



383 Industrial Way Suite 300 Anchorage Alaska 99501

**October 4<sup>th</sup>, 2017**

**City of Valdez  
212 Chenega Ave  
Valdez, AK 99686**

**ATTN: Jessica McKay**

**RE: City of Valdez Animal Microbial IAQ Screening**

On the date of September 20<sup>th</sup> 2017 White Environmental Consultants (WEC) performed airborne and surface microbial fungal spore sampling within the Valdez Animal Shelter located at 276 Egan Avenue Valdez, Alaska. Brett O'Bray WEC's Board Certified Microbial Consultant performed onsite inspection, sampling and prepared this letter. Average temperature at the time of inspection within the structure was in the mid-seventies with a mean relative humidity of forty one percent. The inspection and sampling was performed in the fall on a cloudy day. Airborne and surface microbial sampling was performed at the request of our client to determine the type and extent of fungal spore content in relation to indoor air quality and suspect contamination within the structure.

WEC was informed by our client, The City of Valdez, that the head of the shelter had discovered suspect microbial growth behind Mylar wainscot that exists in the dog kennel of the facility. All wall systems were inspected at suspect locations of water intrusion within the kennel area. WEC tested all of the suspect surface and surrounding areas of the kennel with a G.E. Survey master Moisture Meter. The GE Protimeter Surveymaster is used for moisture measurement in buildings. Excessive moisture in buildings will lead to decay and deterioration of components and decorative finishes. Testing within the area of concern(kennel) found the materials to be positive for moisture content at the base of the wall systems at the time of inspection.

Visual inspection at the top and base of the Mylar Wainscot found visible suspect moisture behind the finishing material. The building was refurbished in 2005. After removing all interior finishes in the area where the kennel is now located, CMU block walls were furred out and gypsum wall systems were installed with the above-mentioned Mylar wainscot attached to the exterior. No curved cove is installed at the base of the system and the top of the wainscot does not extend up the wall far enough so that moisture, when personnel are cleaning the kennels, allows for moisture to wick into the wall system top and bottom. Coupled with drains that are level with the poured concrete floor and the wall systems themselves consisting of gypsum the design is not conducive to its proposed and current use.



Mold growth on wall system and Mylar wainscot located at the top seam, typical design throughout the kennel



Mold growth on wall system and base of wainscot

Particulate Air Sampling – Allergenco D Cassette

The Allergenco D air quality sampler is a particulate sampling cassette designed for the rapid collection and analysis of a wide range of airborne aerosols including mold spores, pollen, insect parts and skin fragments. This sampling device is useful in providing rapid analysis of airborne contaminants in indoor air quality testing, allergy testing and flood restoration monitoring. The results are reported as a total, meaning spores counted can include both viable and non-viable fungal spores. Air samples were collected at 15 liters

per minute with a target volume of 75 liters per sample utilizing a Buck Bioaire air sampling pump. The Allergenco-D sampling cassette is 37 mm in diameter and houses a sticky media. The air-sampling pump draws air through the cassette and traps fungi particles by impaction on the media.

After sample collection, the cassettes were removed, re-sealed, placed into a plastic bag, and shipped via overnight courier to NEL Laboratories located at 227 China Road Winslow, Maine 04901 for direct microscopic examination to identify the type and determine the airborne concentration of fungal spores.

WEC collected eight Allergenco D samples total. Samples were collected on either side of the kennel area, the kennel and one outside of the structure as the background comparison sample. Samples collected from the basement were found to have elevated counts of spores that are associated with water inundated building materials and are referred as water indicating spores, other spores detected are ubiquitous and correlate with the outdoor background sample.

Low levels of spores were detected within the kennel area of the structure, but not on either side of the kennel; these are spores that are known indicators from water/moisture intrusion. The moisture indicating fungal spore found upon laboratory analysis was *Aspergillus* / *Penicillium* (ASP/PEN). **Aspergillus** (*as-per-jill-us*) health effects vary by species, but many species are reported to be allergenic. Some species produce toxins that might have significant health effects in humans. *Aspergillus* is one of the most infectious of molds, but infections are not common in normal immune systems. In immuno-compromised individuals, however, the disease Aspergillosis is a very significant and potentially deadly health concern. **Penicillium** (*pen-uh-sill'-ee-um*) contaminant / opportunistic pathogen, one of the most common genera found worldwide in soil and decaying vegetation and indoors in dust, food, and various building materials. Common bread mold is a species of *Penicillium*. Spores usually cannot be distinguished from *Aspergillus* on non-cultured samples (like tape-lifts and air-o-cells). It is reported to be allergenic, to cause certain infections in individuals with compromised immune systems, and some species do produce toxins unhealthy to humans.

All other spores found upon analysis of air samples outside the kennel are spores common to structures and would be seen typically for the time of year and season and predominate weather conditions.

A summary of initial air sample results is shown below.

Client ID #	Collection Date	Sample Description	Sample Location	<b>Results</b> Total Fungal Spores Count/M <sup>3</sup>	<b>Results</b> Total ASP/PEN Spores Count/M <sup>3</sup>
AS-001	09/20/17	Allergenco D	Food Bowl Wash Room	2,200	0
AS-002	09/20/17	Allergenco D	Exotic Animal Room	2,200	750
AS-003	09/20/17	Allergenco D	Kennel Room	1,600	110
AS-004	09/20/17	Allergenco D	Kennel Room	1,300	0
AS-005	09/20/17	Allergenco D	Wash/Grooming Room	2,100	0

AS-006	09/20/17	Allergenco D	Training Room	1,300	0
AS-007	09/20/17	Allergenco D	Break Room	690	0
AS-008	09/20/17	Allergenco D	Outside Building	5,500	0

### Surface/Bulk Sampling

Gross contamination of building materials is usually self-evident. It is often useful to sample these materials to scientifically demonstrate the presence of elevated levels of microorganisms and to identify species of visual growth. This information is then used to potentially correlate these levels to airborne spore levels throughout a structure.

Surface/Bulk sampling is also useful in verification of remediation procedures and source sampling. A bulk sample was collected from the base of the wall system in Room # 3 in the basement where suspect mold was visibly seen on the wall system where past moisture intrusion had occurred.

Surface sample results show high levels of Aspergillus /Penicillium (ASP/PEN) spores present which correlates with air sampling within the kennel area.

### **Bulk Sample Results**

Sample ID #	Collection Date	Sample Description	Sample Location	<u>Results</u> Mold Growth
T-001	09/20/2017	Tape Lift	Top of wainscot from wall	ASP/PEN +5
T-002	09/20/2017	Tape Lift	Base of wainscot from wall	ASP/PEN +5

Qualitative scale – None detected 1= Lowest (trace); 5= Highest (heavy or abundantly present)

It should be assumed based on visual and laboratory analysis that the perimeter walls of the kennel from the top of the wainscot to the base of the wall system have mold content on and or within the wall systems and the Mylar wainscot. It is recommended to remove the wall system from the and wainscot from the top of the wainscot to the ground level. The future design should account for the excessive use of moisture in this area, and put back of materials should incorporate moisture resistant products coupled with a design not to allow moisture to wick into it. The concrete floor should be floated to allow for proper drainage from the everyday discharge of water.

Mold and particulate exposure does not always present a health problem indoors. However, some people are more sensitive to molds and particulates as the human organism is very subjective. These people may experience symptoms such as nasal stuffiness, eye irritation, wheezing, and or skin irritation when exposed to certain types of mold. Some people may have more extreme reactions. Severe reactions may include fever and shortness of breath. Immunocompromised persons and persons with chronic lung diseases such as COPD are at an increased risk for opportunistic infections.

Mold is treated in the same way as other hazardous materials and should only be disturbed by properly trained individuals. The IICRC (Institute of Inspection Cleaning and Restoration Certification) certifies individuals and firms in the proper way to mitigate water and mold inundation and contamination. It is not recommended that untrained individuals perform any large-scale disturbance of contaminated building materials unless properly trained and wearing the appropriate PPE; i.e. containment localized ventilation, disposable suits, respirators etc. Disturbance of mold without the proper work control methods in place can lead to bigger issues such as cross contaminating other adjacent areas and incidental exposure to other occupants and different trade employees.

The following conclusions are based on our inspection of visually accessible areas and the results of microscopic examination of air samples:

- Areas of concern were wet at the base of the wall system and randomly at the top of the wainscot within the kennel.
  - Moisture indicating spores were detected within the kennel which is an indicator of moisture inundated building materials. All other Indoor air samples collected were found to contain a mixture of ubiquitous spores that would be typical of the season and would be expected to be typical in most structures
  - Relative humidity levels were at acceptable levels at all sampling locations in the structure.
  - Wall systems affected within the kennel likely have excessive mold growth on the back side of the wall board based on visual examination and laboratory results.
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- In summary, on the basis of this mold screening investigation, WEC offers the following recommendations:
  - It is recommended that a licensed professional IICRC certified water and mold remediation firm be retained for all remediation activities.
  - Set up full containment protocols for remediation procedures in the affected areas.
  - Set up HEPA equipped air filtration units to draw and filter airborne spores and exhaust filtered air to the exterior of the structure.
  - Remove all gypsum board in the kennel from affected areas to access foundation and CMU block wall.
  - Remove contamination found at the time of inspection on the structural joists, and clean all surfaces within the contained area.

- HEPA vacuum and wipe all surfaces within the areas of concern utilizing EPA approved cleaning and anti-microbial agents. Remove all gross contamination from studs, sill plates and floor and CMU wall system. Means and methods to be determined by contractor that comply with IICRC methodology.
- Clean and treat all remaining structural components (i.e. studs sill plates etc.). HEPA vacuum sill plate chases.
- Fog interior of regulated areas with antimicrobial and let set then recommence filtration of air.
- Spray Antimicrobial directly in areas hard to clean yet easy for antimicrobial agents to penetrate.
- Upon completion of remediation recommence filtration then shut down HEPA equipped local ventilation units for at least 12hours prior to post sampling.
- Retest for effectiveness of remediation (clean again if testing still shows elevated counts of fungal spores).
- If MVOC's are detected in the future search for further possible water intrusion and repair under restoration conditions. Keep in mind not to put back like building materials until the foundation water accumulation issue is addressed or fungal growth will continue and reoccur
- Maintain humidity levels below 60% to discourage mold growth.

### ***Limitations***

This report has been prepared to assist in evaluating the microbial impact at the above address. WEC provided these services consistent with the level and skill ordinarily exercised by members of the profession currently practicing under similar conditions. This statements in lieu of other statements either expressed or implied. This report is intended for the sole use of the client. The intent of the report is to aid the building owner, architect, construction manager, general contractors, and potential demolition and abatement contractors in locating fungi growth (mold). This report in not intended to serve as a bidding document nor as a project specification document and actual site conditions and building material quantities should be field-verified. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, and reuse of this document, the findings, conclusions, or recommendations is at the risk of said user. Although a reasonable attempt has been made to locate suspect fungi (mold) in the areas identified, the inspection techniques used are inherently limited in the sense that only full demolition procedures will reveal all building materials of a structure and, therefore, all areas of potential fungal growth. The size of the area impacted by fungal growth is based on professional judgement and practicality. Additionally, other possible building material hazards such as asbestos and lead containing





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paints were not included as part of this evaluation and may require proper sampling for identification prior to disturbance. Other unidentified microbiological impact may be located within walls, ceiling cavities, below flooring or grade, and other non-accessible areas. Caution should be used during all remediation activities.

Respectfully

A handwritten signature in blue ink, appearing to read 'Brett O'Bray', is shown on a light yellow rectangular background.

Brett O'Bray - CMC (Board Certified Microbial Consultant)  
Vice President  
White Environmental Consultants Inc

