



December 2, 2019

Mold Inspection Report for
TVA Greenway Warehouse
4202 Greenway Drive
Knoxville, TN 37918



On 11-25-19 a mold inspection including: a visual and olfactory walk through; recording the ambient conditions; photo documentation; and the collection of 11 mold samples, was conducted to determine a scope of work for mold remediation in this storage facility and its contents.

There was what appeared to be a ghosting of light mold on several items in this storage facility, and there was clearly a musty odor present at the time of this inspection. Although it was a clear dry day with low ambient humidity outside, at 40% rh, inside levels were on average between 57% to 61% rh. So, on a humid day outside, these numbers would be easily over 60% rh.

****Note: The ideal conditions for active microbial growth are ambient temperatures between 50-90 °F; relative humidity levels at or above 60%; and moisture content in building materials at or above 16% for at least 24-48 hrs.***



Pictures of the affected furniture from inside the warehouse storage areas.



In the ambient dust collected on the furniture there were also mold spores found to be present.

****While the numbers were generally not remarkable, it is highly recommended that these items be HEPA vacuumed and wiped down with a biocide/disinfectant before being moved into a clean space. If they are to remain at this location after cleaning, it is highly recommended that the space be properly conditioned to prevent future microbial growth.***



The mold samples collected were as follows: one air sample TVA-01, taken from outside as a baseline; one air sample TVA-02, taken from the front left section of the warehouse; one air sample TVA-03, taken from the back right section of the warehouse; one swab sample TVA-S1, taken from a table in the front left section; one swab sample TVA-S2, taken from a chair in the midway section of the warehouse; one swab sample TVA-S3, taken from a cabinet in the back right section of the warehouse; one swab sample TVA-S4, taken from the warehouse office carpet; one swab sample TVA-S5, taken from a chair in the warehouse office; one swab sample TVA-S6, taken from the desk file cabinet in the office; and finally, one swab sample TVA-S7, taken from the second desk file cabinet.



TVA-01 Sampling Site



TVA-02 Sampling Site



TVA-03 Sampling Site



TVA-04 Sampling Site



Swab Sampling Sites



TVA-S1 Sampling Site



TVA-S2 Sampling Site



TVA-S3 Sampling Site



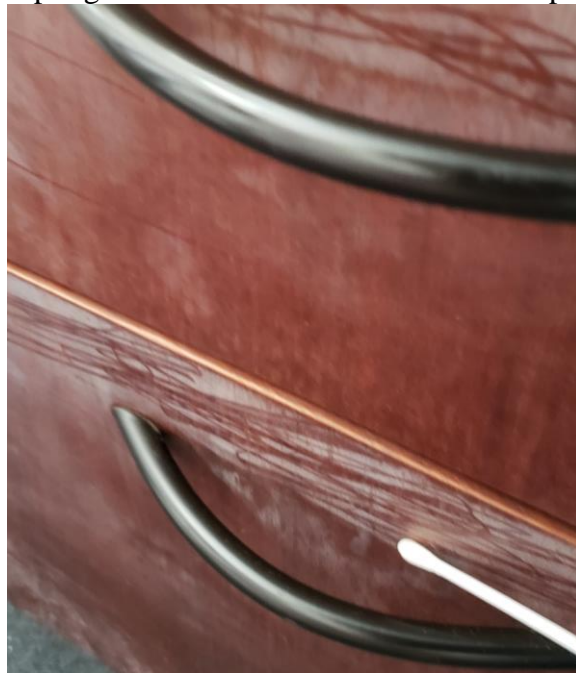
TVA-S4 Sampling Site



TVA-S5 Sampling Site



TVA-S6 Sampling Site



TVA-S7 Sampling Site



Standard for Interpreting Sample Results:

While there are no TLV's (Threshold Limit Values) established for mold in the USA, most Hygienists use the following criteria to determine indoor air quality: first, is the location and purpose for the sampling (Is it residential, commercial, or medical with special or specific regulations for spore counts or specific spores of concern); the second, that the spore counts inside are equal to or less than the outside numbers and similar in the types of spores present; and third, the health condition and sensitivities of the individuals entering this area, since allergy sensitivities vary from person to person and some of the species of mold are opportunistic pathogens only attacking those who are immune compromised.

Generally, after eliminating all outside influences, a total spore count of 2,000 or less and single spore count of 500 or less on any *spores of concern is desired -- since, on average, people seem to complain of symptoms at or above these levels. The one exception to this rule is *Stachybotrys*, since it does not aerosolize easily, we do not generally like to see these spores in any indoor air sample. *(water or moisture indicator spores or spores known to have an effect on human health)

The second part of our standard is identifying the current condition based on three possible levels of indoor contamination.

Condition 1 – (normal fungal ecology): an indoor environment that may have settled spores, fungal fragments or traces of actual growth whose identity; location and quantity are reflective of a normal fungal ecology for a similar indoor environment.

Condition 2 – (settled spores): an indoor environment which is primarily contaminated with settled spores that were dispersed directly or indirectly from a Condition 3 area, and which may have traces of actual growth.

Condition 3 – (actual growth): an indoor environment contaminated with the presence of actual mold growth and associated spores. Actual growth includes growth that is active or dormant, visible or invisible.

Citable Sources for Sample Interpretation Standard

The three citable standards generally followed are:

The first source is the ACGIH book *Bioaerosols Assessment and Control*, Chapter 6 on Sample Analysis and Chapter 7 on Data Interpretation. In Chapter 7, Section 7.2.3 Data Analysis states, "The challenge for an investigator is to apply knowledge, ***expert advice***, training, and ***experience*** when analyzing data and to recognize the strengths and limitations of various types of data and methods of data analysis."

The Second source would be the IICRC S520 Standard and Reference Guide for Professional Mold Remediation, p. 14 Definitions for: p.15 Assessment and Conditions; Standard Sections 4.2.1 Assessment; p. 22,23 Sections 9.4, 9.4.1, 9.4.2, 9.4.3. Preliminary Determination; p.31 Section 15 Indoor Environmental Professional. On p.31 Section 15 it states "The S520 provides a philosophical shift away from setting numerical mold contamination action levels. Instead, it establishes mold contamination definitions, descriptions and conditions (1,2,3) and



provides general guidance, which when properly applied, can assist remediators and others in determining criteria that trigger remediation activities or confirm remediation success."

The third source is Post Remedial Assessment and Clearance Criteria for Mold Remediation Projects: published in June of 2004 by Larry D. Robertson, Ph.D. M.S., B.S.; Hollis L. Horner, MBA. At Indoor Environmental Consultants, Inc. Located at 8305 Highway 71W, Suite 202; Austin, Texas, 78735. This section deals with indoor thresholds for clearance and is based upon professional field experience and expert opinion based on multiple survey results; however, it is not the primary determiner for remediation action, but only one small part to be considered.

The results of a tape, swab, or bulk sample are quantified as follows: Numerous; Moderate; Occasional; or Few.

Your Sample Results Interpreted

TVA-01 Outside Air Sample – The total spore count here was 5160 spores. The spores present here in descending order were: 3360 basidiospores; 1280 cladosporium; 280 penicillium/aspergillus; 120 ascospores; 80 hyphal elements; and 40 nigrospora.

TVA-02 Warehouse Left Front Air Sample – The total spore count here was 520 spores. The spores present here in descending order were: 360 basidiospores; 80 ascospores; 40 pithomyces; and 40 smuts, periconia, myxomycetes. Minus the outside influence of the 360 basidiospores and the 80 ascospores, the adjusted total spore count here was 80 spores.

This is well below the 2000 total spore count we look for inside with no spores of concern over a 500 total spore count. This would be considered a ***Condition 1 Area*** – having a normal fungal ecology and represents excellent indoor air quality as it related to indoor mold spore counts.

TVA-03 Warehouse Back Right Air Sample – The total spore count here was 400 spores. The spores present here in descending order were: 200 basidiospores; 120 penicillium/aspergillus; 40 ascospores; and 40 cladosporium. Minus the outside influence of the 200 basidiospores and the 40 ascospores, the adjusted total spore count here was 160 spores.

This is well below the 2000 total spore count we look for inside with no spores of concern over a 500 total spore count. This would be considered a ***Condition 1 Area*** – having a normal fungal ecology and represents excellent indoor air quality as it related to indoor mold spore counts.

TVA-04 Warehouse Office Air Sample – The total spore count here was 2360 spores. The spores present here in descending order were: 1080 penicillium/aspergillus; 720 cladosporium; 360 basidiospores; 80 ascospores; 80 smuts, periconia, myxomycetes; and 40 pithomyces.



Minus the outside influence of the 360 basidiospores and the 80 ascospores, the adjusted total spore count here was 1920 spores.

While this is below the 2000 total spore count we look for indoors, there were two spores of concern, the 1080 penicillium/aspergillus, which was 3.86 times higher than our outside count of 280 spores; and the 720 cladosporium spores, while lower than the outside count of 1280 spores, was still over the 500 total we look for indoors.

This would be considered a **Condition 3 Area** – (actual growth): an indoor environment contaminated with a slightly higher presence of actual mold growth and associated spores than those which were outside.

****These spore counts do not represent a serious problem, however, if the contents present here are to be moved to another location, it is highly recommended that they be HEPA vacuumed and then wiped down with a biocide/disinfectant to prevent any possibility of cross contamination in the area into which they are moved.***

TVA-S1 Swab Sample – There were two mold spores identified on this swab sample: occasional ascospores and basidiospores.

TVA-S2 Swab Sample – There were two mold spores identified on this swab sample: occasional ascospores and exosporium-like spores; along with occasional hyphal elements.

TVA-S3 Swab Sample – There were two mold spores identified on this swab sample: occasional basidiospores, cladosporium spores, penicillium/aspergillus spores, and pithomyces spores.

TVA-S4 Swab Sample – There were two mold spores identified on this swab sample: occasional ascospores and basidiospores.

TVA-S5 Swab Sample – There were two mold spores identified on this swab sample: occasional basidiospores and pithomyces spores.

TVA-S6 Swab Sample – There were no fungal spores identified on this swab sample.

TVA-S7 Swab Sample – There were no fungal spores identified on this swab sample.

Limit of Liability:

Every attempt has been made to identify locations and sources that might contribute to any indoor air quality problems. Our report is only a snapshot of the conditions as they were on the day of the inspection.



The tenant, building owner or contractor should understand that these conditions can change based on the amount of time that passes or if some future event transpires after this evaluation. Affinity Group performed a non-destructive evaluation of this property. Walls and floors were not dislodged, pulled up or otherwise disturbed during the evaluation. Affinity Group's liability is no more than the amount paid for the evaluation or inspection. Should you have any questions please contact me at (423) 332-7077.

Respectfully Submitted,

David C. Bashor CIE
Affinity Group