PATHOGENFOCUS

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Revolutionary Approach to Disease Mitigation for Animal Shelters

Testimonial Statement form Angela…….

The Importance of Disease Mitigation in Animal Shelters

Animal Shelters play an important role in the intake, proper care, often nursing strays back to health before placement. The role of disease risk mitigation is paramount to minimize the spread of common disease such as **Bordetellosis, or Bordetella,** commonly known as kennel cough.

The Solution

To enhance your transmission of disease risks, atmospheric cold plasma or non-thermal plasma provides that additional layer of security to your shelter. By providing a treatment of gaseous molecules and short-lived radicals, you can have peace of mind that you have exercised the highest due diligence to mitigate the risk of diseases transmission. The treatment is continuous, ever present in the entire space, stable, consistent, and ubiquitous providing 24/7 protection for both air and surfaces.

The Results

Kent County Animal Shelter acted as an early adopter of PathogenFocus Air/Surface Disinfection Biosecurity technology powered by Oxyion Biosecurity Technology. Stated as treating mold, bacteria, fungi and viruses, Kent County Animal Shelter decided to serve as a proof of eMectiveness site. The Shelter conducted pretreatment sampling of air and surfaces with a selective media for Bordetellosis. The PathogenFocus solution was installed and allowed to remove the existing bioburden for a period before resampling the space. The results determined by an independent third-party lab, Scientific Air Solutions, are shown below.

11/20/23 - Pre-treatment bioburden in the O6ice/Administration was 235 cfu/m 3 and main Kennel area 278 cfu/m3 respectively, which is considered marginal and needs further corrective action.
01/18/24 - Pre-treatment samples specifically from the Adoption and Holding section of the kennel was 604 cfu/m 3 as sampled with Bordetella Selective Agar.
03/18/24 – In-treatment bioburden of the O6ice/Administration area is 25 cfu/m 3 which is a 89.4% reduction from the pre-treatment results from the same area. The Kennel area also shows a reduced bioburden of 28 cfu/m 3 which is a 89.8% reduction from the pre-treatment results from the same area.
03/18/24 – In-treatment samples specifically from the Adoption and Holding section of the kennel is now 74 cfm/m3 which is a 87.8% reduction from the pre-treatment sampling of these two areas. These air samples

as well as the pretreatment samples, were taken with Bordetella Selective Agar, used as a possible indicator of Canine Infectious Respiratory Disease Complex (CIRDC, a.k.a. "Kennel Cough").

Observations Outside air samples ranged from 1,400 to 1,833 cfu/m 3 and exhibit that a significant amount of the bioburden continues to come from the outside air.

Target Air Quality, not applicable for the selective media samples.
Air quality scale for workplaces, public buildings, schools, homes and kennels are as follow:
• < 100 cfu/m 3 is considered clean and acceptable.
• 100 to 300 cfu/m 3 is marginal and needs further corrective action.
• > 300 cfu/m 3 is not acceptable and needs corrective action.

In most cases, air quality < 100 cfu/m 3 has shown a decrease in the overall bioburden and odors.

A. Summary – Air Samples

Pre and in-treatment air samples results given below.

Sample Date	Treatment	Number of samples	Location	Average (cfu/m^3)	Range	Standard Deviation	Percent Change
11/20/23	Pre	17	Office/Admin	235	133/600	109.9	-
03/18/24	**In**			**25**	**0/133**	**40.5**	**89.4**
11/20/23	Pre	29	Kennel Areas	278	133/467	88.1	-
03/18/24	**In**			**28**	**0/100**	**26.4**	**89.9**
01/18/24	Pre	9	Kennel Areas Selective Media	604	400/933	186.9	-
03/18/24	**In**			**74**	**33/133**	**34.3**	**87.8**
11/20/23	Pre	4	Exterior	1,600	1,400/1,833	165.0	-
03/18/24	**In**			**1,617**	**1,467/1,800**	**121.3**	**1.1+**
01/18/24	Pre	1	Exterior Selective Media	1,667	1,667/1,667	0.0	-
03/18/24	**In**			**1,567**	**1,567/1,567**	**0.0**	**- 6.0**

11/20/23 - Pre-treatment contact swab results are > 10 cfu/cm 2 which is considered not acceptable and needs corrective action.
03/18/24 - In-treatment contact swab results averaged 4.1 cfu/cm 2 for a 87.5% reduction and now is < 5 cfu/cm2 which is considered clean and acceptable.
Target Contact Surface Quality Contact surface quality scale for workplaces, public buildings, schools, homes and kennels are as follow:
• < 5 cfu/cm 2 is considered clean and acceptable.
• 5 to 10 cfu/cm 2 is considered marginal.
• > 10 cfu/cm 2 is considered not acceptable and needs corrective action.

In most cases, surface swabs < 5 cfu/cm 2 has shown a decrease in the overall bioburden and odors.

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Pre and in-treatment surface (swab) samples results given below.

Sample Date	Treatment	Number of samples	Location	Average (cfu/cm^2)	Range (cfu/cm^2)	Standard Deviation	% Reduction
11/20/23	Pre	21	Facility	32.7	15.0/57.0	9.1	-
03/18/24	**In**			**4.1**	**1.5/9.3**	**2.2**	**87.5**
11/20/23	Pre	1	Neg. Control	0	0/0	0.0	-
03/18/24	**In**			**0**	**0/0**	**0.0**	**-**

Additional Benefits

"The [PathogenFocus] study revealed additional benefits that were not discussed or expected. The customer and staff experience is much more pleasant due to the odors removed by the cold plasma system. Walking in the front door, one would not know this facility houses numerous animals. More importantly, the added pathogen mitigation is expected to lower disease transmission among workers and visitors. The COVID pandemic provided many lessons about the transmission or airborne diseases. The PathogenFocus system effectively addresses airborne and surface transmission/contamination."

- Angela H., Kent County [MI] Animal Shelter

Key Features

Air treating Air - No chemicals or residue
Low maintenance
Easy installation
Engineered to your space
Low energy consumption (less than a 60W light bulb)
Use in occupied spaces – safe for people, plants, foods and animals.
USDA Organic Registered