

Analysis Report prepared for

MSE Environmental

6000 S. Eastern Ave.
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Las Vegas, NV 89119

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200128W037619
2121 W. Charleston Blvd.
Las Vegas, NV 89102

Collected: **January 28, 2020**
Received: **January 29, 2020**
Reported: **January 29, 2020**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 8 samples by FedEx in good condition for this project on January 29th, 2020.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial. In no event, shall Hayes Microbial or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of the use of these test results.



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Laboratory Director
Hayes Microbial Consulting, LLC.



EPA Laboratory ID: VA01419



Lab ID: #188863



DPH License: #PH-0198

| Sample Number | 1 3058427 | | | 2 3058397 | | | 3 3058395 | | | 4 3058415 | | |
|-------------------------|--------------------------|------------------------|-------------|--------------------------|------------------------|-------------|--------------------------|------------------------|-------------|--------------------------|------------------------|-------------|
| Sample Name | Outdoor Front Control | | | Room 215 | | | Hall 233 | | | NW Staircase | | |
| Sample Volume | 75.00 liter | | | 75.00 liter | | | 75.00 liter | | | 75.00 liter | | |
| Reporting Limit | 13 spores/m ³ | | | 13 spores/m ³ | | | 13 spores/m ³ | | | 13 spores/m ³ | | |
| Background | 2 | | | 2 | | | 2 | | | 2 | | |
| Fragments | ND | | | ND | | | ND | | | ND | | |
| Organism | Raw Count | Count / m ³ | % of Total | Raw Count | Count / m ³ | % of Total | Raw Count | Count / m ³ | % of Total | Raw Count | Count / m ³ | % of Total |
| Alternaria | | | | | | | | | | 1 | 13 | 10.0% |
| Ascospores | 5 | 67 | 29.4% | 4 | 53 | 16.7% | 4 | 53 | 21.1% | | | |
| Aspergillus Penicillium | 9 | 120 | 52.9% | 18 | 240 | 75.0% | 10 | 133 | 52.6% | 5 | 67 | 50.0% |
| Basidiospores | 3 | 40 | 17.6% | | | | | | | 3 | 40 | 30.0% |
| Bipolaris Drechslera | | | | | | | | | | | | |
| Chaetomium | | | | | | | | | | | | |
| Cladosporium | | | | | | | | | | | | |
| Curvularia | | | | | | | | | | | | |
| Epicoccum | | | | | | | | | | | | |
| Fusarium | | | | | | | | | | | | |
| Memnoniella | | | | | | | | | | | | |
| Myxomycetes | | | | 2 | 27 | 8.3% | | | | | | |
| Pithomyces | | | | | | | | | | | | |
| Stachybotrys | | | | | | | 5 | 67 | 26.3% | 1 | 13 | 10.0% |
| Stemphylium | | | | | | | | | | | | |
| Torula | | | | | | | | | | | | |
| Ulocladium | | | | | | | | | | | | |
| Total | 17 | 227 | 100% | 24 | 320 | 100% | 19 | 253 | 100% | 10 | 133 | 100% |



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Project Analyst:
 Avani Devmurari, MS *AD*

Date:
01 - 29 - 2020

Reviewed By:
 Steve Hayes, BSMT *Stephen N. Hayes*

Date:
01 - 29 - 2020

| Sample Number | 5 3058404 | | | 6 3058425 | | | 7 3058430 | | | 8 3058390 | | |
|-------------------------|---------------------------|------------------------|-------------|--------------------------|------------------------|-------------|--------------------------|------------------------|-------------|--------------------------|------------------------|-------------|
| Sample Name | MDX I Clean Linens Closet | | | MDX I TV Room Closet | | | Hall 115 | | | Laundry Room | | |
| Sample Volume | 75.00 liter | | | 75.00 liter | | | 75.00 liter | | | 75.00 liter | | |
| Reporting Limit | 13 spores/m ³ | | | 13 spores/m ³ | | | 13 spores/m ³ | | | 13 spores/m ³ | | |
| Background | 2 | | | 2 | | | 2 | | | 2 | | |
| Fragments | ND | | | ND | | | ND | | | ND | | |
| Organism | Raw Count | Count / m ³ | % of Total | Raw Count | Count / m ³ | % of Total | Raw Count | Count / m ³ | % of Total | Raw Count | Count / m ³ | % of Total |
| Alternaria | | | | | | | 1 | 13 | 7.1% | | | |
| Ascospores | 4 | 53 | 40.0% | | | | 3 | 40 | 21.4% | 10 | 133 | 2.1% |
| Aspergillus Penicillium | 6 | 80 | 60.0% | 8 | 107 | 66.7% | 6 | 80 | 42.9% | 456 | 6080 | 95.6% |
| Basidiospores | | | | 4 | 53 | 33.3% | 4 | 53 | 28.6% | | | |
| Bipolaris Drechslera | | | | | | | | | | | | |
| Chaetomium | | | | | | | | | | 2 | 27 | <1% |
| Cladosporium | | | | | | | | | | | | |
| Curvularia | | | | | | | | | | | | |
| Epicoccum | | | | | | | | | | | | |
| Fusarium | | | | | | | | | | | | |
| Memnoniella | | | | | | | | | | | | |
| Myxomycetes | | | | | | | | | | | | |
| Pithomyces | | | | | | | | | | | | |
| Stachybotrys | | | | | | | | | | 9 | 120 | 1.9% |
| Stemphylium | | | | | | | | | | | | |
| Torula | | | | | | | | | | | | |
| Ulocladium | | | | | | | | | | | | |
| Total | 10 | 133 | 100% | 12 | 160 | 100% | 14 | 186 | 100% | 477 | 6360 | 100% |



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Spore Trap Information

| | |
|----------------------------|--|
| Reporting Limit | The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated. |
| Blanks | Results have not been corrected for field or laboratory blanks. |
| Background | <p>The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of <i>Aspergillus</i> and <i>Penicillium</i> may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows:</p> <p>NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD)</p> <p>1 : <5% of field occluded. No spores will be uncountable. 2 : 5-25% of field occluded. 3 : 25-75% of field occluded. 4 : 75-90% of field occluded. 5 : >90% of field occluded. Suggested recollection of sample.</p> |
| Fragments | Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification. |
| Control Comparisons | There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments. |

Organism Descriptions

| | |
|--------------------------------|--|
| Alternaria | Habitat: Commonly found outdoors in soil and decaying plants. Indoors, it is commonly found on window sills and other horizontal surfaces. Effects: A common allergen and has been associated with hypersensitivity pneumonitis. Alternaria is capable of producing toxic metabolites which may be associated with disease in humans or animals. Occasionally an agent of onychomycosis, ulcerated cutaneous infection and chronic sinusitis, principally in the immunocompromised patient. |
| Ascospores | Habitat: A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report. Effects: Health affects are poorly studied, but many are likely to be allergenic. |
| Aspergillus Penicillium | Habitat: The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates. Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions. |
| Basidiospores | Habitat: A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings. Effects: Common allergens and are also associated with hypersensitivity pneumonitis. |
| Chaetomium | Habitat: Ascomycete fungus, commonly isolated from soil and decaying plant materials. It is cellulolytic and grows well indoors on damp sheetrock and other paper substrates. It is often found growing with Stachybotrys. Effects: It is reported to be allergenic and may produce toxins. |
| Myxomycetes | Habitat: Found on decaying plant material and as a plant pathogen. Effects: Some allergenic properties reported, but generally pose no health concerns to humans. |

Organism Descriptions

| | |
|---------------------|---|
| Stachybotrys | Habitat: Commonly found in soil and on decaying plant material. It is cellulolytic, and can be found indoors on wet materials containing cellulose, such as wallboard, ceiling tile, and other paper-based materials. It is found outdoors on decaying plant material although it is rarely detected on outdoor air samples. |
| | Effects: Allergenic properties are poorly studied and no cases of infection have been reported in humans. They do however produce potent tricothecene mycotoxins. The toxins produced by this fungus can suppress the immune system affecting the lymphoid tissue and the bone marrow. The mycotoxin is also reported to be a liver and kidney carcinogen. |
