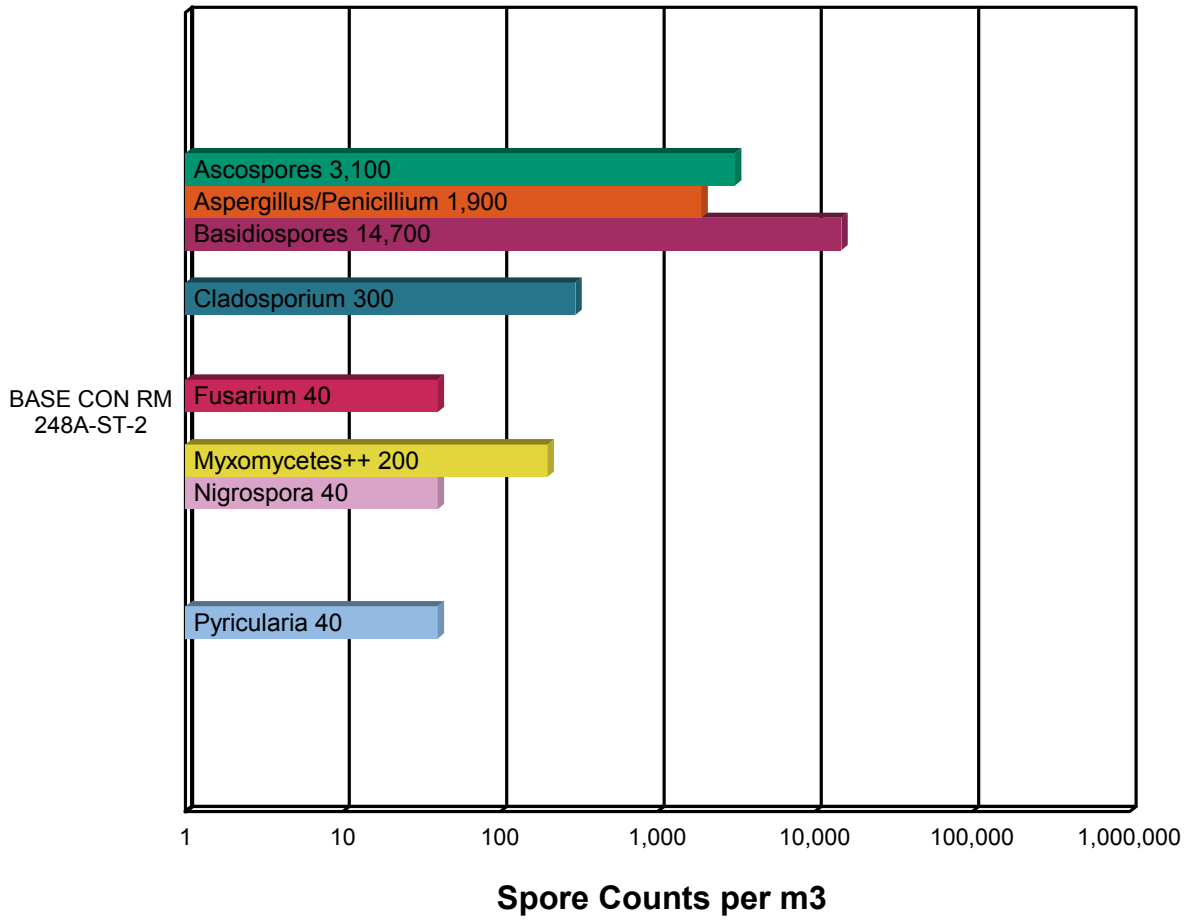

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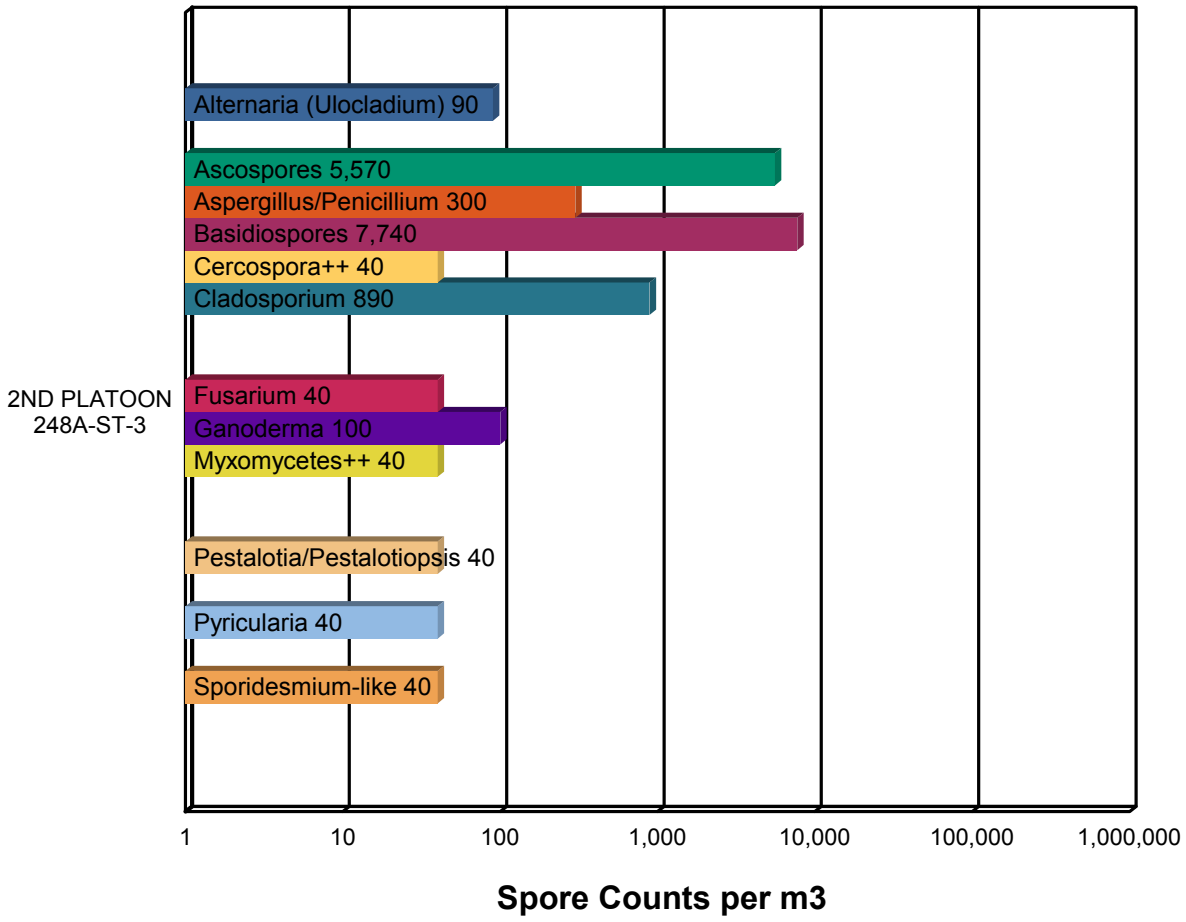

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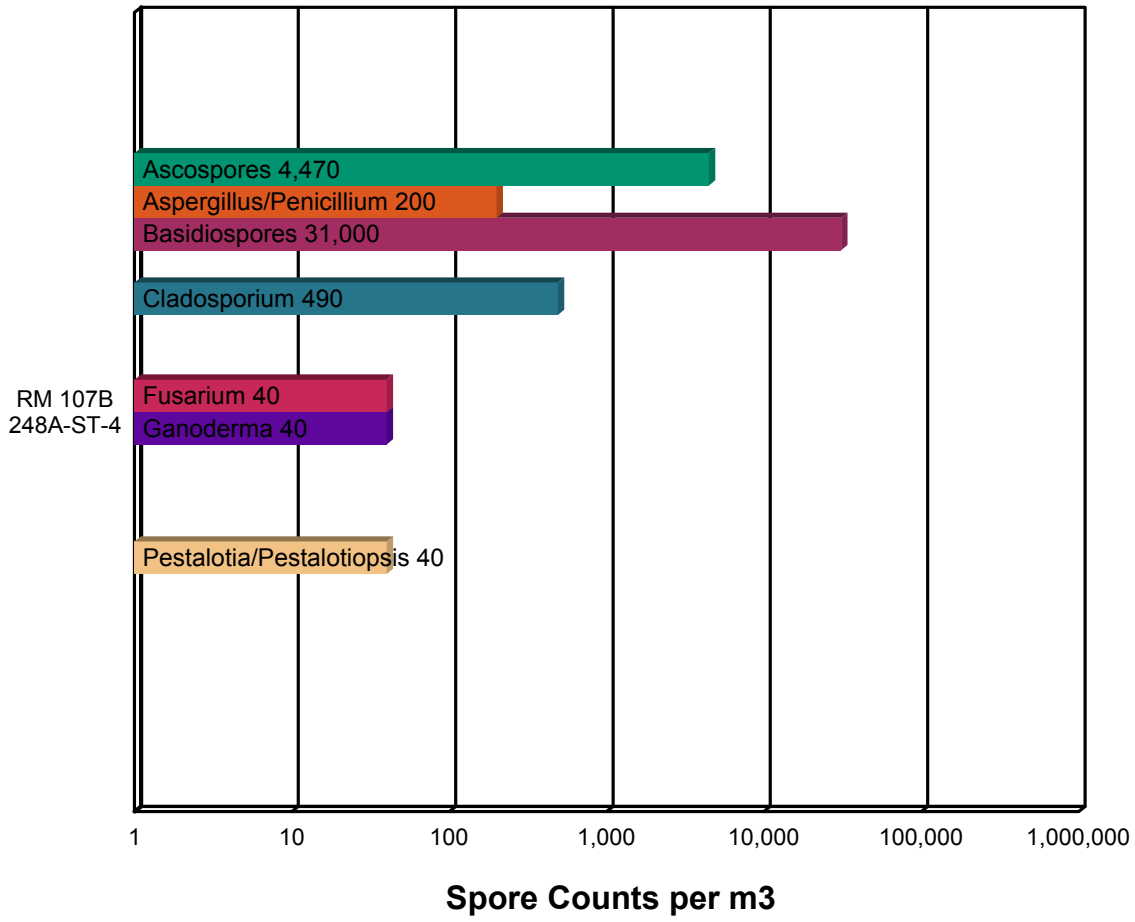

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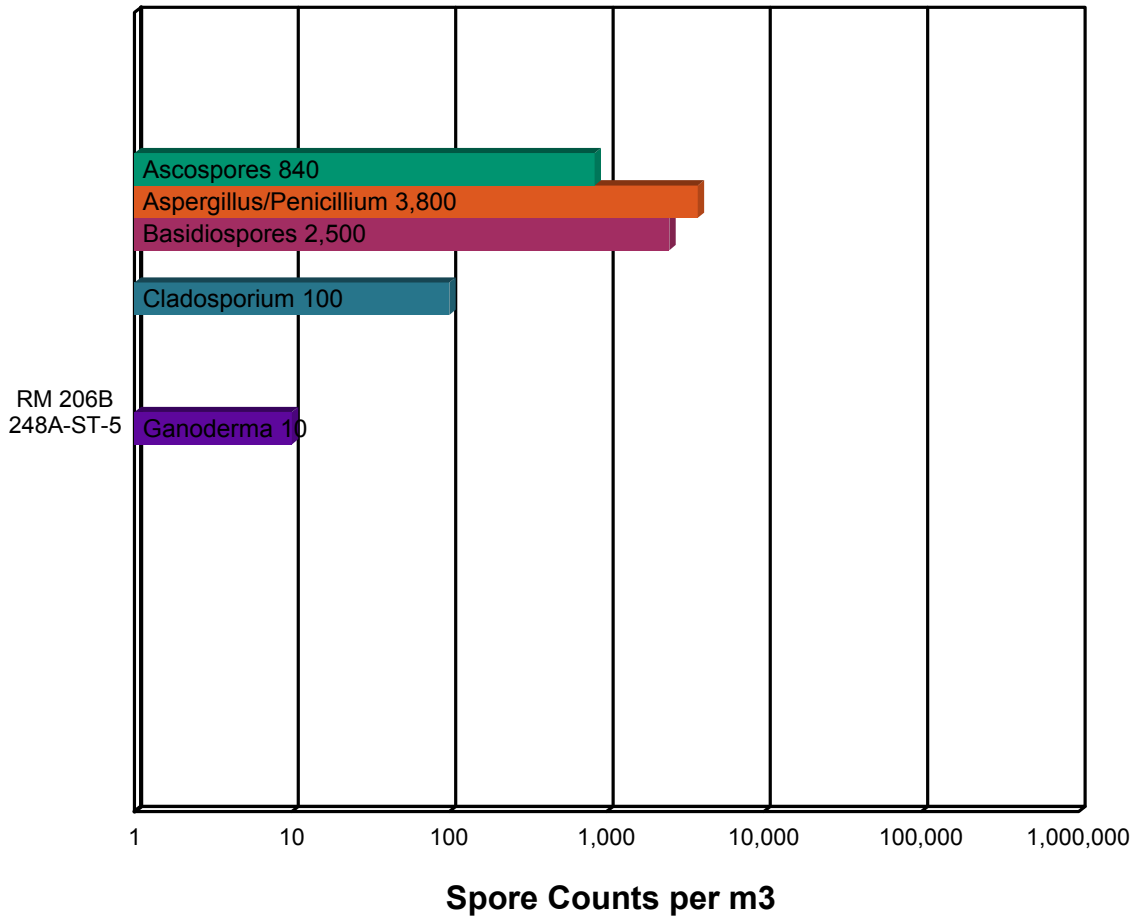

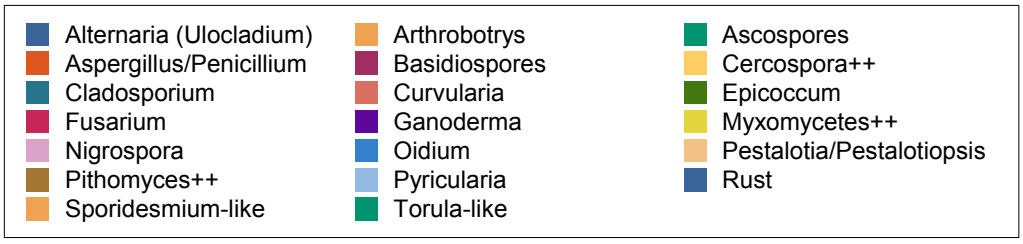

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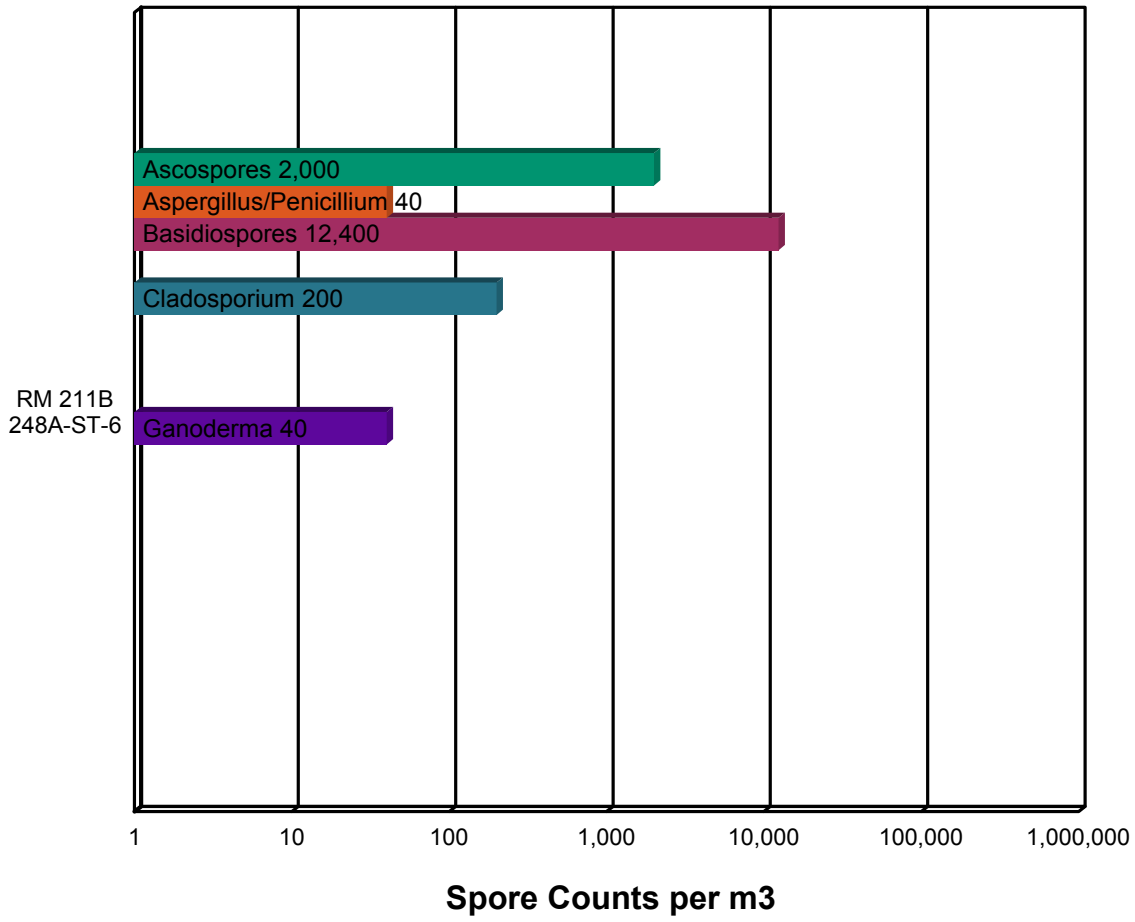

Alternaria (Ulocladium)
Arthrobotrys
Ascospores
Aspergillus/Penicillium
Basidiospores
Cercospora++
Cladosporium
Curvularia
Epicoccum
Fusarium
Ganoderma
Myxomycetes++
Nigrospora
Oidium
Pestalotia/Pestalotiopsis
Pithomyces++
Pyricularia
Rust
Sporidesmium-like
Torula-like

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Proj: FT MYER/FT MCNAIRE MOLD

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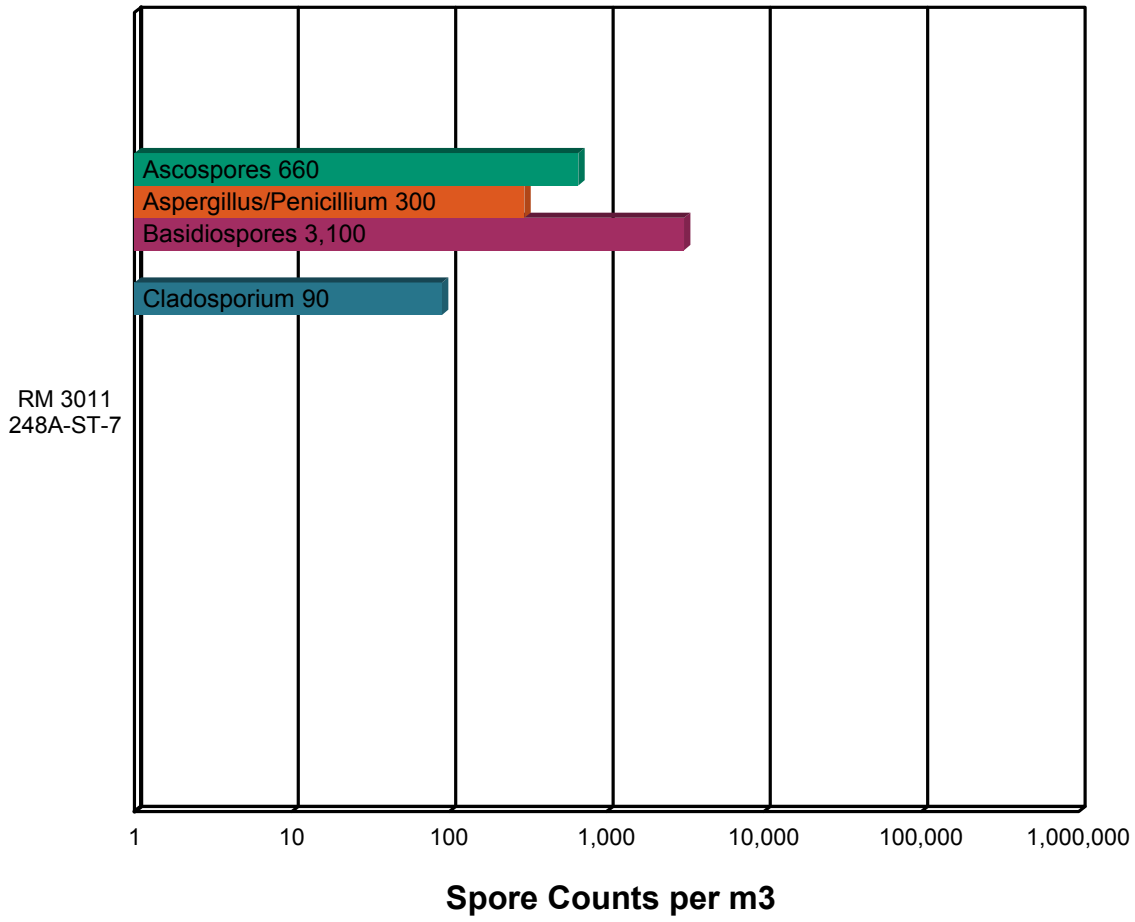
Spore Trap Report: Total Counts



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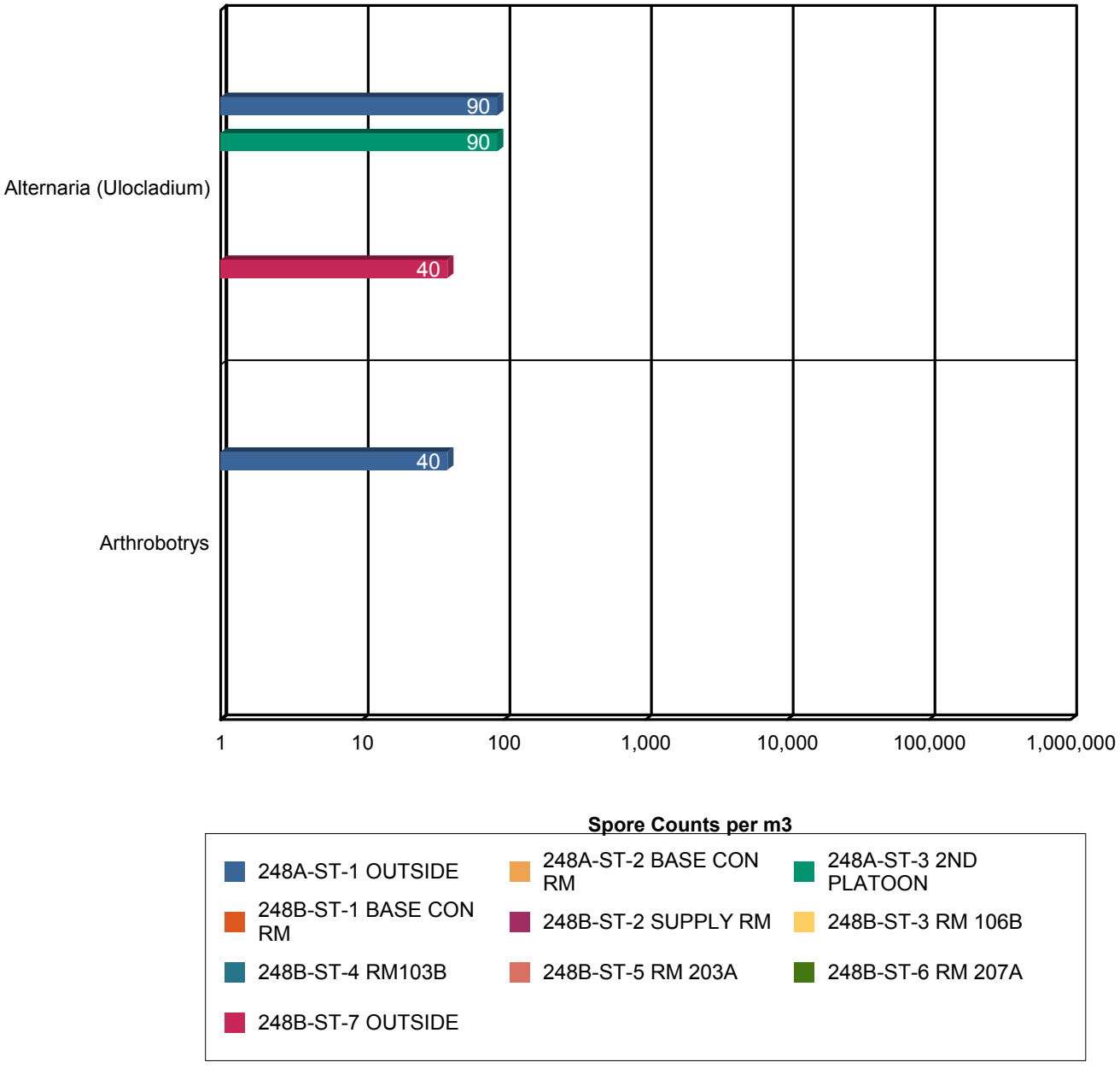

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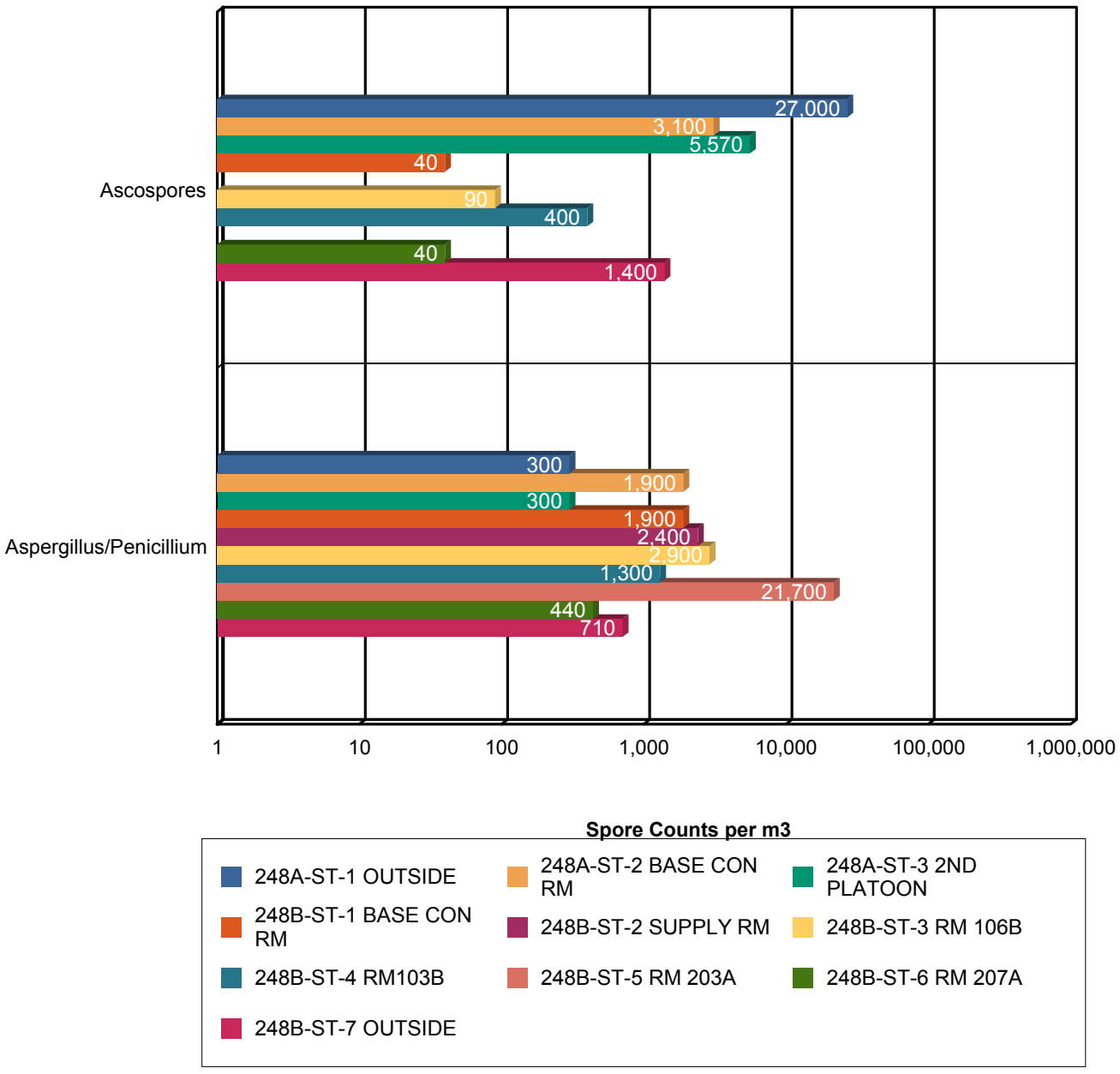

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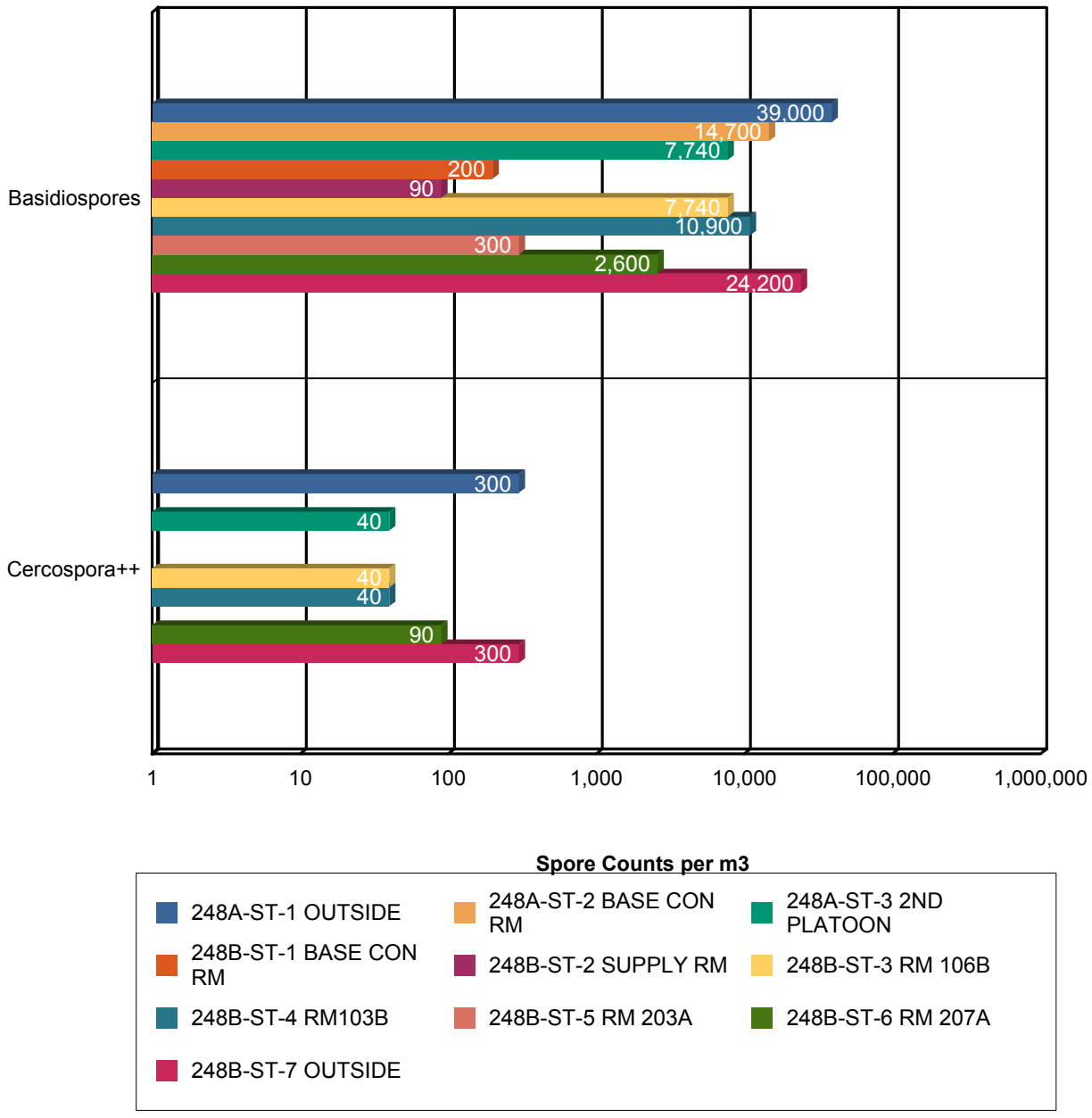

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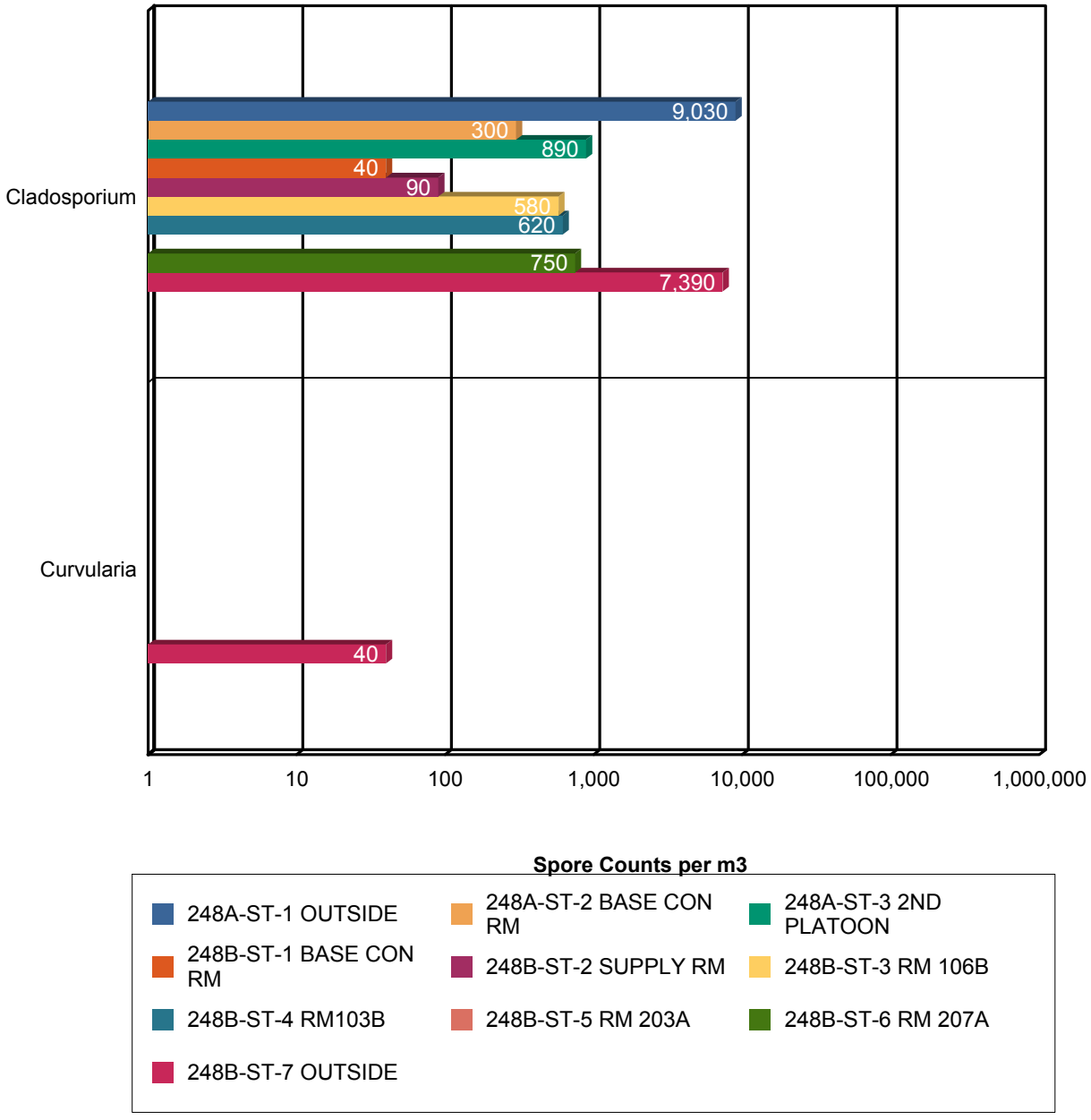

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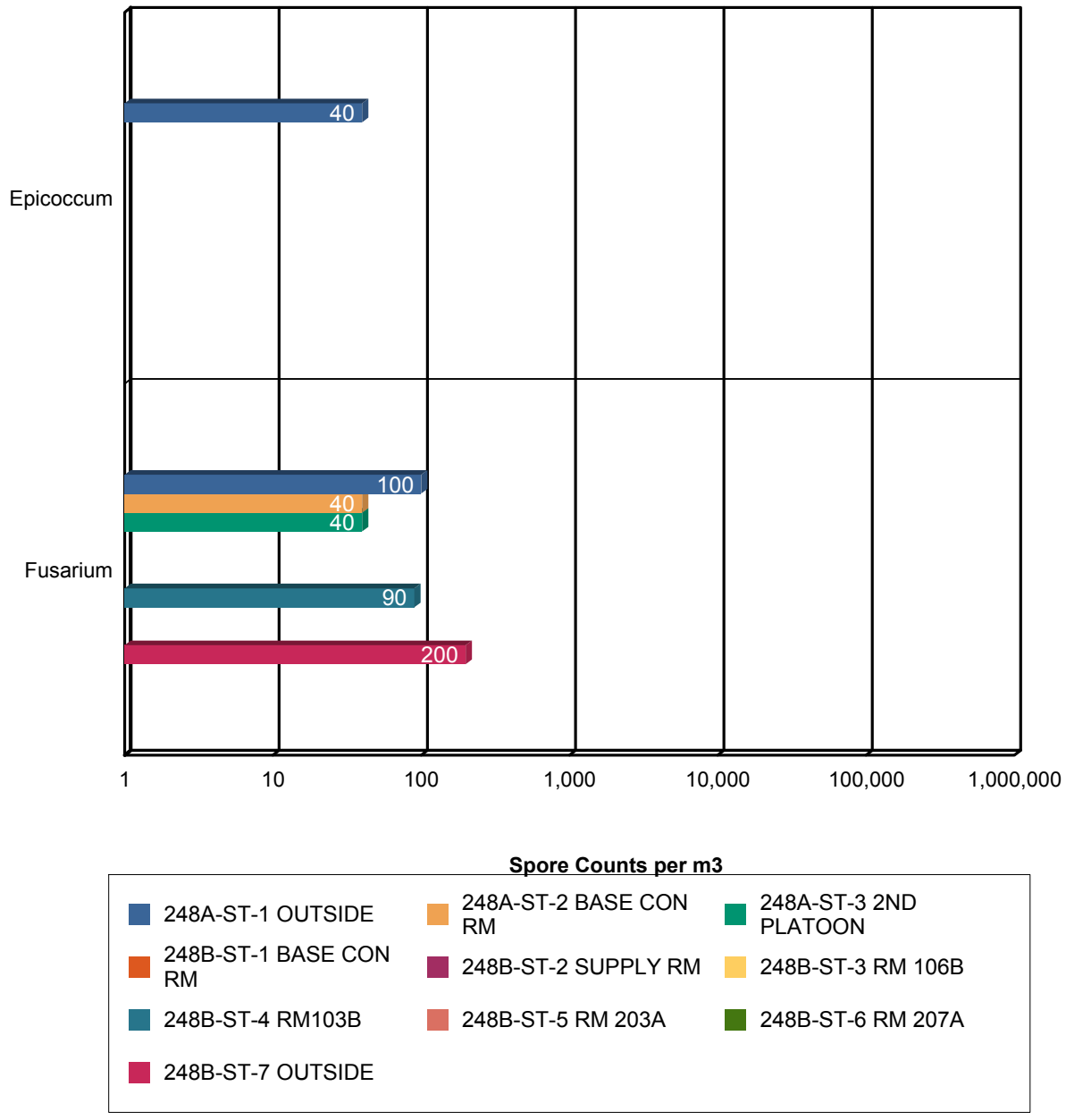

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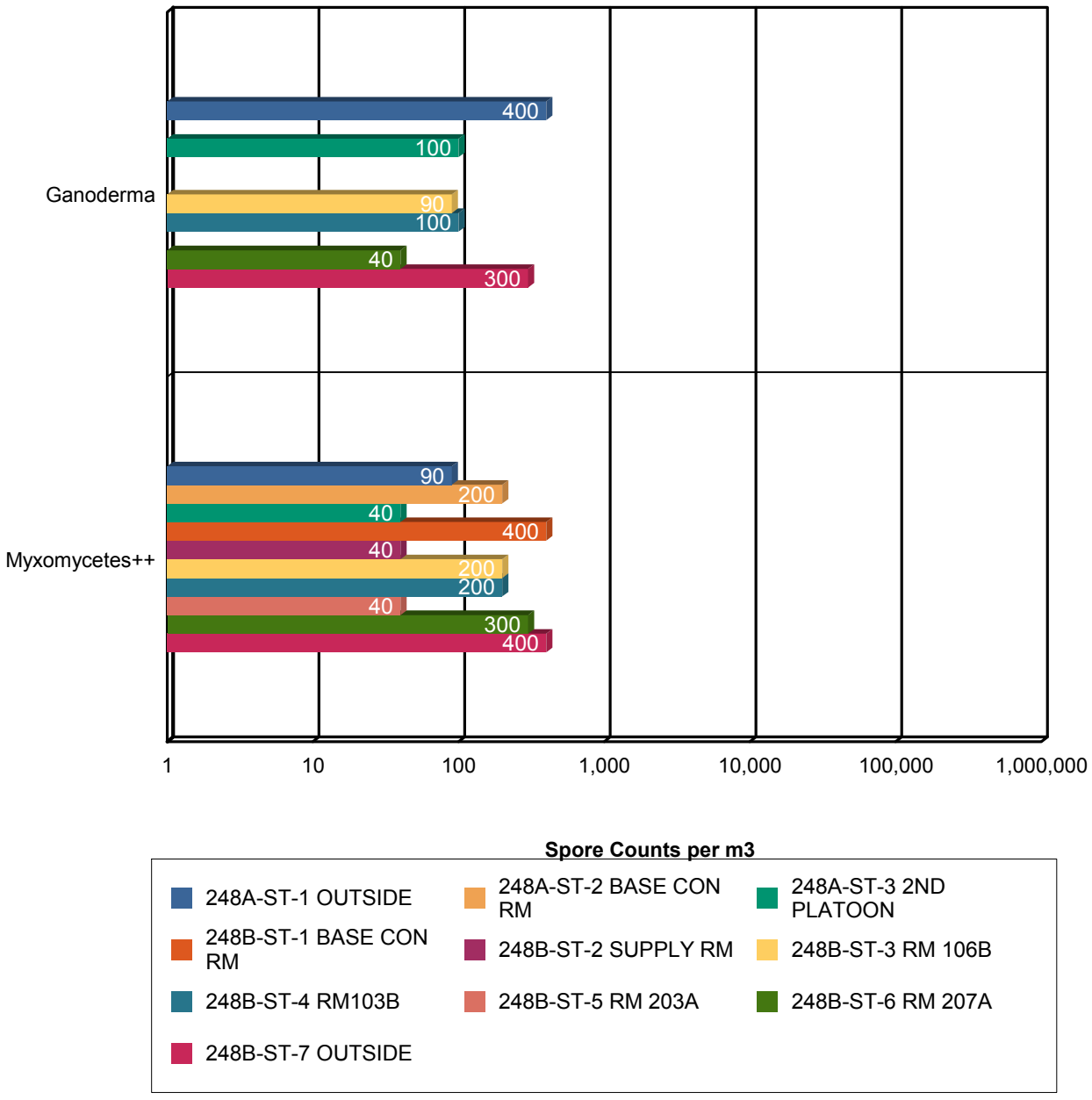

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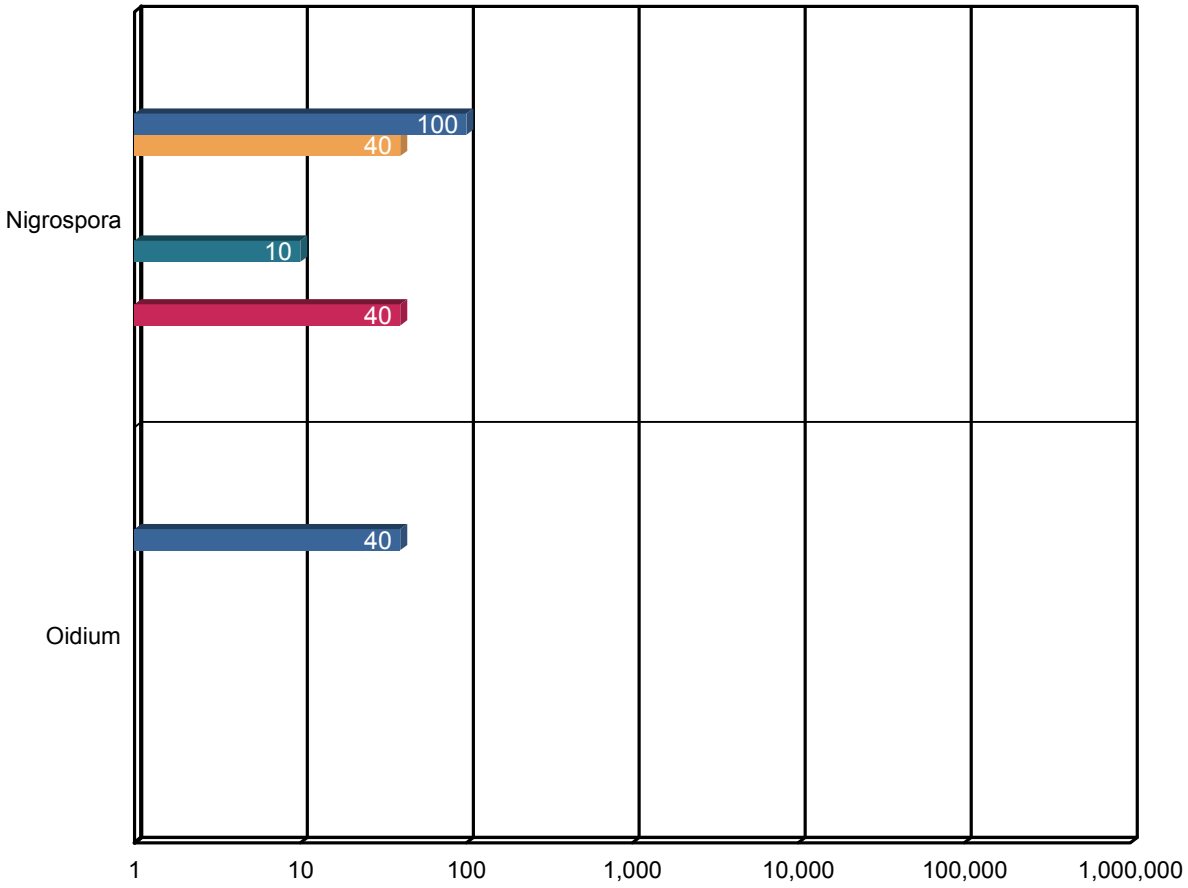

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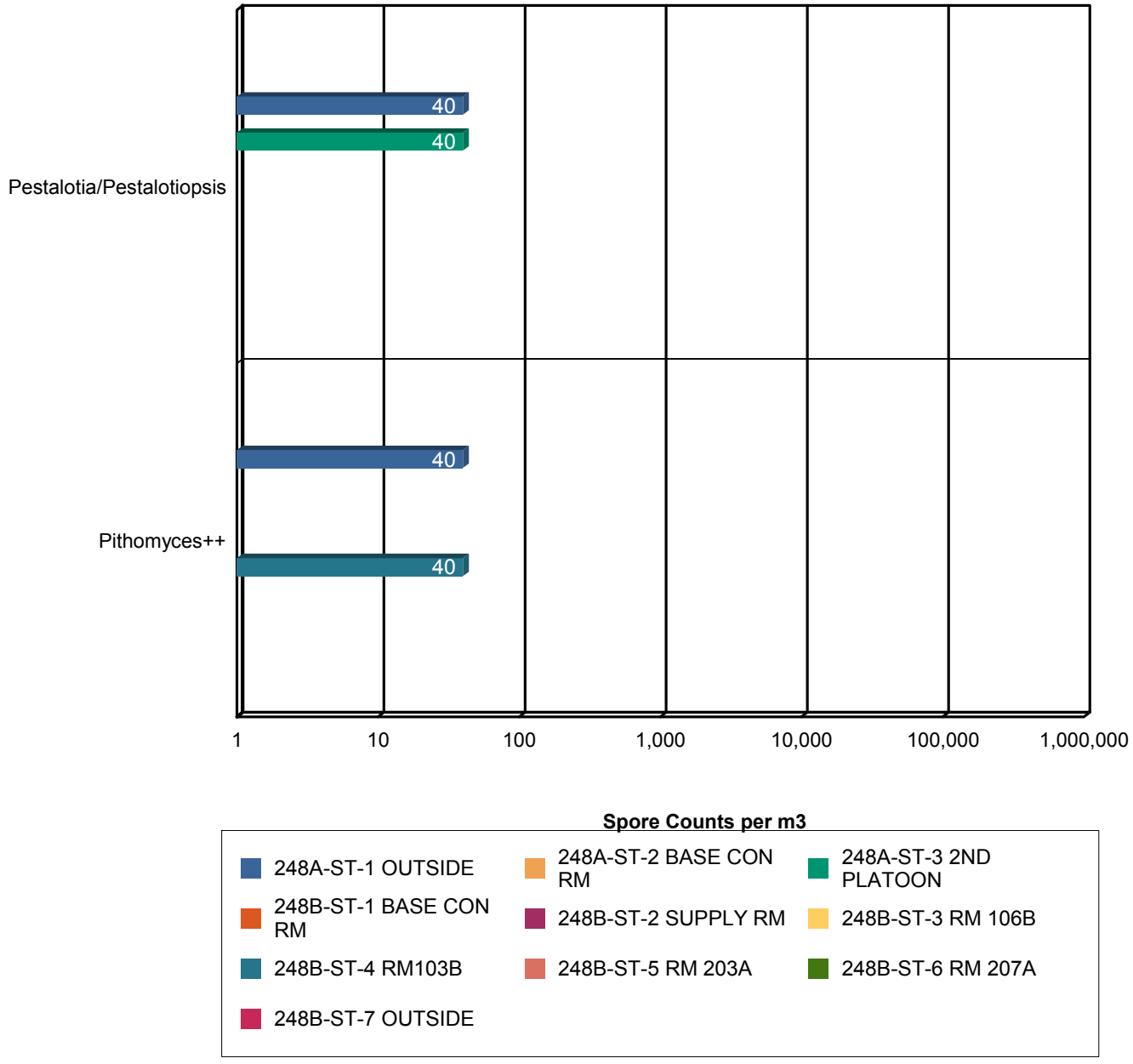

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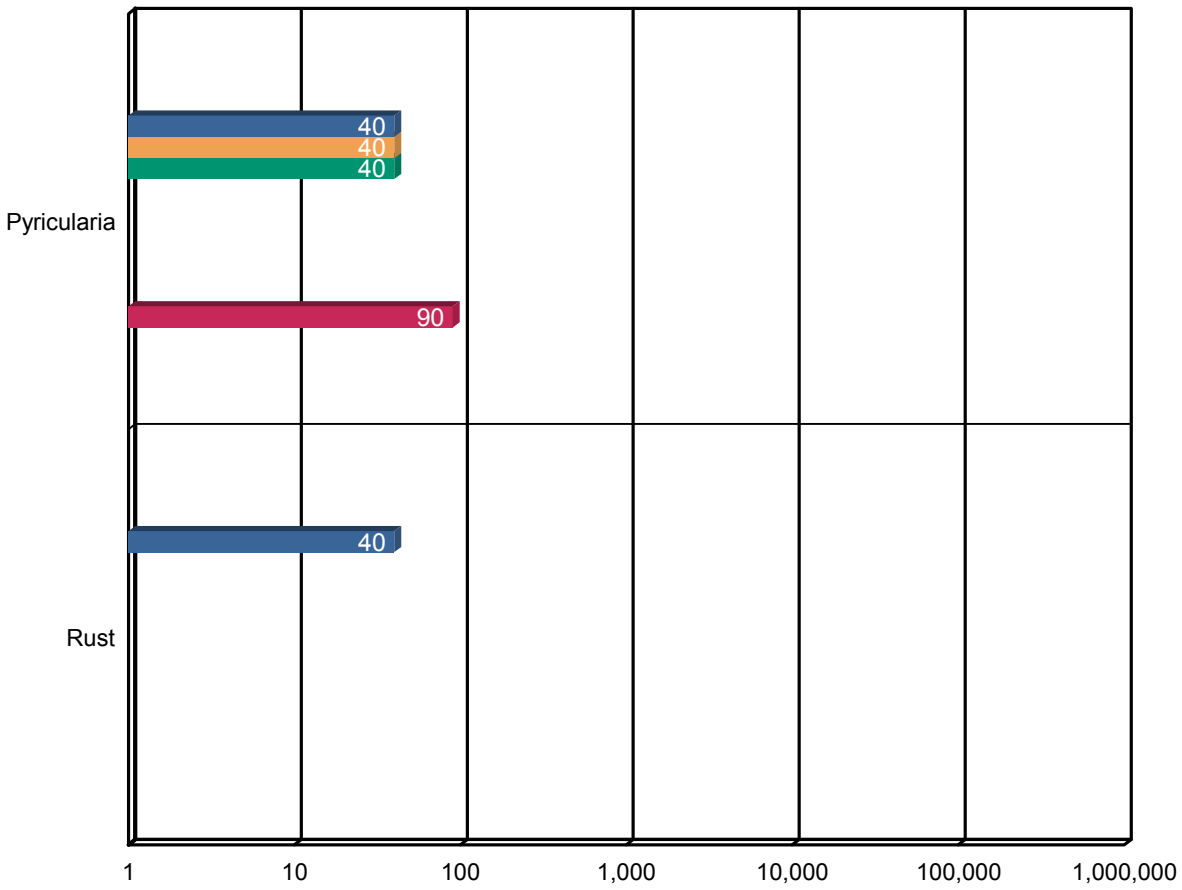

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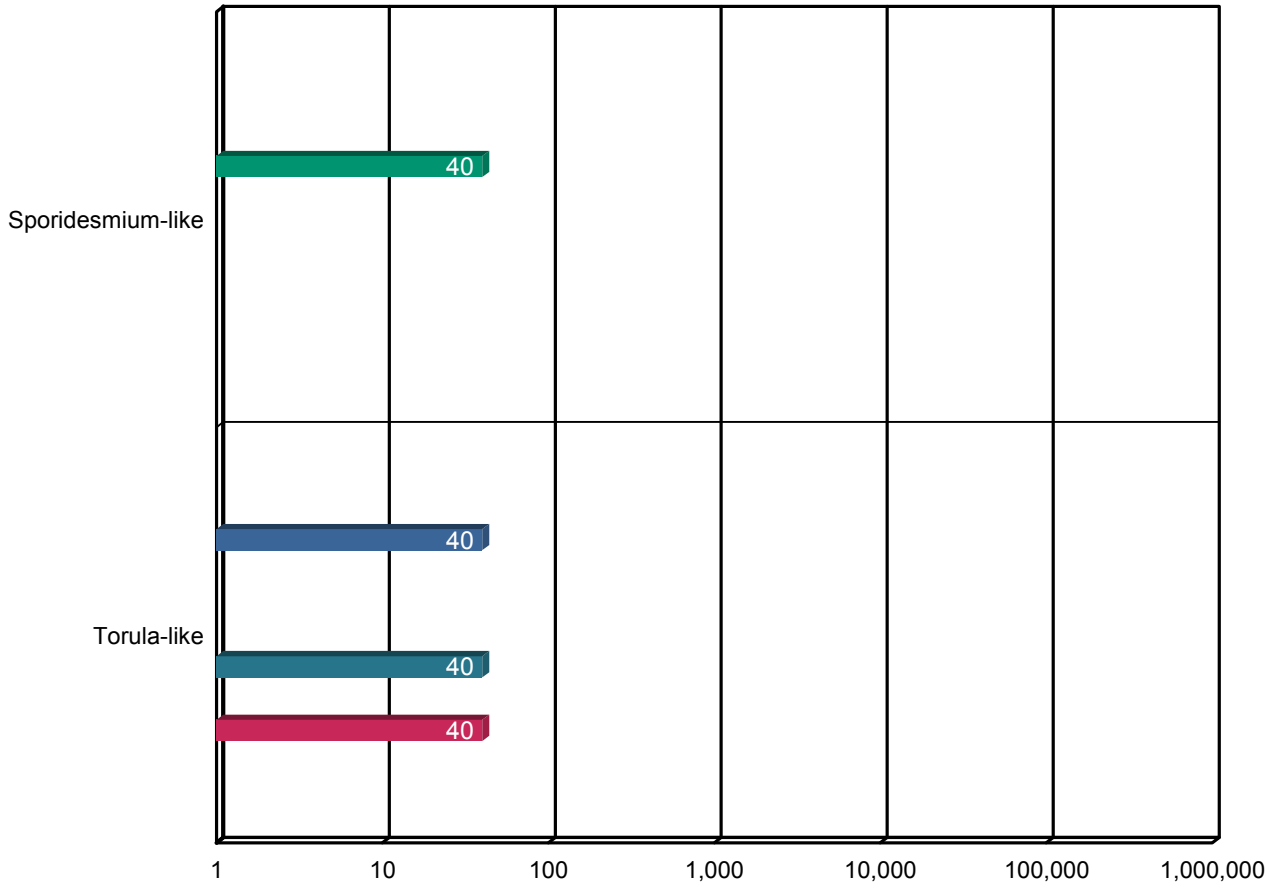

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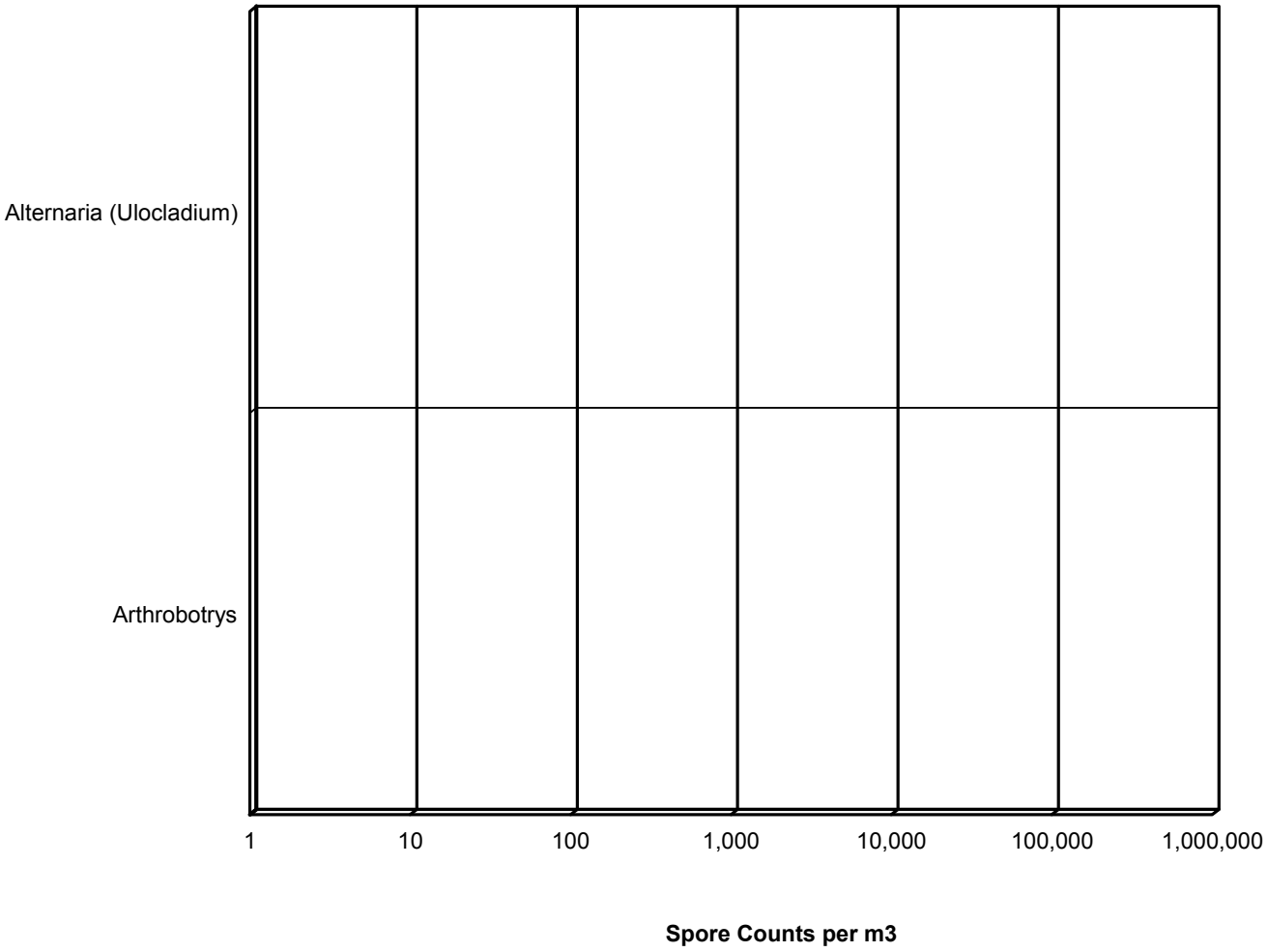

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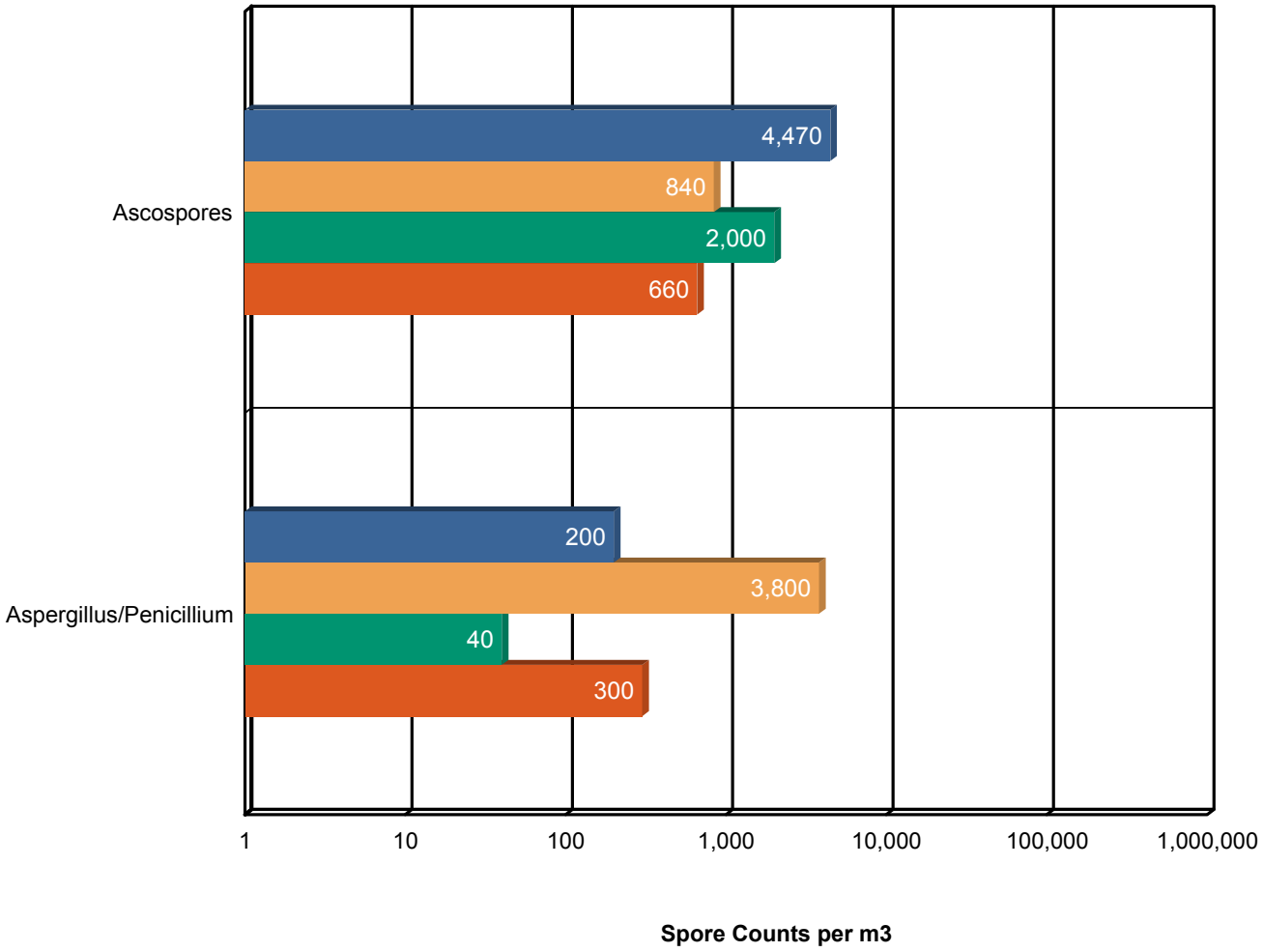

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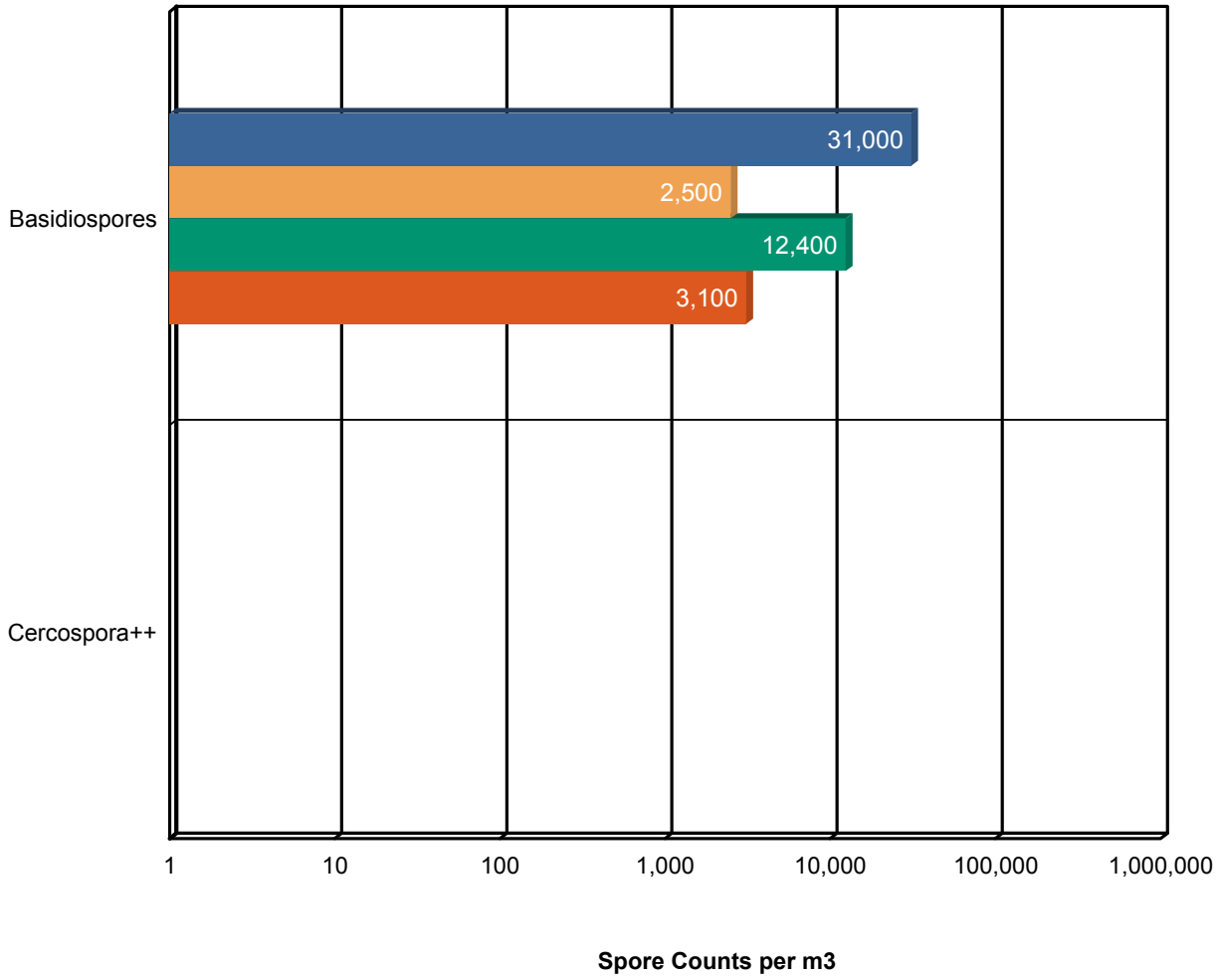

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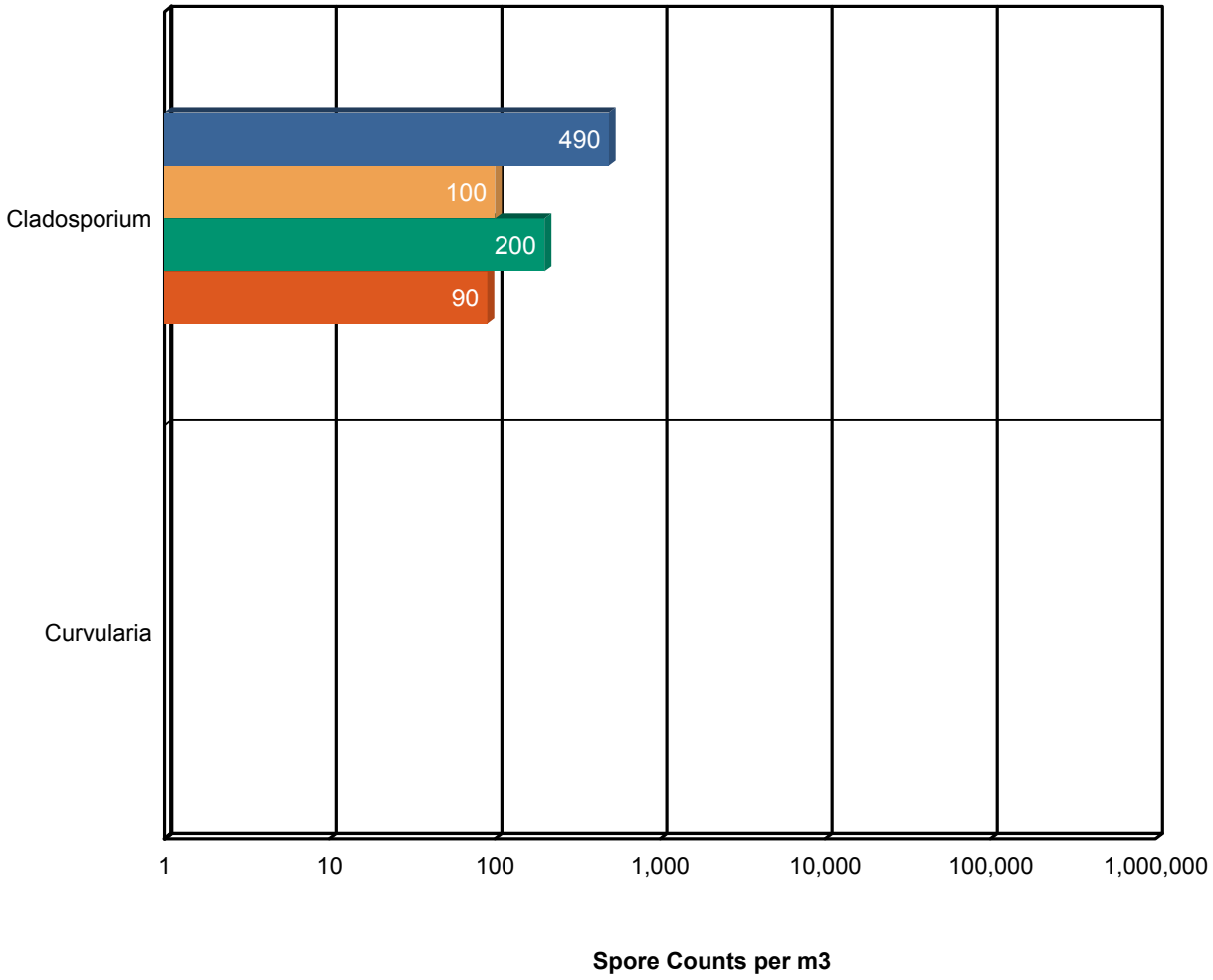

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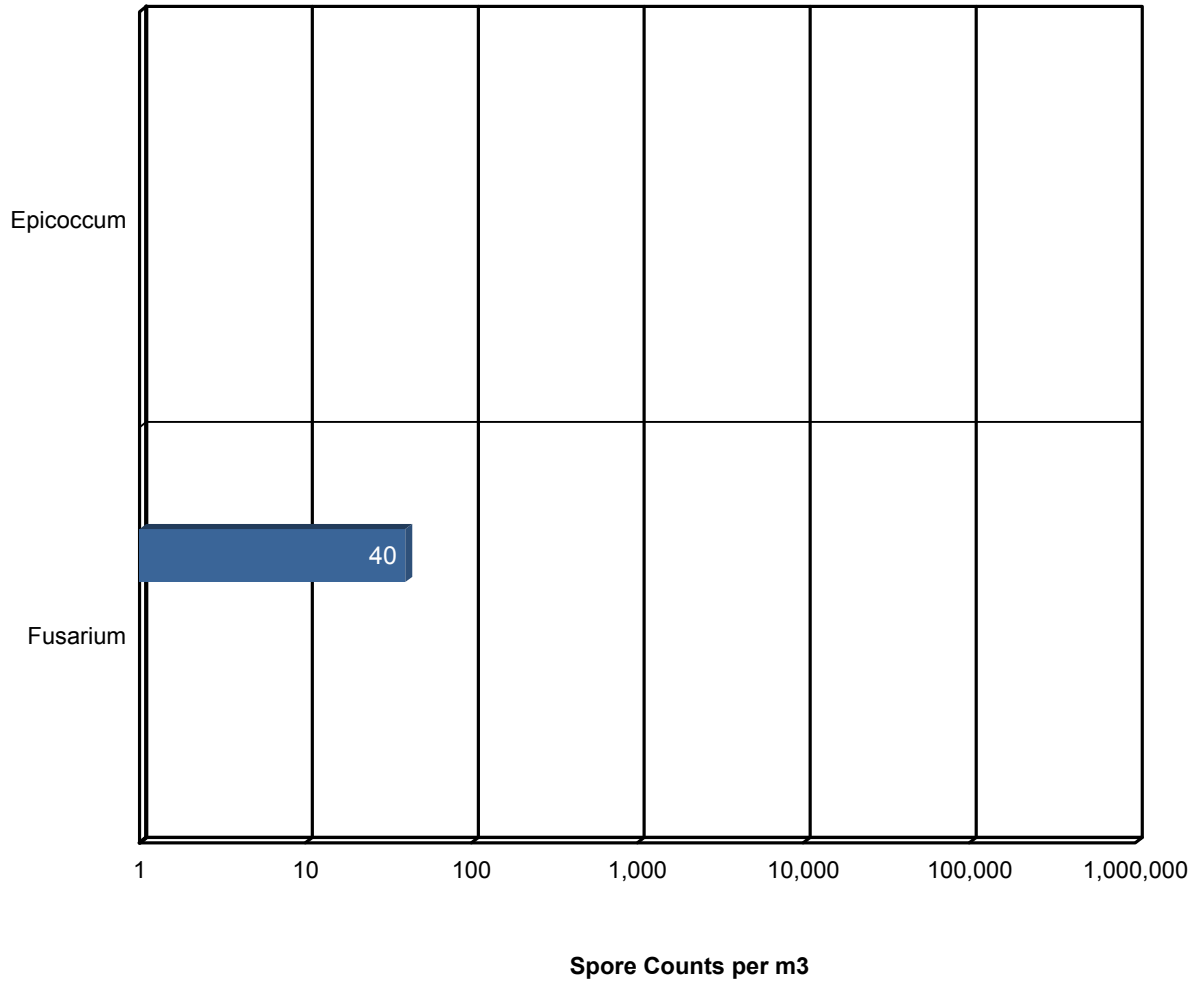

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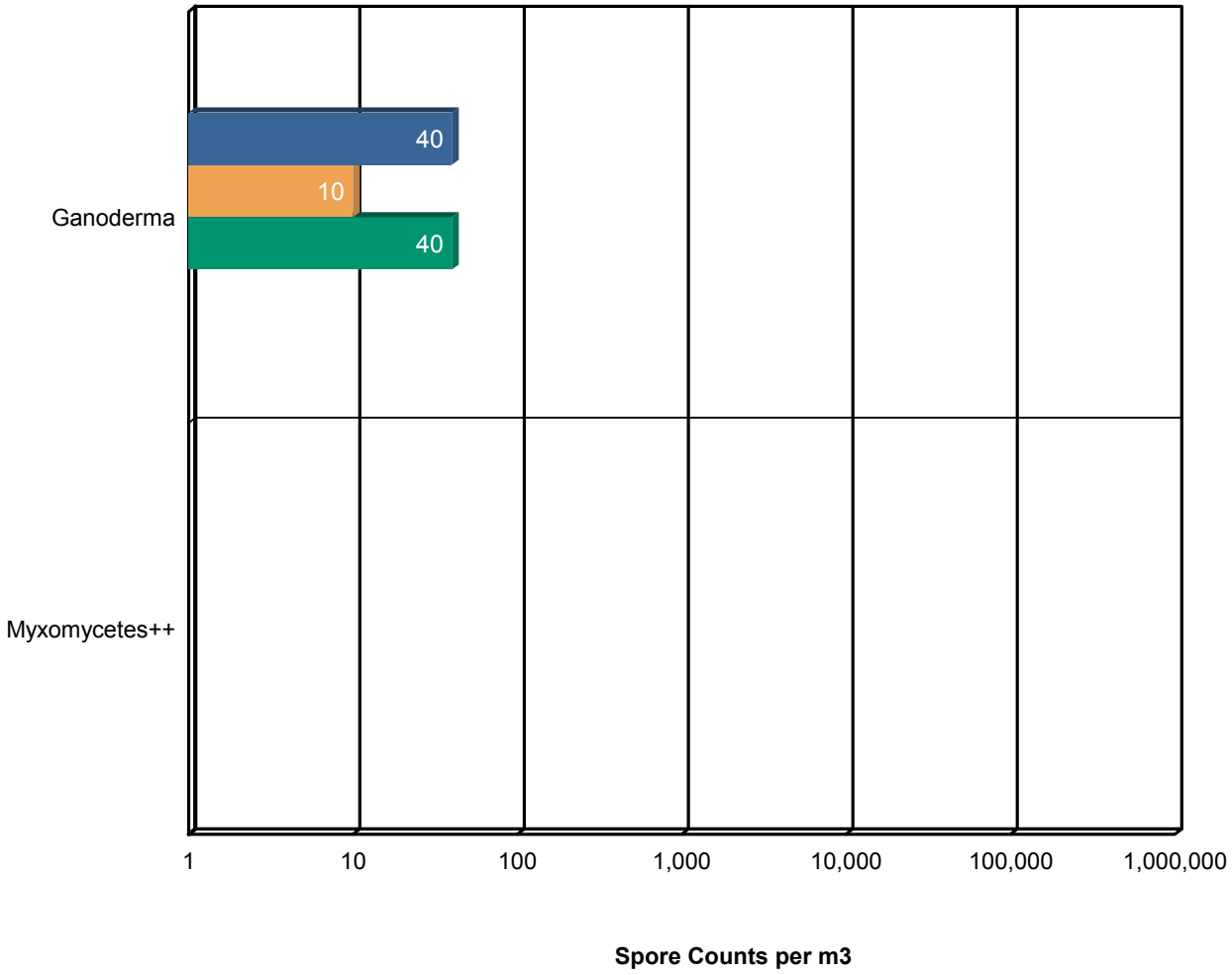

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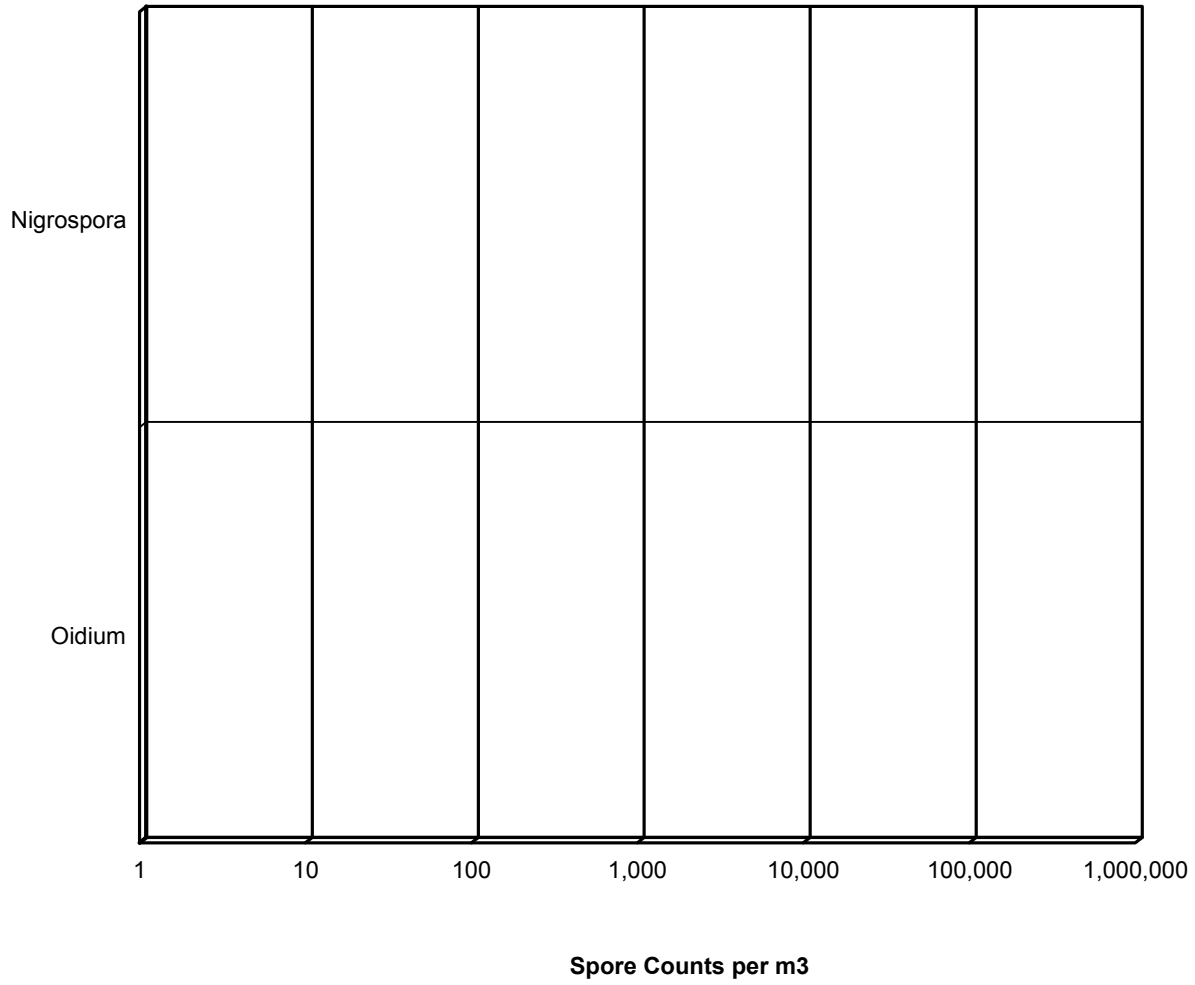

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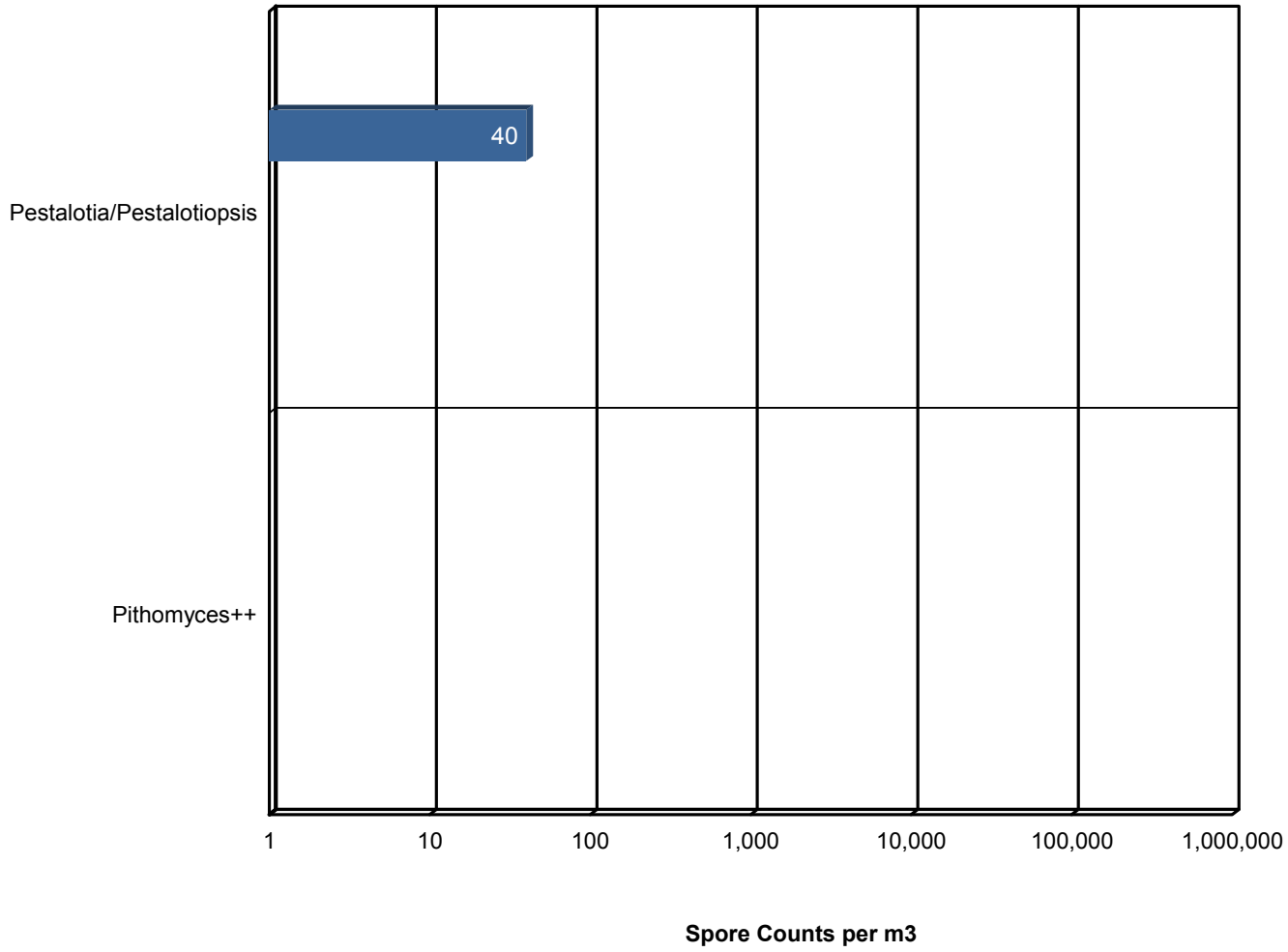

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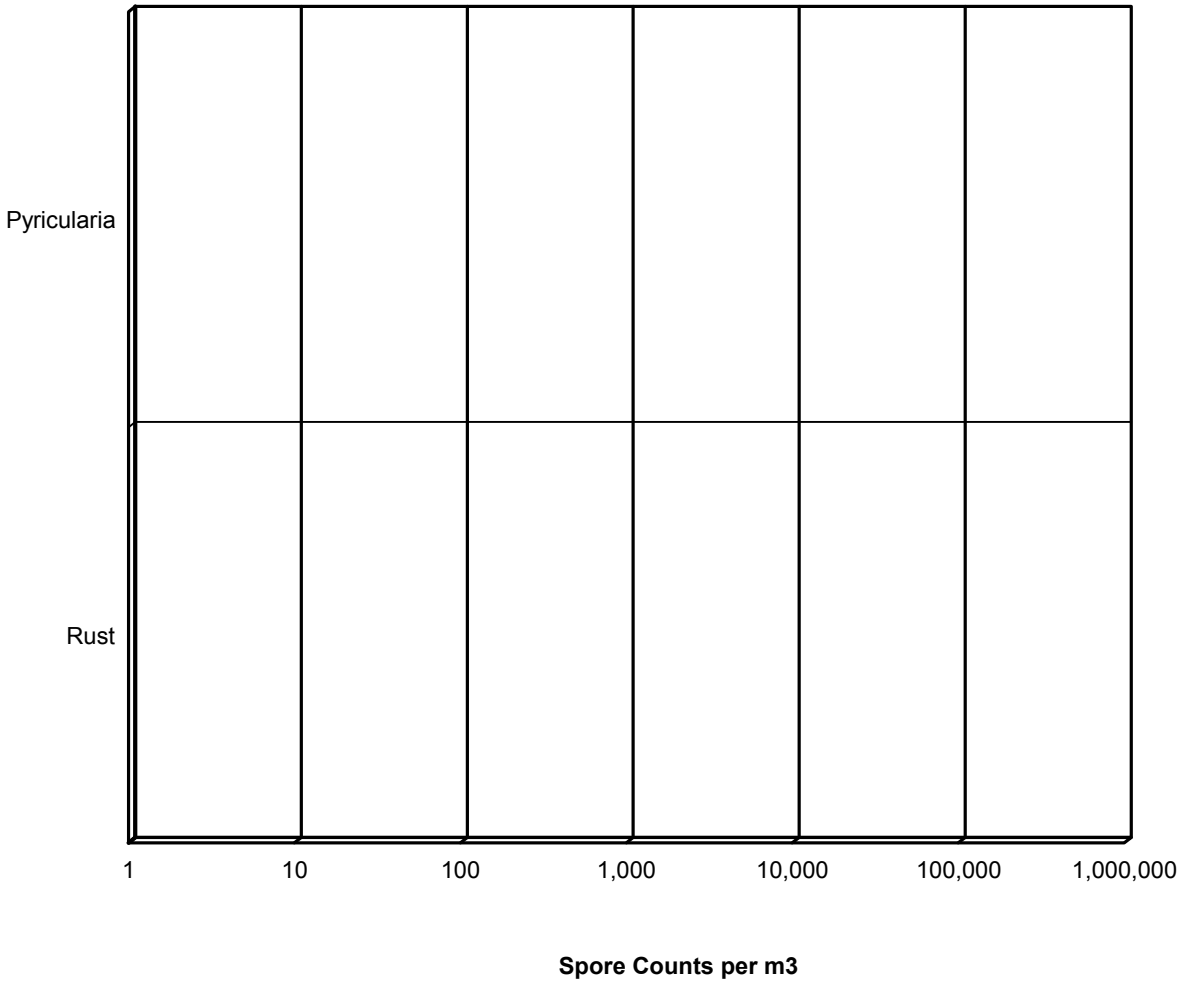

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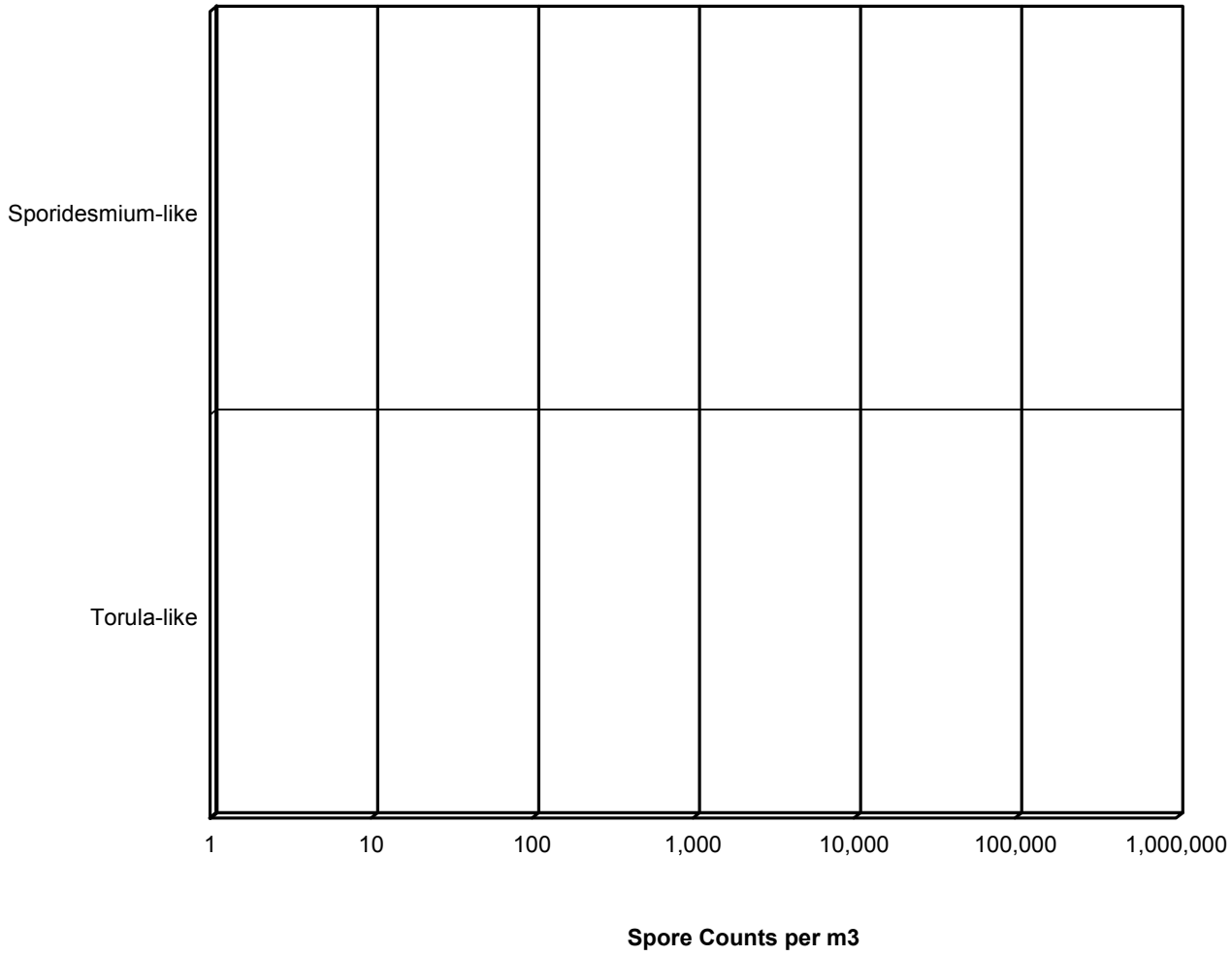

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3. Understanding the Results

EMSL Analytical, Inc. is an independent laboratory, providing unbiased and scientifically valid results. These data represent only a portion of an overall IAQ investigation. Visual information and environmental conditions measured during the site assessment (humidity, moisture readings, etc.) are crucial to any final interpretation of the results. Many factors impact the final results; therefore, result interpretation should only be conducted by qualified individuals. The American Conference of Governmental Industrial Hygienists (ACGIH) has published a good reference book covering sampling and data interpretation. It is entitled, Bioaerosols: Assessment and Control, 1999.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish “safe” or “unsafe” levels (i.e., permissible exposure limits).

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. The New York City guidelines and EPA guidelines for mold remediation in schools and commercial buildings define the conditions warranting mold remediation. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth.

This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.

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4. Glossary of Fungi

ALTERNARIA(ULOCLADIUM)	
Allergic Potential	Type I allergies (hay fever, asthma), Type III (hypersensitivity pneumonitis)
Industrial Uses	Biocontrol of weed plants ·Biocontrol fungal plant pathogens.
Mode of Dissemination	Wind
Natural Habitat	Common saprobe and pathogen of plants. Typically found on plant tissue, decaying wood, and foods. Soil . Air outdoors.
Other Comments	Many species of Ulocladium have been renamed as Alternaria. Alternaria spores are one of the most common and potent indoor and outdoor airborne allergens. Additionally, Alternaria sensitization has been determined to be one of the most important factors in the onset of childhood asthma. Synergy with Cladosporium or Ulocladium may increase the severity of symptoms
Potential or Opportunistic Pathogens	Phaeohyphomycosis {causing cystic granulomas in the skin and subcutaneous tissue}. In immunocompetent patients, Alternaria colonizes the paranasal sinuses, leading to chronic hypertrophic sinusitis
Potential Toxins Produced	Alternariol (AOH) . Alternariol monomethylether (AME). Tenuazonic acid (TeA). Altenuene (ALT). Altertoxins (ATX)
References	Alternaria redefined. J. Woudenberg et al., Studies in Mycology. Volume 75, June 2013, Pages 171-212
Suitable Substrates in the Indoor Environment	Indoors near condensation (window frames, showers), House dust (in carpets, and air). Also colonizes building supplies, computer disks, cosmetics, leather, optical instruments, paper, sewage, stone monuments, textiles, wood pulp, and jet fuel
Water Activity	Aw =0.85-0.88 (water damage indicator)

ASCOSPORES	
Allergic Potential	Depends on genus and species.
Industrial Uses	
Mode of Dissemination	Forcible ejection or passive release and dissemination by wind or insects.
Natural Habitat	Everywhere in nature.
Other Comments	Ascospores are the result of sexual reproduction and produced in a saclike structure called an ascus. All ascospores belong to members of the Phylum Ascomycota, which encompasses a plethora of genera worldwide.
Potential or Opportunistic Pathogens	Depends on genus and species.
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	
Water Activity	

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Attn: Stephen B. Epps
USACE
2 Hopkins Place
Suite 09-E-06-EN 9th Floor
Baltimore, MD 21201

Proj: FT MYER/FT MCNAIRE MOLD

EMSL Order: 191812854
Customer ID: USAC78
Collected: 10/04/2018
Received: 10/05/2018
Analyzed: 10/07/2018

ASPERGILLUS/PENICILLIUM	
Allergic Potential	Type I (hay fever, asthma) ·Type III (hypersensitivity)
Industrial Uses	Many depending on the species
Mode of Dissemination	Wind ·Insects
Natural Habitat	Plant debris ·Seed ·Cereal crops
Other Comments	Spores of Aspergillus and Penicillium (including others such as Acremonium, Talaromyces, and Paecilomyces) are small and spherical with few distinguishing characteristics. They cannot be differentiated or speciated by non-viable impaction sampling methods. Some species with very small spores may be undercounted in samples with high background debris.
Potential or Opportunistic Pathogens	Possible depending on the species.
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	Grows on a wide range of substrates indoors ·Prevalent in water damaged buildings ·Foods (blue mold on cereals, fruits, vegetables, dried foods) ·House dust ·Fabrics ·Leather · Wallpaper ·Wallpaper glue
Water Activity	Aw=0.75-0.94

BASIDIOSPORES	
Allergic Potential	Type I allergies (hay fever, asthma) . Type III (hypersensitivity pneumonitis)
Industrial Uses	Edible mushrooms are used in the food industry.
Mode of Dissemination	Forcible ejection. Wind currents.
Natural Habitat	Forest floors. Lawns .Plants (saprobes or pathogens depending on genus)
Other Comments	Basidiospores are the result of sexual reproduction and formed on a structure called the basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes mushrooms, shelf fungi, rusts, and smuts.
Potential or Opportunistic Pathogens	Depends on genus.
Potential Toxins Produced	Amanitins. monomethyl-hydrazine. muscarine. ibotenic acid. psilocybin.
Suitable Substrates in the Indoor Environment	Depends on genus. Wood products
Water Activity	Unknown.

CERCOSPORA	
Allergic Potential	Unknown
Mode of Dissemination	Irrigation water, Insects, Rain Wind
Natural Habitat	Parasite on higher plants, commonly causes leaf spot diseases.
Other Comments	Includes morphologically similar spores of Cercospora, Pseudocercospora, and Septoria.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	
Water Activity	Moderate –High humidity

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CLADOSPORIUM	
Allergic Potential	Type I (asthma and hay fever).
Industrial Uses	Produces 10 antigens.
Mode of Dissemination	Air
Natural Habitat	Dead plant matter. Straw. Soil. Woody plants
Potential or Opportunistic Pathogens	Edema. keratitis. onychomycosis. pulmonary infections. Sinusitis.
Potential Toxins Produced	Cladosporin and Emodin.
Suitable Substrates in the Indoor Environment	Fiberglass duct liner. Paint. Textiles. Found in high concentration in water-damaged building materials.
Water Activity	Aw 0.84-0.88

CURVULARIA	
Allergic Potential	Hay fever, asthma, allergic fungal sinusitis
Free moisture required for mold growth	Unknown
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Potential or Opportunistic Pathogens	In immunocompromised patients can cause cerebral abscess, endocarditis, mycetoma, ocular keratitis, onychomycosis, and pneumonia.
Suitable Substrates in the Indoor Environment	Paper, wood products

EPICOCCUM	
Allergic Potential	Hay fever, asthma
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Paper, textiles
Water Activity	0.86-0.90

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FUSARIUM	
Allergic Potential	Type I allergies (hay fever, asthma).
Industrial Uses	Biological Weapon.
Mode of Dissemination	Insects. Water droplets, rain. Wind when spores become dry.
Natural Habitat	Soil. Plant pathogen causing root rot, stem rot, and wilt of many ornamental and crop plants.
Other Comments	Major plant pathogen.
Potential or Opportunistic Pathogens	Esophageal cancer is believed to happen after consumption of F. moniliforme infected corn. Keratitis. Endophthalmitis. Onychomycosis. Cutaneous infections. Mycetoma. Sinusitis. Pulmonary infections. Endocarditis. Peritonitis. Central venous catheter infections. Septic arthritis. Neurological disease in horses after consumption of F. moniliforme infected corn. Respiratory disease in pigs after consumption of F. moniliforme infected corn.
Potential Toxins Produced	Trichothecenes. Zearalenone. Fumonisins.
Reference	Atlas of Moulds in Europe causing respiratory Allergy, Foundation for Allergy Research in Europe, Edited by Knud Wilken-Jensen and Suzanne Gravesen, ASK Publishing, Denmark, 1984.
Suitable Substrates in the Indoor Environment	Often found in humidifiers. Wet, cellulose-based building materials
Water Activity	Aw=0.86-0.91

GANODERMA	
Allergic Potential	Ganoderma species are known to cause allergies in people on a worldwide scale.
Industrial Uses	Biopulping of wood for the paper industry. Potential medicinal use due to: 1. Inhibition of Ras dependent cell transformation, 2. Antifibrotic activity, 3. Immunomodulating activity, 4. Free-radicle scavenging
Mode of Dissemination	Wind.
Natural Habitat	Grows on conifers and hardwoods worldwide, causing white rot, root rot, and stem rot.
Other Comments	Used in traditional Chinese medicine as an herbal supplement. It is also known as a "shelf fungus" because the fruiting body forms a stalk-less shelf on the sides of trees and logs. It is sometimes called “artists conk” because when you scratch the white pores of the fruiting body, the white rubs away and exposes the brown hyphae underneath. Thus, pictures can be produced on the fruiting body.
Potential or Opportunistic Pathogens	Unknown.
Potential Toxins Produced	
Reference	References: Craig, R.L., Levetin, E. 2000. Multi-year study of Ganoderma aerobiology. Aerobiologia 16: 75-81. http://www.pfc.forestry.ca/diseases/CTD/Group/Heart/heart6_e.html
Suitable Substrates in the Indoor Environment	Unknown.
Water Activity	

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MYXOMYCETES++	
Allergic Potential	Type I
Free moisture required for mold growth	Unknown
Industrial Uses	
Mode of Dissemination	Insects, Water, Wind
Natural Habitat	Decaying logs, Dead leaves , Dung , Lawns , Mulched flower beds, Lawns
Other Comments	Includes Myxomycetes, Smut, and Periconia.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Rotting lumber

NIGROSPORA	
Allergic Potential	Type 1 allergies (hey fever, asthma)
Mode of Dissemination	Forcibly projected.
Natural Habitat	Common on live or dead grass, seeds & soil.
Potential or Opportunistic Pathogens	Keratitis & skin lesions
Suitable Substrates in the Indoor Environment	Unknown
Water Activity	

PESTALOTIA/PESTALOTIOPSIS	
Allergic Potential	Unknown
Free moisture required for mold growth	
Industrial Uses	None known
Mode of Dissemination	Unknown; air dispersal likely.
Natural Habitat	Saprophyte on dead leaves of different plants. Some are plant pathogens that attack foliage or fruit of different plant species.
Potential Opportunist or Pathogen	Unknown
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	Unknown; some require a living plant host for growth.

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PITHOMYCES	
Allergic Potential	Unknown
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Other Comments	Pithomyces++ includes spores of Pithomyces and Pseudopithomyces.
Potential or Opportunistic Pathogens	Mycosis in immunocompromised patients
Suitable Substrates in the Indoor Environment	Paper
Water Activity	Requires high moisture for spore germination

PYRICULARIA	
Allergic Potential	Unknown
Mode of Dissemination	Wind, water
Natural Habitat	Parasite on leaves of different grasses and sometime other plants. Commonly causes leaf spot diseses. Rice blast disease caused by this fungus.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Unknown- require a living plant host for growth
Water Activity	Unknown

RUSTS	
Allergic Potential	Type I. (hay fever, asthma)
Free moisture required for mold growth	Unknown
Mode of Dissemination	Wind, Forcible Ejection
Natural Habitat	Parasitic on cultivated and many types of plants
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Unknown- rust fungi require a living plant host for growth

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TORULA-LIKE	
Allergic Potential	Hay fever, asthma
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Other Comments	Spore appear morphologically similar to Torula but cannot be positively identified because of limitations of spore trap samples.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Wood, paper, wicker furniture, baskets
Water Activity	Unknown

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5. References and Informational Links

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Books

- Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH 1999.
- Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.
- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.
- IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration. 3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2006

  IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004
- Field Guide for the Determination of Biological Contaminants in Environmental Samples. 2nd Edition, American Industrial Hygiene Association, 2005.

Consumer Links

Read the full text of AIHA's "The Facts About Mold" consumer brochure.
<http://www.aiha.org/get-involved/VolunteerGroups/Documents/BiosafetyVG-FactsAbout%20MoldDecember2011.pdf>

The Occupational Safety and Health Administration (OSHA)
http://www.osha.gov/SLTC/molds/index.html

CDC Mold Facts
http://www.cdc.gov/mold/faqs.htm

CDC Stachybotrys - Questions and answers on Stachybotrys chartarum and other molds
http://www.cdc.gov/mold/stachy.htm

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures
http://www.iom.edu/Reports/2000/Clearing-the-Air-Asthma-and-Indoor-Air-Exposures.aspx

National Library of Medicine-Mold website
http://www.nlm.nih.gov/medlineplus/molds.html

California Department of Health Services (CADOHS)

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http://www.cal-iaq.org/separator/mold-and-dampness/about-mold

Minnesota Department of Health
http://www.health.state.mn.us/divs/eh/indoorair/mold/index.html

New York City Department of Health and Mental Hygiene
<http://conyers.house.gov/index.cfm/issues?p=toxic-mold>

H.R.: The United States Toxic Mold Safety and Protection Act
<http://conyers.house.gov/index.cfm/issues?p=toxic-mold>

EPA

"Should You Have the Air Ducts in Your Home Cleaned?"
<http://www.epa.gov/iaq/pubs/airduct.html>

General information about molds and actions that can be taken to clean up or prevent a mold problem.
<http://www.epa.gov/asthma/molds.html>

“A Brief Guide to Mold, Moisture, and Your Home” - Includes basic information on mold, cleanup guidelines, and moisture and mold prevention
http://www.epa.gov/mold/moldguide.html

“Mold Remediation in Schools and Commercial Buildings” - Information on remediation in schools and commercial property, references for potential mold and moisture remediators.
http://www.epa.gov/mold/mold_remediation.html

FEMA

“Homes That Were Flooded May Harbor Mold Problems” - Information and tips for cleaning mold.
http://www.fema.gov/news-release/homes-were-flooded-may-harbor-mold-problems

“Dealing With Mold & Mildew in Your Flood Damaged Home.
http://www.fema.gov/pdf/rebuild/recover/fema_mold_brochure_english.pdf

“Prompt Flood Cleanup Can Help Prevent Health Problems” - How to clean up in-house mold problems (not large or serious exposures).
http://www.fema.gov/news-release/prompt-flood-cleanup-can-help-prevent-health-problems

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6. Important Terms, Conditions, and Limitations

A. Sample Retention

Samples analyzed by EMSL will be retained for 60 days after analysis date Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling will be returned to the client immediately. EMSLreserves the right to charge a sample disposal fee or return samples to the client.

B. Change Orders and Cancellation

All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for. holding times that are exceeded due to such changes.

C. Warranty

EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

D. Limits of Liability

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client or any third party, whether based upon theories

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of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

E. Indemnification

Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL services, the test result data or its use by client

Attachment 2- Asbestos Sample Laboratory Results

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

NVLAP®
Lab Code 101143-0

Chain of Custody: 267080

Client: U.S. Army Corps of Engineers

Address: 10 South Howard Street
Room #10-700, Cubicle #RR
Baltimore, MD 21201

Attention: Stephen Epps

Job Name: Ft. Myer/Ft. McNair Mold

Job Location: Not Provided

Job Number: Not Provided

P.O. Number: Not Provided

Date Submitted: 10/05/2018

Date Analyzed: 10/09/2018

Report Date: 10/09/2018

Date Sampled: 10/05/2018

Person Submitting: Stephen Epps

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample Number	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
267080-1	248BA-1	NAD	--	--	--	--	30	--	30	--	--	40	CT	Multi	Layered	SC	
267080-2	248BA-2	NAD	--	--	--	--	30	--	30	--	--	40	CT	Multi	Layered	SC	
267080-3	248BA-3	NAD	--	--	--	--	--	--	10	--	--	90	DW	Multi	Layered	SC	
267080-3A	248BA-3	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-4	248BA-4	NAD	--	--	--	--	--	--	10	--	--	90	DW	Multi	Layered	SC	
267080-4A	248BA-4	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-5	248BA-5	NAD	--	--	--	--	--	--	10	--	--	90	DW	Multi	Layered	SC	
267080-5A	248BA-5	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-6	248BA-6	NAD	--	--	--	--	--	--	--	--	--	100	FT	Blue	Homogeneous	SC	
267080-6A	248BA-6	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-7	248BA-7	NAD	--	--	--	--	--	--	--	--	--	100	FT	Blue	Homogeneous	SC	
267080-7A	248BA-7	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-8	248BA-8	NAD	--	--	--	--	--	--	--	--	--	100	CB	Blue	Homogeneous	SC	
267080-8A	248BA-8	NAD	--	--	--	--	--	--	--	--	--	100	MS	Beige	Homogeneous	SC	
267080-9	248BA-9	NAD	--	--	--	--	--	--	--	--	--	100	CB	Blue	Homogeneous	SC	
267080-9A	248BA-9	NAD	--	--	--	--	--	--	--	--	--	100	MS	Beige	Homogeneous	SC	
267080-10	248BA-10	NAD	--	--	--	--	--	--	--	--	--	100	FT	Multi	Homogeneous	SC	
267080-10A	248BA-10	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-11	248BA-11	NAD	--	--	--	--	--	--	--	--	--	100	FT	Multi	Homogeneous	SC	
267080-11A	248BA-11	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-12	248BA-12	NAD	--	--	--	--	--	--	--	--	--	100	FT	Blue	Homogeneous	SC	

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

Chain of Custody: 267080

Client: U.S. Army Corps of Engineers

Address: 10 South Howard Street
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Baltimore, MD 21201

Attention: Stephen Epps

Job Name: Ft. Myer/Ft. McNair Mold

Job Location: Not Provided

Job Number: Not Provided

P.O. Number: Not Provided

Date Submitted: 10/05/2018

Date Analyzed: 10/09/2018

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Person Submitting: Stephen Epps

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample Number	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
267080-12A	248BA-12	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-13	248BA-13	NAD	--	--	--	--	--	--	--	--	--	100	FT	Blue	Homogeneous	SC	
267080-13A	248BA-13	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-14	248BA-14	NAD	--	--	--	--	--	--	--	--	--	100	CB	Blue	Homogeneous	SC	
267080-14A	248BA-14	NAD	--	--	--	--	--	--	2	--	--	98	LC	Gray	Homogeneous	SC	
267080-15	248BA-15	NAD	--	--	--	--	--	--	--	--	--	100	CB	Blue	Homogeneous	SC	
267080-15A	248BA-15	NAD	--	--	--	--	--	--	2	--	--	98	LC	Gray	Homogeneous	SC	
267080-16	248BA-16	NAD	--	--	--	--	--	--	--	--	--	100	FT	Blue	Homogeneous	SC	
267080-16A	248BA-16	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-17	248BA-17	NAD	--	--	--	--	--	--	--	--	--	100	FT	Blue	Homogeneous	SC	
267080-17A	248BA-17	NAD	--	--	--	--	--	--	--	--	--	100	MS	Yellow	Homogeneous	SC	
267080-18	248BA-18	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-19	248BA-19	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-20	248BA-20	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-21	248BA-21	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-22	248BA-22	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	
267080-23	248BA-23	NAD	--	--	--	--	--	--	--	--	--	100	JC	White	Homogeneous	SC	

AMA Analytical Services, Inc.
Focused On Results.

CERTIFICATE OF ANALYSIS

Chain of Custody: 267080

Client: U.S. Army Corps of Engineers

Address: 10 South Howard Street
Room #10-700, Cubicle #RR
Baltimore, MD 21201

Attention: Stephen Epps

Job Name: Ft. Myer/Ft. McNair Mold

Job Location: Not Provided

Job Number: Not Provided

P.O. Number: Not Provided

Date Submitted: 10/05/2018

Date Analyzed: 10/09/2018

Report Date: 10/09/2018

Date Sampled: 10/05/2018

Person Submitting: Stephen Epps

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample Number	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

[1] TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.

[2] MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993
NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Analyst(s): Suphin Chinnapad

Technical Director Michael Greenberg

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA-LAP (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) 267080

Mailing/Billing Information:
1. Client Name: USACE - STEPHEN B. EPPS
2. Address 1: 2 HOPKINS PLAZA
3. Address 2: SUITE 09-E6
4. Address 3: BALTIMORE, MARYLAND 21201
5. Phone #: 410-320-9493 Fax #:

Submittal Information:
1. Job Name: FT MYER / FT McNAIR MOLD
2. Job Location:
3. Job #: P.O. #:
4. Contact Person: STEPHEN B. EPPS Cell: 410-320-9493
5. Collected by: STEPHEN B. EPPS Cell: 410-320-9493

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
❑ Immediate Date Due:	❑ Immediate ❑ 3 Day ❑ Next Day ❑ 5 Day + ~~❑ 2 Day~~ Date Due: 10/9/18 ❑ Results Required By Noon	☒ Email: Stephen.epps@usace.army.mil ❑ Email 2: ❑ Verbals:
❑ 24 Hours Time Due:		
Comments:		

Asbestos Analysis
*PCM Air – Please Indicate Filter Type:
- ❑ NIOSH 7400 (QTY)
- ❑ Fiberglass (QTY)

TEM Air* – Please Indicate Filter Type:
- ❑ AHERA (QTY)
- ❑ NIOSH 7402 (QTY)
- ❑ Other (specify) (QTY)

PLM Bulk
- ☒ EPA 600 – Visual Estimate 23 (QTY) ❑ Pos Stop
- ❑ EPA Point Count (QTY)
- ❑ NY State Friable 198.1 (QTY)
- ❑ Grav. Reduction ELAP 198.6 (QTY)
- ❑ Other (specify) (QTY)

MISC
- ❑ Vermiculite
- ❑ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

*It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk
- ❑ ELAP 198.4/Chatfield (QTY)
- ❑ NY State PLM/TEM (QTY)
- ❑ Residual Ash (QTY)

TEM Dust*
- ❑ Qual. (pres/abs) Vacuum/Dust (QTY)
- ❑ Quan. (s/area) Vacuum D5755-95 (QTY)
- ❑ Quan. (s/area)Dust D6480-99 (QTY)

TEM Water
- ❑ Qual. (pres/abs) (QTY)
- ❑ ELAP 198.2/EPA 100.2 (QTY)
- ❑ EPA 100.1 (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples °C)

If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis
- ❑ Pb Paint Chip (QTY)
- ❑ *Pb Dust Wipe (wipe type) (QTY)
- ❑ *Pb Air (QTY)
- ❑ Pb Soil/Solid (QTY)
- ❑ Pb TCLP (QTY)
- ❑ Drinking Water ❑ Pb (QTY) ❑ Cu (QTY) ❑ As (QTY)
- ❑ Waste Water ❑ Pb (QTY) ❑ Cu (QTY) ❑ As (QTY)
- ❑ Pb Furnace (Media) (QTY)

Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples:
Collection Media
- ❑ *Spore-Trap (QTY) ❑ Surface Vacuum Dust (QTY)
- ❑ *Surface Swab (QTY) ❑ Culturable ID Genus (Media) (QTY)
- ❑ *Surface Tape (QTY) ❑ Culturable ID Species (Media) (QTY)
- ❑ Other (Specify) (QTY)

CLIENT ID #	SAMPLE INFORMATION: SAMPLE LOCATION/ ID	DATE/ TIME	VOL (L)/ Wipe Area	ANALYSIS: TEM	PCM	PLM	LEAD	MOLD	AIR	MATRIX: BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
248BA-1	CEILING TILE	10-5-18				X				X						Date/Time: Contact:By:
248BA-2	CEILING TILE					X				X						
248BA-3	DRYWALL JC		DW/JC			X				X						
248BA-4	DRYWALL JC		DW/JC			X				X						
248BA-5	DRY WALL JC		DW/JC			X				X						Date/Time: Contact:By:
248BA-6	12X12 FL TILE		FT/MS			X				X						
248BA-7	12X12 FL TILE		FT/MS			X				X						
248BA-8	COVE MASTIC		CB/MS			X				X						
248BA-9	COVE MASTIC		CB/MS			X				X						Date/Time: Contact:By:
248BA-10	12X12 FL TILE		FT/MS			X				X						
248BA-11	12X12 FL TILE		FT/MS			X				X						
248BA-12	12X12 FL TILE		FT/MS			X				X						

	Print Name	Signature	Date	Time
Relinquished by:	STEPHEN B. EPPS	Stephen B Epps	10-5-18	1800
Received by:				
Relinquished by:				
Received for Lab by:			10/5/18	1455

Shipping Information
❑ UPS ☒ In-Person ❑ Other
❑ FedEx ❑ Drop Box
❑ USPS ❑ Courier
Airbill/Tracking No:

AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA-LAP (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This Number For Inquires) ~~267081~~ 267080 2 OF 2

Mailing/Billing Information:
1. Client Name: USACE – STEPHEN B. EARS
2. Address 1: 2 HOPKINS PLAZA
3. Address 2: SUITE 09-E-6
4. Address 3: BALTIMORE, MARYLAND 21201
5. Phone #: 410-320-9493 Fax #:

Submittal Information:
1. Job Name: FT MYER/FT MCNAIR MOLD
2. Job Location:
3. Job #: P.O. #:
4. Contact Person: STEPHEN B. EARS Cell 410-320-9493
5. Collected by: STEPHEN B. EARS Cell: 410-320-9493

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 5-Day and email/fax to contacts on file.

AFTER HOURS (must be pre-scheduled)	NORMAL BUSINESS HOURS	REPORT TO:
❑ Immediate Date Due:	❑ Immediate ❑ 3 Day	☒ Email:
❑ 24 Hours Time Due:	☒ Next Day ❑ 5 Day +	❑ Email 2:
Comments:	❑ 2 Day Date Due:	❑ Verbals:
	❑ Results Required By Noon	

Asbestos Analysis
*PCM Air – Please Indicate Filter Type:
- ❑ NIOSH 7400 (QTY)
- ❑ Fiberglass (QTY)

TEM Air* – Please Indicate Filter Type:
- ❑ AHERA (QTY)
- ❑ NIOSH 7402 (QTY)
- ❑ Other (specify) (QTY)

PLM Bulk
- ☒ EPA 600 – Visual Estimate (QTY) ❑ Pos Stop
- ❑ EPA Point Count (QTY)
- ❑ NY State Friable 198.1 (QTY)
- ❑ Grav. Reduction ELAP 198.6 (QTY)
- ❑ Other (specify) (QTY)

MISC
- ❑ Vermiculite
- ❑ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

*It is recommended that blank samples be submitted with all air and surface samples

TEM Bulk
- ❑ ELAP 198.4/Chatfield (QTY)
- ❑ NY State PLM/TEM (QTY)
- ❑ Residual Ash (QTY)

TEM Dust*
- ❑ Qual. (pres/abs) Vacuum/Dust (QTY)
- ❑ Quan. (s/area) Vacuum D5755-95 (QTY)
- ❑ Quan. (s/area)Dust D6480-99 (QTY)

TEM Water
- ❑ Qual. (pres/abs) (QTY)
- ❑ ELAP 198.2/EPA 100.2 (QTY)
- ❑ EPA 100.1 (QTY)

❑ All samples received in good condition unless otherwise noted.
(TEM Water samples °C)

If field data sheets are submitted, there is no need to complete bottom section.

Metals Analysis
- ❑ Pb Paint Chip (QTY)
- ❑ *Pb Dust Wipe (wipe type) (QTY)
- ❑ *Pb Air (QTY)
- ❑ Pb Soil/Solid (QTY)
- ❑ Pb TCLP (QTY)
- ❑ Drinking Water ❑ Pb (QTY) ❑ Cu (QTY) ❑ As (QTY)
- ❑ Waste Water ❑ Pb (QTY) ❑ Cu (QTY) ❑ As (QTY)
- ❑ Pb Furnace (Media) (QTY)

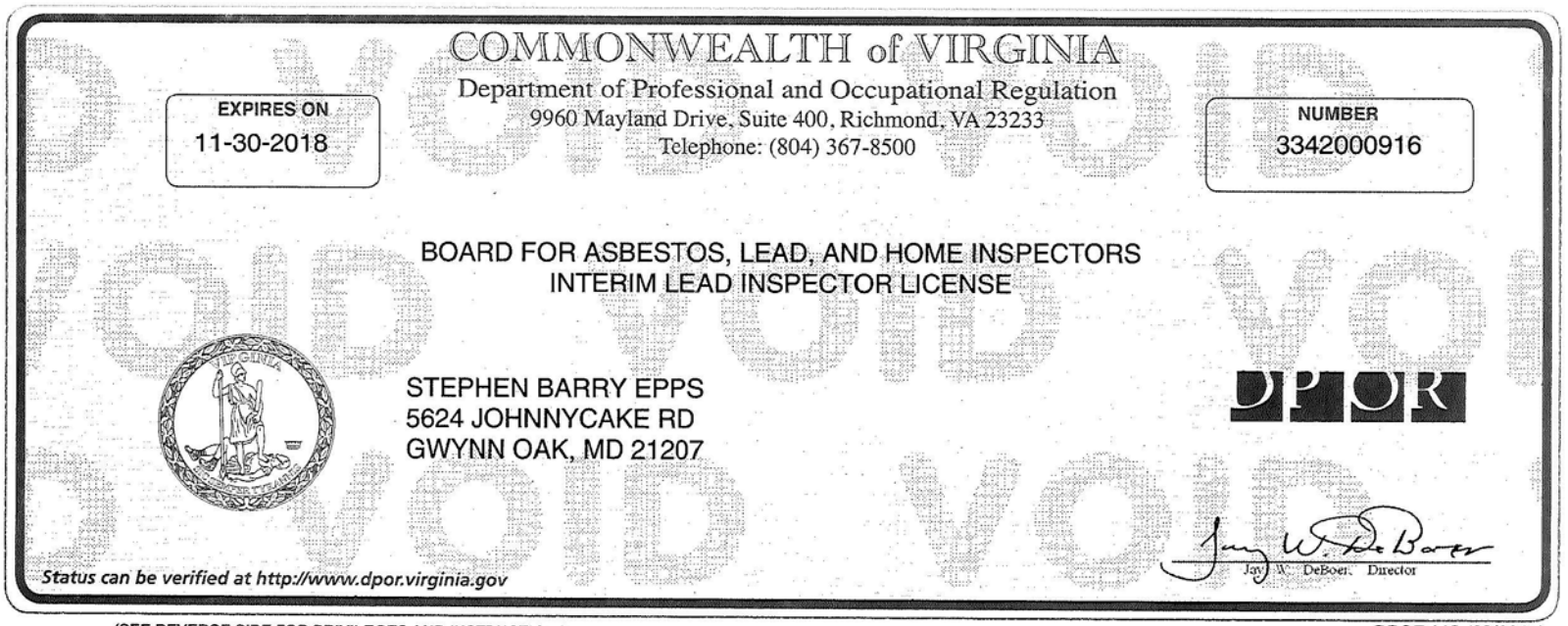
Fungal Analysis
Collection Apparatus for Spore Traps/Air Samples:
Collection Media
- ❑ *Spore-Trap (QTY)
- ❑ *Surface Swab (QTY)
- ❑ *Surface Tape (QTY)
- ❑ Other (Specify) (QTY)
- ❑ Surface Vacuum Dust (QTY)
- ❑ Culturable ID Genus (Media) (QTY)
- ❑ Culturable ID Species (Media) (QTY)

CLIENT ID #	SAMPLE INFORMATION SAMPLE LOCATION/ ID	DATE/ TIME	VOL (L)/ Wipe Area	ANALYSIS: TEM	PCM	PLM	LEAD	MOLD	AIR	MATRIX: BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	CLIENT CONTACT (LABORATORY STAFF ONLY)
248BA-13	12X12 FL TILE	10-5	FT/MS			X				X						Date/Time: Contact:By:
248BA-14	14X14 FL TILE		FT/LC			X				X						
248BA-15	14X14 FL TILE		FT/LC			X				X						
248BA-16	12X12 FL TILE		FT/MS			X				X						
248BA-17	12X12 FL TILE		FT/MS			X				X						Date/Time: Contact:By:
248BA-18	DRYWALL JC					X				X						
248BA-19	DRYWALL JC					X				X						
248BA-20	DRYWALL JC					X				X						
248BA-21	DRYWALL JC					X				X						Date/Time: Contact:By:
248BA-22	DRYWALL JC					X				X						
248BA-23	DRYWALL JC					X				X						

	Print Name	Signature	Date	Time
Relinquished by:				
Received by:				
Relinquished by:				
Received for Lab by:				

Shipping Information
❑ UPS ❑ In-Person ❑ Other
❑ FedEx ❑ Drop Box
❑ USPS ❑ Courrier
Airbill/Tracking No:

ATTACHEMENT 3 - CERTIFICATES



COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation
9960 Mayland Drive, Suite 400, Richmond, VA 23233
Telephone: (804) 367-8500

EXPIRES ON
11-30-2018

NUMBER
3342000916

BOARD FOR ASBESTOS, LEAD, AND HOME INSPECTORS
INTERIM LEAD INSPECTOR LICENSE

STEPHEN BARRY EPPS
5624 JOHNNYCAKE RD
GWYNN OAK, MD 21207

DPOR

Jay W. DeBoer, Director

Status can be verified at http://www.dpor.virginia.gov

(SEE REVERSE SIDE FOR PRIVILEGES AND INSTRUCTIONS)

DPOR-LIC (02/2017)

(DETACH HERE)

DPOR COMMONWEALTH of VIRGINIA
Department of Professional and Occupational Regulation

BOARD FOR ASBESTOS, LEAD, AND HOME INSPECTORS
INTERIM LEAD INSPECTOR LICENSE
NUMBER: 3342000916 EXPIRES: 11-30-2018

STEPHEN BARRY EPPS
5624 JOHNNYCAKE RD
GWYNN OAK, MD 21207

(FOLD)

Status can be verified at http://www.dpor.virginia.gov

DPOR-PC (02/2017)

AEROSOL MONITORING & ANALYSIS, INC.

This is to certify that

STEPHEN EPPS

has met the attendance requirements and successfully completed the course entitled

Mold Inspection & Assessment

3/13/2008 to 3/14/2008	3/14/2008	No Expiration Date	JOE COCO
Course Date	**Exam Date**	**Expiration Date**	**Principal Instructor**

08-MIA103	E. RUSH BARNETT
Certification No.	**Course Director**

1331 Ashton Road P.O. Box 646 Hanover, MD 21076 P: 410-684-3327 F: 410-684-3724

www.amatraining.com

US Army Corps
of Engineers
Baltimore District

ENVIRONMENTAL HEALTH FACILITY ASSESSMENT

Ft. Myer Building 248
Joint-Base Myer Henderson Hall, VA

Attachment E:
Radon Report

75ATM													
INST_NO	SERIAL_NO	PLACE_DATE	REM_DATE	SAMP_TYPE	DUP_SERIAL	BLDG_USE	BLDG_NO	FLOOR	ROOM_NO	REMARKS	DDS_NO	PROCESSED	AVG_CONC
75	1432029	7/25/1989	10/27/1989		0	3	4	1	4C60	5	25446	P	0.5
75	1392719	7/25/1989	10/27/1989		0	3	4	1	4D55	8 SIDE HALL	25446	P	0.5
75	1392902	7/31/1989	10/14/1989	S	0	3	1	1		JPPSO/MEN'S ROOM	23197	P	5.3
75	1392883	7/19/1989	10/26/1989	S	0	3	2	1	DR 23	C. STEEL PILLAR	23199	P	3.9
75	1392892	7/19/1989	10/14/1989	S	0	3	2	1	DR 20	SUPPLY	23200	P	7.9
75	1291984	7/10/1989	10/17/1989	S	0	3	T-25	1	DR.1		25540	P	14.3
75	1392878	7/11/1989	10/17/1989	S	0	3	26	1		SOUTH WALL	25541	P	6.3
75	1392908	7/11/1989	10/17/1989	S	0	3	26	1		FRONT DOOR	25541	P	3.7
75	1392873	7/11/1989	10/17/1989	S	0	3	26	1		BACK AREA	25541	P	7
75	1291990	7/27/1989	10/26/1989	S	0	3	5	1	5B454		25450	P	16.5
75	1392149	7/8/1989	10/18/1989		0	3	423	1		OFFICE	23184	P	0.4
75	1392191	7/8/1989		M	0	3	423	1		LOST	23184	P	0
75	1392165	7/8/1989			0	0	423	0			23184	P	0
75	1392186	7/18/1989		M	0	3	423	1		LOST	23184	P	0
75	1392170	7/18/1989	10/18/1989		0	3	423	1		PRODUCE	23184	P	0.7
75	1392150	7/18/1989		M	0	3	423	1		LOST	23184	P	0
75	1392172	7/18/1989		M	0	3	423	1		LOST	23184	P	0
75	1392164	7/18/1989	10/18/1989	D	1392147	3	423	1		PRODUCE	23184	P	0.6
75	1392147	7/18/1989	10/18/1989	D	1392164	3	423	1		PRODUCE	23184	P	0.5
75	1392183	7/18/1989	10/18/1989		0	3	423	1		PRODUCE	23184	P	0.6

75	1392153	7/18/1989	10/18/1989		0	3	423	1		HALLWAY	23184	P	0
75	1392152	7/18/1989		M	0	3	423	1		LOST	23184	P	0
75	1392192	7/18/1989	10/18/1989		0	3	423	1		PRODUCE	23184	P	0.5
75	1392185	7/18/1989	10/18/1989		0	3	423	1		PRODUCE	23184	P	0.4
75	1392151	7/18/1989		M	0	3	423	1		LOST	23184	P	0
75	1392162	7/18/1989	10/18/1989		0	3	423	1		ADMIN. OFC.	23184	P	0.7
75	1392187	7/18/1989	10/18/1989		0	3	423	1		ADMIN. OFC.	23184	P	0.7
75	1392160	7/8/1989	10/18/1989		0	3	423	1		OFFICE	23184	P	0.8
75	1392173	7/8/1989	10/18/1989		0	3	423	1		OFFICE	23184	P	0.5
75	1392179	7/8/1989		M	0	3	423	1		LOST	23184	P	0
75	1308409	7/12/1989	10/18/1989		0	3	442	1		OFFICE	23185	P	0.8
75	1308386	7/12/1989	10/18/1989		0	3	442	1		WAREHO USE	23185	P	0.6
75	1308413	7/12/1989	10/25/1989		0	3	215	1		SNACK ROOM	23185	P	0.7
75	1308411	7/12/1989	10/26/1989		0	3	234	1		DAY ROOM	23185	P	0.5
75	1291955	7/12/1989	10/16/1989	D	1291952	3	239	1		KITCHEN	23185	P	0.6
75	1291952	7/12/1989	10/16/1989	D	1291955	3	239	1		KITCHEN	23185	P	0.4
75	1291956	7/12/1989	10/16/1989		0	3	421	1		HALLWAY	23185	P	0.6
75	1291953	7/12/1989		M	0	0	421			LOST	23185	P	0.5
75	1308414	7/12/1989	10/17/1989		0	3	322	1		ADMIN.	23185	P	0.6
75	1308404	7/12/1989	10/26/1989		0	3	412	1		OFFICE	23185	P	0.7
75	1308392	7/12/1989	10/25/1989		0	3	447	1		UTILITY ROOM	23185	P	0.4
75	1291957	7/12/1989	10/25/1989		0	3	447	1		KITCHEN	23185	P	0.4
75	1291974	7/12/1989	10/25/1989		0	3	447	1		LOCKER ROOM	23185	P	0.5

75	1392896	7/25/1989	10/18/1989		0	3	306	1		OFFICE	23185	P	0.6
75	1392922	7/25/1989	10/18/1989		0	3	306	1		OFFICE	23185	P	1
75	1392968	7/25/1989	10/18/1989		0	3	306	1		WORK ROOM	23185	P	0.7
75	1392903	7/25/1989	10/18/1989		0	3	306	1		KITCHEN	23185	P	0.9
75	1392932	7/12/1989	10/18/1989		0	3	306	1		OFFICE	23185	P	1
75	1392905	7/25/1989	10/18/1989		0	3	306	1		WAREHO USE	23185	P	1
75	1308400	7/12/1989	10/25/1989		0	3	447	1		ELECTRIC ROOM	23185	P	0.6
75	1392174	7/18/1989	10/26/1989		0	3	468	1		LOUNGE ROOM	23186	P	0.8
75	1392951	7/25/1989	10/17/1989		0	3	59	0	B-12		23186	P	1.1
75	1392872	7/25/1989	10/17/1989		0	0	59	0		MAIL ROOM	23186	P	0.8
75	880894	7/17/1989	10/26/1989	F	0	3	59	0	B-8		23186	P	0
75	1392901	7/25/1989	10/26/1989	S	0	3	313	1			23186	P	7
75	1392869	7/25/1989	10/26/1989	S	0	3	400	1			23186	P	6.5
75	1291977	7/18/1989	10/26/1989	S	0	3	318	0			23186	P	14.2
75	1291982	7/17/1989	10/26/1989	S	0	3	309	1			23186	P	14.6
75	1394550	7/10/1989	10/23/1989		0	3	34	1		carp shop	23187	P	1.9
75	1392357	7/10/1989	10/23/1989		0	3	34	1		boiler plant	23187	P	0.5
75	1392345	7/10/1989	10/23/1989		0	3	32	0		sgs admin	23187	P	0.9
75	1392358	7/10/1989	10/23/1989		0	3	32	0		sta chief	23187	P	0.8
75	1392351	7/10/1989	10/23/1989		0	3	29	1		post office	23187	P	0.6
75	1392355	7/10/1989	10/23/1989		0	3	35	1		f exit commisar y	23187	P	0.4
75	1392352	7/10/1989	10/23/1989		0	3	35	1		office hallway	23187	P	0.4

75	1392363	7/10/1989	10/23/1989		0	3	31	0		rear exit	23187	P	0.8
75	1394545	7/10/1989	10/23/1989		0	3	37	1		fire cheif office	23187	P	0.7
75	1392359	7/10/1989	10/23/1989		0	3	37	1		tmp office	23187	P	0.6
75	1392343	7/10/1989	10/23/1989		0	3	36	1		paint shop	23187	P	0.7
75	1392356	7/10/1989	10/23/1989		0	3	36	1		electric shop	23187	P	1.1
75	1392329	7/10/1989	10/23/1989		0	3	42	1		work coordinator	23187	P	0.8
75	1392335	7/10/1989	10/23/1989		0	3	42	1		pao	23187	P	0.5
75	1392332	7/10/1989	10/23/1989		0	3	40	1		roads and grounds	23187	P	0.8
75	1392320	7/10/1989	10/23/1989		0	3	40	1		holding area	23187	P	0.5
75	1392321	7/10/1989	10/23/1989		0	3	40	1		R. P. M. O.	23187	P	0.6
75	1392327	7/10/1989	10/23/1989		0	3	46	1	101		23187	P	0.8
75	1392402	7/10/1989	10/23/1989		0	3	46	1	104		23187	P	0.9
75	1392334	7/10/1989	10/23/1989		0	3	46	1	106		23187	P	1.1
75	1392322	7/10/1989	10/23/1989		0	3	46	1		CONFERENCE ROOM	23188	P	0.7
75	1392349	7/10/1989	10/23/1989		0	3	46	1	109		23188	P	0.5
75	1392350	7/10/1989		M	0	3	46	1	110	LOST	23188	P	0
75	1392328	7/10/1989	10/23/1989		0	3	39	0		OFFICE N.V.A.C.	23188	P	0.7
75	1392344	7/10/1989	10/23/1989		0	3	39	0		LUNCH ROOM H.V.A.C.	23188	P	0.8

75	1392341	7/10/1989	10/24/1989		0	4	39	0		YOUTH CENTER	23188	P	0.6
75	1392360	7/10/1989	10/23/1989		0	4	39	0		YOUTH CENTER HALLWAY	23188	P	0.6
75	1392324	7/10/1989	10/23/1989		0	4	39	0		BOWLING ALLEY NW WID	23188	P	0.8
75	1392337	7/10/1989	10/23/1989		0	4	39	0		BOWLING ALLEY NE COR	23188	P	0.6
75	1392340	7/10/1989	10/23/1989		0	4	39	0		BOWLING ALLEY BEHLNS	23188	P	0.8
75	1392336	7/10/1989	10/23/1989		0	4	39	0		BOWLING ALLEY RR ARA	23188	P	0.7
75	1392331	7/11/1989		M	0	4	45	0		LOST	23188	P	0
75	1392346	7/11/1989	10/23/1989		0	4	45	0		CARP STORAGE	23188	P	0.7
75	1392333	7/11/1989	10/23/1989		0	4	45	0		"O" CLUB STORAGE	23188	P	1
75	1392354	7/11/1989	10/23/1989		0	4	45	0		NCO CLUB STORAGE	23188	P	1.6
75	1392330	7/11/1989	10/24/1989		0	4	45	0		H.V.A.C. STORAGE	23188	P	1.2
75	1392353	7/11/1989	10/23/1989		0	3	43	1		P.X. GAS STATION	23188	P	0.4
75	1392325	7/11/1989	10/23/1989		0	3	41	0		J.A.G. OFFICE	23188	P	1.6

75	1392326	7/11/1989	10/24/1989		0	3	41	0		DRY CLEANERS	23188	P	0.9
75	1394548	7/11/1989	10/24/1989		0	4	49	0		GYM OFFICE	23188	P	0.7
75	1392347	7/11/1989		M	0	4	49	0	GYM	LOST	23189	P	0
75	1394546	7/11/1989	10/23/1989		0	3	48	0	B6		23189	P	1.5
75	1392323	7/11/1989	10/23/1989		0	3	48	0	B5		23189	P	1.3
75	1392319	7/11/1989	10/23/1989		0	3	48	0	B9		23189	P	0.8
75	1392348	7/11/1989	10/23/1989		0	3	48	0	B10		23189	P	0.6
75	1394549	7/11/1989	10/23/1989		0	3	48	0	B13	record holding area	23189	P	0.8
75	1394551	7/11/1989	10/24/1989		0	3	48	0		machine room	23189	P	0.9
75	1392318	7/11/1989	10/24/1989		0	3	50	0		machine room	23189	P	0.6
75	1392339	7/11/1989	10/23/1989		0	3	50	0		s.w. office	23189	P	0.8
75	1392398	7/11/1989	10/23/1989		0	3	56	1		reception desk area	23189	P	1.2
75	1392397	7/11/1989	10/23/1989		0	3	58	0		machine room	23189	P	1.1
75	1392370	7/11/1989	10/23/1989	D	1392372	2	54	0		laundry room	23189	P	1.6
75	1392372	7/11/1989	10/23/1989	D	1392370	2	54	0		laundry room	23189	P	1.5
75	1392381	7/11/1989	10/23/1989		0	2	54	0		rec room	23189	P	1.3
75	1392414	7/11/1989	10/24/1989		0	4	57	1		above cash register	23189	P	1.7
75	1392369	7/11/1989	10/23/1989		0	3	60	0		s.w. office	23189	P	0.9

75	1392382	7/11/1989	10/23/1989		0	3	60	0		kitchen break room	23189	P	0.6
75	1392380	7/12/1989	10/23/1989		0	2	47	0		r & u	23189	P	0.8
75	1392361	7/12/1989	10/23/1989		0	2	47	0	B2		23189	P	1.3
75	1394547	7/11/1989	10/23/1989		0	3	48	0	B13		23189	P	1
75	1392365	7/12/1989	10/23/1989		0	2	47	0	B9	supply room	23190	P	0.6
75	1392401	7/12/1989		M	0	2	47	0	B10	LOST	23190	P	0
75	1392412	7/12/1989	10/23/1989		0	2	47	0		laundry room	23190	P	0.6
75	1392405	7/12/1989	10/23/1989	D	1392399	2	47	0	B14		23190	P	0.8
75	1392399	7/12/1989	10/23/1989	D	1392405	2	47	0	B14		23190	P	0.8
75	1392409	7/12/1989		M	0	2	47	0	B18	LOST	23190	P	0
75	1392407	7/12/1989	10/23/1989		0	2	47	0	B21		23190	P	0.7
75	1392411	7/12/1989	10/23/1989		0	2	47	0	B22		23190	P	0
75	1392387	7/12/1989	10/23/1989		0	3	52	0		reproduction s.w. co	23190	P	0.8
75	1392391	7/12/1989	10/23/1989		0	3	52	0		reproduction n.w cor	23190	P	0.6
75	1392379	7/12/1989	10/23/1989		0	3	52	0	11		23190	P	0.6
75	1392373	7/12/1989	10/23/1989		0	3	52	0		break room	23190	P	0.6
75	1392385	7/12/1989	10/23/1989		0	3	52	0	19C		23190	P	0.9
75	1392366	7/12/1989	10/23/1989		0	3	52	0	18		23190	P	0.9
75	1392375	7/12/1989	10/23/1989	D	1392362	3	52	0	21		23190	P	0.6
75	1392362	7/12/1989	10/23/1989	D	1392375	3	52	0	21		23190	P	0.9
75	1392378	7/12/1989	10/23/1989		0	3	59	1	100	p.x.	23190	P	0.5
75	1392392	7/12/1989	10/23/1989		0	3	59	1		cafeteria	23190	P	0.5
75	1392408	7/12/1989	10/23/1989		0	3	59	1	104		23190	P	0.4
75	1392383	7/12/1989	10/23/1989		0	3	59	1		computer lab	23190	P	0.7

75	1392386	7/12/1989	10/23/1989		0	3	59	1	108		23191	P	0.5
75	1392393	7/12/1989	10/23/1989		0	3	59	1	113	procurement	23191	P	0.5
75	1392376	7/12/1989	10/23/1989		0	3	59	1	117		23191	P	0.7
75	1392364	7/12/1989	10/23/1989		0	3	59	1	116		23191	P	0.6
75	1392390	7/12/1989	10/23/1989		0	3	59	1	122		23191	P	0.5
75	1392403	7/12/1989	10/23/1989	D	1392395	3	59	1	124		23191	P	0.7
75	1392395	7/12/1989	10/23/1989	D	1392403	3	59	1	124		23191	P	0.5
75	1392415	7/12/1989	10/23/1989		0	3	59	1	126		23191	P	0.7
75	1392377	7/12/1989	10/23/1989		0	3	59	1		security office	23191	P	0.6
75	1392374	7/12/1989	10/23/1989		0	3	59	1		logistics	23191	P	0.8
75	1392406	7/12/1989	10/23/1989		0	3	59	1		gym n.e. corner	23191	P	0.3
75	1392413	7/12/1989	10/23/1989		0	3	59	1		barber shop	23191	P	0.7
75	1392416	7/12/1989	10/23/1989		0	3	59	1	C125		23191	P	0.9
75	1392410	7/12/1989	10/23/1989		0	3	59	1	C125	photo lab	23191	P	0.4
75	1392368	7/12/1989	10/23/1989		0	3	59	1	C127		23191	P	0.6
75	1392388	7/12/1989	10/23/1989	D	1392384	3	59	1	C121		23191	P	0.6
75	1392384	7/12/1989	10/23/1989	D	1392388	3	59	1	C121		23191	P	0.5
75	1392396	7/12/1989	10/23/1989		0	3	59	1	C121	computer room	23191	P	0.5
75	1392389	7/12/1989	10/23/1989		0	3	59	1	C119		23191	P	0.7
75	1292012	7/12/1989	10/23/1989	D	1292017	3	61	0	25		23191	P	1
75	1291995	7/13/1989	10/23/1989		0	3	61	0	13		23192	P	1.2
75	1392394	7/13/1989	10/23/1989		0	3	61	0	26		23192	P	1.1
75	1292000	7/13/1989	10/23/1989		0	3	61	0	15B		23192	P	0.9
75	1291996	7/12/1989	10/23/1989		0	3	61	0	28		23192	P	0.8
75	1292015	7/13/1989	10/23/1989		0	3	61	0		media center	23192	P	0.9
75	1292022	7/13/1989	10/23/1989		0	3	61	0	27		23192	P	0.8

75	1292023	7/13/1989	10/23/1989	D	1292019	3	61	0	12		23192	P	0.8
75	1292019	7/13/1989	10/23/1989	D	1292023	3	61	0	12		23192	P	1.1
75	1292005	7/13/1989	10/23/1989		0	3	61	0	11		23192	P	0.8
75	1292001	7/13/1989	10/23/1989		0	3	61	0	10		23192	P	1.1
75	1291981	7/13/1989	10/23/1989		0	3	61	0	8		23192	P	0.8
75	1292026	7/13/1989	10/23/1989		0	3	61	0	15A		23192	P	1.1
75	1292004	7/13/1989	10/23/1989		0	3	61	0		gym	23192	P	0.8
75	1292011	7/13/1989	10/23/1989		0	3	61	0	17		23192	P	1
75	1292021	7/13/1989	10/23/1989		0	3	61	0	18		23192	P	0.8
75	1291980	7/13/1989	10/23/1989	D	1292027	3	61	0		men's locker room	23192	P	0.7
75	1292027	7/13/1989	10/23/1989	D	1291980	3	61	0		men's locker room	23192	P	0.9
75	1291983	7/13/1989	10/23/1989		0	3	61	0	37		23192	P	0.9
75	1291999	7/13/1989	10/24/1989		0	3	61	0	44		23192	P	1.5
75	1291997	7/13/1989	10/23/1989		0	3	61	0	41B		23193	P	0.7
75	1291988	7/13/1989	10/23/1989		0	3	61	0	45		23193	P	1.2
75	1292009	7/13/1989	10/23/1989		0	3	61	0	46		23193	P	0.9
75	1291987	7/13/1989	10/23/1989		0	3	61	0	47		23193	P	0.8
75	1292008	7/13/1989	10/23/1989		0	3	61	0	B	WAR GAMES	23193	P	1.6
75	1292020	7/13/1989	10/23/1989		0	3	61	0	4		23193	P	1.4
75	1292013	7/13/1989	10/23/1989		0	3	61	0	3		23193	P	1.2
75	1291994	7/13/1989	10/23/1989	D	1292025	3	61	0	10		23193	P	1.5
75	1292025	7/13/1989	10/23/1989	D	1291994	3	61	0	10		23193	P	1.3
75	1291985	7/13/1989	10/23/1989		0	3	61	0	RM C	game room	23193	P	1.4
75	1312119	7/17/1989	10/18/1989		0	3	313	1			25455	P	0
75	1392113	7/17/1989	10/18/1989		0	3	313	1			25455	P	0.9
75	1392178	7/17/1989	10/18/1989		0	3	313	1			25455	P	1.1
75	1392114	7/17/1989		M	0	0	313	0		LOST	25455	P	0

75	1392110	7/17/1989	10/18/1989	D	1392118	3	313	1			25455	P	0.9
75	1392118	7/17/1989	10/18/1989	D	1392110	3	313	1			25455	P	0.9
75	1392107	7/17/1989	10/18/1989		0	3	313	1			25455	P	1.2
75	1392108	7/17/1989	10/18/1989		0	3	313	1			25455	P	0.8
75	1392145	7/17/1989	10/16/1989		0	3	400	1			25455	P	1.3
75	1392157	7/17/1989	10/16/1989		0	3	400	1			25455	P	0.7
75	1392130	7/17/1989	10/16/1989		0	3	400	1			25455	P	0.4
75	1392158	7/17/1989	10/19/1989		0	3	400	1			25455	P	0.4
75	1392175			M	0	0	400	0		LOST	25455	P	0
75	1392190	7/17/1989	10/16/1989	D	1392189	3	400	1			25455	P	0.5
75	1392189	7/17/1989	10/16/1989	D	1392190	3	400	1			25455	P	0.5
75	1392128	7/17/1989	10/16/1989		0	3	400	1			25455	P	0.6
75	1392177	7/17/1989	10/16/1989		0	3	400	1			25455	P	0.3
75	1392144	7/17/1989	10/16/1989		0	3	400	1			25455	P	0.6
75	1392166	7/17/1989	10/16/1989		0	3	400	1			25455	P	0.5
75	1308412	7/11/1989	10/17/1989		0	3	201	0		HALLWAY	25527	P	1.6
75	1308391	7/12/1989		M	0	0	305	0		LOST	25527	P	0
75	1308406	7/12/1989	10/18/1989		0	3	305	1		OFFICE	25527	P	0.7
75	1291973	7/12/1989	10/18/1989		0	3	305	1		OFFICE	25527	P	0.6
75	1291964	7/12/1989	10/17/1989	D	1308408	3	309	1		OFFICE	25527	P	0.7
75	1308408	7/12/1989	10/17/1989	D	1291964	3	309	1		OFFICE	25527	P	0.6
75	1308402	7/12/1989	10/17/1989		0	3	309	1		MECHANICAL RM.	25527	P	0.6
75	1308407	7/12/1989	10/17/1989		0	3	309	1		MECHANICAL RM.	25527	P	0.8
75	1308401	7/12/1989	10/17/1989		0	3	309	1		MECHANICAL RM.	25527	P	0.6
75	1315126	7/12/1989	10/17/1989		0	3	309	1		MECHANICAL RM.	25527	P	0.5
75	1291963	7/12/1989	10/17/1989		0	3	309	1		MECHANICAL RM.	25527	P	1.2

75	1291960	7/12/1989	10/17/1989		0	3	318	1		PAINT SHOP	25527	P	1.2
75	1291971	7/12/1989	10/17/1989		0	0	309	0		MECHANICAL RM.	25527	P	0.6
75	1308410	7/12/1989	10/17/1989	D	1291962	3	318	0		STAIRWELL	25527	P	1.2
75	1291962	7/12/1989	10/17/1989	D	1308410	3	318	0		STAIRWELL	25527	P	0.8
75	1291966	7/12/1989	10/19/1989		0	3	308	1		OFFICE	25527	P	0.7
75	1291950	7/12/1989	10/19/1989		0	3	308	1		KITCHEN	25527	P	1.8
75	1308390	7/12/1989	10/16/1989		0	3	443	1		STORAGE	25527	P	0.9
75	1291979	7/12/1989			0	0	443	0			25527	P	0.7
75	1291967	7/12/1989	10/17/1989		0	3	309	1		MECHANICAL RM.	25527	P	0.6
75	1289329	7/10/1989	10/16/1989		0	3	202	0		BASEMENT	25547	P	0.7
75	1289330	7/10/1989	10/16/1989		0	3	202	0		BASEMENT	25547	P	1
75	1289319	7/10/1989	10/16/1989		0	3	202	0		BASEMENT	25547	P	0.6
75	1289328	7/10/1989	10/16/1989		0	3	203	0		BASEMENT	25547	P	0.6
75	1289323	7/10/1989	10/16/1989		0	3	203	1		BASEMENT	25547	P	0.7
75	1289314	7/10/1989	10/16/1989		0	3	236	1		OFFICE	25547	P	0.6
75	1289306	7/10/1989	10/16/1989		0	3	233	1		BARN	25547	P	0.4
75	1289301	7/10/1989	10/16/1989		0	3	232	1		CLASSROOM	25547	P	0.6
75	1289320	7/10/1989	10/16/1989		0	3	219	1		COUNS. ROOM	25547	P	0.8
75	1289300	7/10/1989	10/16/1989		0	3	219	1		TRAINING ROOM	25547	P	0.7
75	1289287	7/10/1989	10/16/1989		0	3	219	0		COUNS. ROOM	25547	P	0.8

75	1289292	7/10/1989	10/16/1989		0	3	219	1		G G U	25547	P	0.8
75	1289321	7/10/1989	10/17/1989		0	3	230	1		OFFICE	25547	P	0.9
75	1289293	7/10/1989	10/15/1989		0	3	230	1		WAREHOUSE	25547	P	0.6
75	1289315	7/10/1989		M	0	3	229	1		LOST	25547	P	0
75	1289316	7/10/1989	10/16/1989		0	3	238	1		STORAGE ROOM	25547	P	0.8
75	1289295	7/10/1989	10/16/1989		0	3	238	1		OFFICE	25547	P	1
75	1289294	7/10/1989	10/16/1989		0	3	217	1		WAITING ROOM	25547	P	0.9
75	1289298	7/10/1989	10/16/1989		0	3	217	1		WAITING ROOM	25547	P	1.1
75	1292055	7/11/1989	10/16/1989		0	3	404	1		LUNCH ROOM	25548	P	0.7
75	1289272	7/11/1989	10/16/1989		0	3	404	1		LUNCH ROOM	25548	P	0.6
75	1292061	7/11/1989	10/16/1989		0	3	404	1		LUNCH ROOM	25548	P	0.6
75	1289276	7/11/1989		M	0	0	404	0		LOST	25548	P	0
75	1292049	7/11/1989	10/16/1989	D	1291976	3	404	1		LUNCH ROOM	25548	P	0.8
75	1291976	7/11/1989	10/16/1989	D	1292049	3	404	1		LUNCH ROOM	25548	P	0.9
75	1289308	7/11/1989		M	0	0	404	0		LOST	25548	P	0
75	1308394	7/11/1989	10/16/1989		0	3	404	1		SERVING ROOM	25548	P	0.6
75	1308415	7/11/1989		M	0	0	404	0		LOST	25548	P	0
75	1308388	7/11/1989		M	0	0	231	0		LOST	25548	P	0
75	1308389	7/11/1989		M	0	0	231	0		LOST	25548	P	0
75	1291959	7/11/1989	10/25/1989		0	3	241	1		OFFICE	25548	P	0.9
75	1291978	7/11/1989		M	0	0	241	0		LOST	25548	P	0
75	1291965	7/11/1989	10/19/1989		0	3	241	1		CONF. ROOM	25548	P	1.5

75	1308385	7/11/1989	10/18/1989		0	3	420	1		MID. OFC.	25548	P	1.2
75	1291975	7/11/1989	10/17/1989		0	3	201	1			25548	P	1.9
75	1308387	7/11/1989	10/17/1989	D	1291970	3	201	1		KITCHEN	25548	P	1.6
75	1291970	7/11/1989	10/17/1989	D	1308387	3	201	1		KITCHEN	25548	P	1.5
75	1308403	7/11/1989	10/17/1989		0	0	201	0		HALLWAY	25548	P	1.6
75	1291969	7/11/1989		M	0	3	241	1		LOST	25548	P	2.5
75	1292059	7/11/1989	10/25/1989		0	3	405	1		T.V. ROOM	25549	P	0.8
75	1292041	7/11/1989	10/26/1989		0	3	405	1		T.V. ROOM	25549	P	0.5
75	1292030	7/11/1989	10/25/1989		0	3	405	1		REC. ROOM	25549	P	0.5
75	1292056	7/11/1989		M	0	3	405	1		LOST	25549	P	0
75	1292054	7/11/1989		D	1289275	3	405	1			25549		0
75	1289275	7/11/1989		D	1292054	3	405	1			25549		0
75	1289268	7/11/1989		M	0	3	405	1		LOST	25549	P	0
75	1289327	7/11/1989	10/25/1989		0	3	405	1		OFFICE	25549	P	0.9
75	1291961	7/11/1989	10/25/1989		0	3	335	1		OFFICE	25549	P	1
75	1308398	7/11/1989	10/18/1989		0	3	335	0		USHER'S ROOM	25549	P	1.7
75	1292048	7/11/1989	10/16/1989		0	3	404	1		OFFICE	25549	P	0.5
75	1291954	7/11/1989		M	0	3	404	1		LOST	25549	P	0
75	1308397	7/11/1989		M	0	3	404	1		LOST	25549	P	0
75	1289309	7/11/1989		M	0	3	404	1		LOST	25549	P	0
75	1308395	7/11/1989		D	1308396	3	404	1			25549		0
75	1308396	7/11/1989		D	1308395	3	404	1			25549		0
75	1289270	7/11/1989	10/16/1989		0	3	404	1		LUNCH ROOM	25549	P	0.7
75	1289274	7/11/1989	10/16/1989		0	3	404	1		LUNCH ROOM	25549	P	0.9
75	1289277	7/11/1989		M	0	0	404	1		LOST	25549	P	0

75	1289302	7/11/1989		M	0	0	404	1		LOST	25549	P	0
75	1292037	7/10/1989		M	0	0	469	0		LOST	25550	P	0
75	1289311	7/10/1989		M	0	0	469	0		LOST	25550	P	0
75	1289324	7/10/1989	10/17/1989		0	3	469	1	406		25550	P	0.6
75	1292057	7/10/1989	10/17/1989		0	3	469	1	404		25550	P	1.2
75	1292044	7/10/1989	10/17/1989	D	1292045	3	469	1	403		25550	P	1.1
75	1292045	7/10/1989	10/17/1989	D	1292044	3	469	1	403		25550	P	1
75	1289285	7/10/1989		M	0	0	469	0		LOST	25550	P	0
75	1289326	7/10/1989	10/17/1989		0	3	469	1	405		25550	P	2
75	1289279	7/11/1989		M	0	0	407	0		LOST	25550	P	0
75	1292036	7/11/1989	10/17/1989		0	3	407	1		LOCKER ROOM	25550	P	0.4
75	1292039	7/11/1989	10/17/1989		0	3	407	1		KITCHEN	25550	P	0.4
75	1292052	7/11/1989	10/17/1989		0	3	407	1		KITCHEN	25550	P	0.4
75	1292046	7/11/1989	10/17/1989		0	3	407	1		SERVING ROOM	25550	P	0.5
75	1289312	7/11/1989	10/17/1989		0	3	407	1		SERVING ROOM	25550	P	0.4
75	1292053	7/11/1989	10/19/1989		0	3	212	1		CONF. ROOM	25550	P	0.6
75	1292035	7/11/1989	10/19/1989		0	3	212	1		KITCHEN	25550	P	0.8
75	1289290	7/11/1989	10/17/1989		0	3	480	1		ADMIN. OFC.	25550	P	2.2
75	1289284	7/11/1989	10/17/1989	D	1292040	3	480	1	105		25550	P	1.3
75	1292040	7/11/1989		D	1289284	0	480	0		MISSING	25550	P	0
75	1292063	7/11/1989		M	0	0	405	0		LOST	25550	P	0
75	1289304	7/10/1989	10/19/1989		0	3	207	1		OFFICE	25551	P	0.8
75	1289305	7/10/1989	10/19/1989		0	3	207	1		MECH. ROOM	25551	P	0.6
75	1289282	7/10/1989	10/19/1989		0	3	207	1		MECH. ROOM	25551	P	0.6
75	1292058	7/10/1989	10/16/1989		0	3	242	1		DRAFTING	25551	P	0.7

75	1289271	7/10/1989		M	0	0	242	2		LOST	25551	P	0
75	1292032	7/10/1989		M	0	0	242	2		LOST	25551	P	0
75	1289281	7/10/1989		M	0	0	242	1		LOST	25551	P	0
75	1289265	7/10/1989	10/17/1989		0	3	469	1		CPO	25551	P	0.9
75	1289296	7/10/1989	10/17/1989		0	3	469	1	308		25551	P	1.1
75	1292034	7/10/1989	10/17/1989		0	3	469	1		KITCHEN	25551	P	1.1
75	1292050	7/10/1989	10/17/1989		0	3	469	1	104B		25551	P	1.1
75	1289283	7/10/1989	10/17/1989		0	3	469	1		ADMIN.	25551	P	2.1
75	1292042	7/10/1989		M	0	0	469	0		LOST	25551	P	0
75	1289258	7/10/1989	10/17/1989		0	3	469	1		CPO	25551	P	0.7
75	1292033	7/10/1989	10/17/1989	D	1289267	3	469	1		CPO	25551	P	0.6
75	1289267	7/10/1989	10/17/1989	D	1292033	3	469	1		CPO	25551	P	0.7
75	1292060	7/10/1989	10/17/1989		0	3	469	1		CPO	25551	P	0.3
75	1289322	7/10/1989	10/17/1989		0	3	469	1		CPO	25551	P	1.9
75	1292038	7/10/1989	10/17/1989		0	3	469	1		CPO	25551	P	0.9
75	1289269	7/10/1989	10/17/1989		0	3	469	1		CPO	25551	P	1
75	1289325	7/10/1989	10/25/1989		0	3	214	0		STORAGE ROOM	25553	P	0.6
75	1289286	7/10/1989	10/25/1989		0	3	214	1		OFFICE	25553	P	0.5
75	1292051	7/10/1989	10/25/1989		0	3	214	2		BAR ROOM	25553	P	0.4
75	1289273	7/10/1989	10/25/1989		0	3	214	1		BAR ROOM	25553	P	0.5
75	1289332	7/10/1989		M	0	0	214	0		LOST	25553	P	0
75	1289202	7/10/1989	10/25/1989		0	3	214	2		OFFICE	25553	P	0.6
75	1289262	7/10/1989	10/25/1989		0	3	214	0		KITCHEN	25553	P	0
75	1289297	7/10/1989		M	0	0	214	0		LOST	25553	P	0
75	1289288	7/10/1989	10/25/1989		0	3	214	1		BAR ROOM	25553	P	0.4
75	1289303	7/10/1989	10/25/1989		0	3	214	1		KITCHEN	25553	P	0.5
75	1292029	7/10/1989		M	0	0	214	0		LOST	25553	P	0
75	1289310	7/10/1989		M	0	0	231	0		LOST	25553	P	0
75	1289318	7/10/1989		M	0	0	231	0		LOST	25553	P	0

75	1289299	7/10/1989	10/17/1989		0	3	270	1		OFFICE	25553	P	0.4
75	1289317	7/10/1989	10/17/1989		0	3	270	1		STORAGE	25553	P	0.8
75	1289278	7/10/1989		M	0	0	208	0		LOST	25553	P	0
75	1282031	7/10/1989	10/26/1989		0	3	208	1		WAREHO USE	25553	P	0
75	1289307	7/10/1989		M	0	0	208	0		LOST	25553	P	0
75	1289289	7/10/1989	10/26/1989		0	3	208	1		WAREHO USE	25553	P	0.6
75	1289291	7/10/1989		M	0	0	207	0		LOST	25553	P	0
75	1392142	7/17/1989	10/19/1989		0	3	400	1		COAT ROOM	25566	P	0.5
75	1392099	7/17/1989	10/19/1989		0	3	400	1		DIRECTOR 'S ROOM	25566	P	0.6
75	1392184	7/17/1989	10/16/1989		0	3	400	1		HALL	25566	P	0.6
75	1392181	7/17/1989	10/19/1989	D	1392117	3	400	1		STAGE	25566	P	0.8
75	1392117	7/17/1989	10/19/1989	D	1392181	3	400	1		STAGE	25566	P	0.6
75	1392168	7/17/1989	10/19/1989		0	3	400	1		STAGE	25566	P	0.4
75	1392171	7/17/1989	10/19/1989		0	3	400	1		HALLWAY	25566	P	0.5
75	1392140	7/17/1989	10/16/1989		0	3	400	1		STAGE	25566	P	0.5
75	1392133	7/17/1989	10/16/1989		0	3	400	1		STAGE	25566	P	0.4
75	1392188	7/18/1989	10/26/1989		0	3	307	1		OFFICE	25566	P	0.7
75	1392146	7/18/1989	10/26/1989		0	3	307	1		KITCHEN	25566	P	1
75	1392176	7/18/1989	10/26/1989		0	3	307	1		OFFICE	25566	P	0.7
75	1392141	7/18/1989	10/26/1989		0	3	307	1		KITCHEN	25566	P	0.9
75	1392167	7/18/1989	10/18/1989	D	1392161	3	312	1		SHOP AREA	25566	P	0.7
75	1392161	7/18/1989	10/18/1989	D	1392167	3	312	1		STORAGE	25566	P	0.8
75	1392163	7/18/1989	10/18/1989		0	3	312	1		P M SHOP	25566	P	0.5
75	1392182	7/18/1989	10/18/1989		0	3	312	1		KITCHEN	25566	P	0.7
75	1392148	7/18/1989	10/18/1989		0	3	312	1		OFFICE	25566	P	0.7

75	1392132	7/18/1989	10/18/1989		0	3	312	1		WELDING SHOP	25566	P	0.8
75	1392169	7/17/1989	10/16/1989		0	3	400	1		ADMIN.	25566	P	0.5