

ENVIROCHECK, INC.

Asbestos Testing ♦ Lead Testing ♦ Microbial Testing ♦ Management ♦ Analysis ♦ Environmental Assessment

November 18, 2014

Attn:

Deer Valley Unified School District
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Subject Property:

Terramar Elementary School
7000 West Happy Valley Road
Peoria, Arizona 85383
PO# 15003824

INTRODUCTION

This inspection report presents the analytical results of the limited preliminary mycological testing performed by ENVIROCHECK, INC. using non-viable sampling methods. The sampling methods are based in part to the American Industrial Hygiene Association *Field Guide for the Determination of Biological Contaminants in Environmental Samples*, the American Conference of Governmental Industrial Hygienists handbook on *Bioaerosols Assessment and Control*, the *Institute of Inspection, Cleaning, and Restoration Certification (IICRC) Standard and Reference Guide for Professional Mold Remediation S520*, the *Indoor Environmental Standards Organization (IESO) Standards of Practice for the Assessment of Indoor Environmental Quality, Volume 1: Mold Sampling; Assessment of Mold Contamination (2002)*, and the *EPA Recommendations of Mold Remediation in Schools and Commercial Buildings*. The purpose of this survey and sampling analysis is to perform a preliminary screen for any potential total airborne fungal spore amplification and to provide risk management decisions and recommendations as necessary. This report should not be intended or interpreted as a comprehensive mycological investigation and sampling that may possibly develop an appropriate and/or encompassing remediation scope. *Please read entire report prior to initiating any action.

BACKGROUND INFORMATION

The above subject property experienced apparent water related damage. ENVIROCHECK, INC. has previously performed multiple limited initial investigations and assessments. ENVIROCHECK, INC. was contacted on November 6, 2014 and was requested to return and conduct additional air sampling in specific requested areas. This assessment is based on results

from non-viable air sampling only; a physical inspection, including but not limited to visual inspection and moisture survey was not included as part of this assessment. This investigation and assessment was limited to the areas inspected and the samples collected as directed by and deliberated upon with the client, respectively.

SAMPLING METHODS

NON-VIABLE AIR SAMPLES (Total Airborne Fungal Spore Counts)

Air sampling generally indicates the total (e.g. living and dead) fungal spores that are present in the ambient air in a referenced room or area. Air sampling is also used to reveal information concerning airborne spore diffusion, total airborne spore counts, and/or if cross contamination of fungal spores is occurring between two separate areas. The collection of air samples is attained, in accordance with the commonly accepted protocol published by the AIHA (American Industrial Hygiene Association), by connecting spore trap cassettes, e.g. Zefon Analytical Accessories Air-O-Cells, M2 Multi-Mold cassettes, etc. to a high volume pump, which draws in approximately 75 (e.g. five minutes) total liters of air. The cassettes are submitted to an appropriate laboratory for analysis, which includes total and individual fungal enumeration of spores, quantitation, and genus identification where possible. Also included, total number of pollen grains and visual quantitation of particulate matter. Results are presented in spores per cubic meter.

INVESTIGATION

- On November 12, 2014, ENVIROCHECK, INC. performed a limited preliminary on-site mycological investigation, as contracted by Jim Migliorino of Deer Valley Unified School District on the property of Terramar Elementary School located at the subject property listed above.
- Preliminary measurements of relative humidity (RH) and temperature were collected. Measurements were obtained using a TRACEABLE Humidity / Temperature Pen Thermal Hygrometer. According to the ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) Standard 62-2001, *Ventilation for Acceptable Indoor Air Quality*, "Relative humidity in habitable spaces preferably should be maintained between 30% and 60% relative humidity..." The approximate measurements are presented below in Table 1.

Table 1.

| <u>Location</u> | <u>Relative Humidity (RH)</u> % | <u>Temperature (F)</u> |
|-----------------------------------|------------------------------------|------------------------|
| Classroom 101 | 33.7 | 77.9 |
| Classroom 102 | 33.4 | 75.9 |
| Classroom 119 | 33.1 | 74.1 |
| Classroom 202 | 38.2 | 75.5 |
| Classroom 206 | 38.4 | 75.9 |
| Classroom 216 | 31.1 | 72.5 |
| Classroom 226 | 38.3 | 75.3 |
| Classroom 228 | 34.2 | 75.6 |
| Classroom 407 | 32.3 | 78.9 |
| 400 Building South Lobby Entrance | 29.7 | 81.8 |
| Outdoor Control South (Control 1) | 30.0 | 80.6 |
| Outdoor Control North (Control 2) | 28.7 | 80.0 |

- Non-viable air sampling was conducted in Classroom 101, Classroom 102, Classroom 119, Classroom 202, Classroom 206, Classroom 216, Classroom 226, Classroom 228, Classroom 407, 400 Building South Lobby Entrance, and outdoors south (control 1) and outdoors north (control 2). The outdoor control samples were used as background negative control for comparative analysis. The sample locations, descriptions measurements, and results are presented below in Table 2.

Table 2.

| <u>Sample Number</u> | <u>Location</u> | <u>Sample Type</u> | <u>Results</u> |
|----------------------|-----------------|--------------------|---------------------------------|
| 1 | Classroom 101 | Non-Viable Air | Low Spore Concentration, Normal |
| 2 | Classroom 102 | Non-Viable Air | No Spore Concentration, Normal |
| 3 | Classroom 119 | Non-Viable Air | Low Spore Concentration, Normal |
| 4 | Classroom 202 | Non-Viable Air | No Spore Concentration, Normal |
| 5 | Classroom 206 | Non-Viable Air | Low Spore Concentration, Normal |
| 6 | Classroom 216 | Non-Viable Air | Low Spore Concentration, Normal |

| | | | |
|----|-----------------------------------|----------------|---------------------------------|
| 7 | Classroom 226 | Non-Viable Air | Low Spore Concentration, Normal |
| 8 | Classroom 228 | Non-Viable Air | Low Spore Concentration, Normal |
| 9 | Classroom 407 | Non-Viable Air | Low Spore Concentration, Normal |
| 10 | 400 Building South Lobby Entrance | Non-Viable Air | Low Spore Concentration, Normal |
| 11 | Outdoor Control South (Control 1) | Non-Viable Air | Control |
| 12 | Outdoor Control North (Control 2) | Non-Viable Air | Control |

** No obvious adverse weather or outdoor conditions were noted at the time of the inspection.*

PRINCIPAL FINDINGS

(SEE ATTACHED LABORATORY RESULTS FOR DATA, EXACT LEVELS, AND GENUS)

SUMMARY

Non-Viable Air Samples:

The non-viable air monitoring results indicate that total ambient indoor levels of spores are quantitatively lower than the outdoor airborne levels in Classroom 101, Classroom 102, Classroom 119, Classroom 202, Classroom 206, Classroom 216, Classroom 226, Classroom 228, Classroom 407, and 400 Building South Lobby Entrance. Air monitoring samples were collected in Classroom 101, Classroom 102, Classroom 119, Classroom 202, Classroom 206, Classroom 216, Classroom 226, Classroom 228, Classroom 407, 400 Building South Lobby Entrance, and outdoors. The samples from outside the subject property were used as background negative control for comparative analysis. Ambient indoor air samples are typically similar or lower in concentration than outdoor negative control air samples. Common indoor environments will always consist of some levels of fungi. This is a basic principle that fungal spores occur naturally everyday and everywhere in the environment. So naturally, fungal spores will always be found, but it is the degree of dissimilarity between the comparison of total fungal spore concentrations of the suspect indoor samples and outdoor negative control air samples that determines the significance of the problem, as applicable. Orders of magnitude between the individual fungal genera types present within the indoor and outdoor or control samples are also considered. At

this time, there are no federal regulations or standards in regards to exposure levels or to quantify the detected levels of spores, which is the primary reason why outdoors or areas of non-complaint negative control air samples are collected. Further support in data interpretation is based in part by the American Industrial Hygiene Association *Field Guide for the Determination of Biological Contaminants in Environmental Samples*, “Dominance in indoor air samples by species of mold that are not the predominant outdoor species indicates that molds are growing in the building and that air quality is degraded”, although this may not be applicable in every situation.

Conclusion:

From the information obtained from this limited preliminary investigation and the representative samples collected, ENVIROCHECK, INC. provides the following conclusions:

- Abnormal total airborne fungal spore conditions do not appear to exist in Classroom 101, Classroom 102, Classroom 119, Classroom 202, Classroom 206, Classroom 216, Classroom 226, Classroom 228, Classroom 407, and 400 Building South Lobby Entrance.

The following general recommendations may be used as a strategic guide towards the proper maintenance of the subject property as it pertains to mold and includes precautionary suggestions in an effort to minimize any future occurrences of mold related issues.

GENERAL RECOMMENDATIONS

1. If any irregular health related symptoms appear consult with a physician immediately.
2. Areas of the subject property with active plumbing or internal water type systems (i.e. water filters, water heaters, toilets, sinks, etc.) should be regularly inspected for any leaks or undesired water incursion. Appropriate efforts should be made to prevent any water leaks or water intrusion damage into the subject property and immediately corrected if found.
3. The building owner should sustain a routine schedule of maintenance for the air handling system, HVAC system, furnace, or etc. including but not limited to the cleaning of the air ducts and the replacing of air filters. Appropriate cleaning of the HVAC system should be performed in accordance with the National Air Duct Cleaners Association’s (NADCA) *ACR 2002 Standard: Assessment, Cleaning, and Restoration of HVAC Systems*.
4. ENVIROCHECK, INC. recommends a re-inspection if visible mold appears, water intrusion reoccurs, or irregular health symptoms that can be associated to mold or fungi exposure surface or worsen.

Limitations

The findings set forth in this assessment are strictly limited to the time, date and scope of the evaluation. Regulatory standards for microbial contamination do not currently exist and therefore

the results and conclusions of this investigation are based on analytical microbial testing, field observations, and in part to the American Industrial Hygiene Association *Field Guide for the Determination of Biological Contaminants in Environmental Samples*, in reference to the American Conference of Governmental Industrial Hygienists handbook on *Bioaerosols Assessment and Control*, the *Institute of Inspection, Cleaning, and Restoration Certification (IICRC) Standard and Reference Guide for Professional Mold Remediation S520*, the *Indoor Environmental Standards Organization (IESO) Standards of Practice for the Assessment of Indoor Environmental Quality, Volume 1: Mold Sampling; Assessment of Mold Contamination (2002)*, and the *EPA Recommendations of Mold Remediation in Schools and Commercial Buildings*, and not on any procedures beyond the scope of the agreed upon work. Instructions including, but not limited to, procedures, conclusions, recommendations, and specifications, offered to the client, (person(s), or entity) who may utilize this report, are only opinions made in an effort to assist the client with their decision making process. No warranties, implied or otherwise, are made with respect to any instruction given. ENVIROCHECK, INC. does not guarantee that all individuals will be free from mold and fungi exposure. Mold and Fungi are naturally occurring in both indoor and outdoor environments and there are no published regulations regarding the exposure, removal, or assessment of fungi.

It should be fully understood that this investigation is limited to the sampled areas of the subject property and/or areas that are related to the original and/or reported water loss only. Due to its dynamic nature, mold and fungi growth and/or amplification can be present in hidden and/or unknown areas within the subject property. Unless all past and/or present water intrusion/incursion incidents throughout the history of the subject property and/or any conditions that may contribute to mold growth/amplification are identified and disclosed to ENVIROCHECK, INC. it would be impossible to identify or detect these areas. ENVIROCHECK, INC. cannot be held responsible if the client, current property owner, and/or future property owner(s) discover such areas. This investigation/assessment and sampling protocol specifically excludes the identification and detection of wood decay type fungi, including but not limited to *Poria incrassata*, due to the unpredictable nature and general lack of spore production that would be typically detected in environmental fungal samples.

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