

## Case Study - Bird & Bat Guano Remediation/Clean Up

### Background - Histoplasmosis



Histoplasmosis is a lung disease caused by inhaling the spores of a fungus known as *Histoplasma Capsulatum*. This fungus is naturally present in soils and grows best in soils with high nitrogen content, especially those contaminated with bird manure or bat droppings.

Disturbance of soil, dust, debris or droppings contaminated with *Histoplasma Capsulatum* (HC) cause these spores to become airborne where they can be carried long distances. Once inhaled, the fungal spores can cause a flu-like illness whose symptoms usually start 3-17 days after exposure. The resulting lung infection can be short term (acute) and relatively mild or can be long-term (chronic) and serious. The chronic lung infection is like tuberculosis and can progress over months or years and scar the lungs. Schools, daycare facilities, hospitals, clinics must be particularly vigilant in their inspections and control efforts. Infants, young children and persons with weakened immune systems (such as those with cancer or HIV infection) are primarily at risk.

Workers involved in construction, excavation and demolition; especially those restoring historical or abandoned buildings such as roofers, bridge painters and maintenance personnel who disturb or clean up droppings are also potential risk occupations. Many infected persons have no apparent symptoms and do not seek medical attention.



### Project Description - Pennsylvania Private School

Accredited Environmental Technologies, Inc. (AET) was contracted by a private school to remove/clean up bird and bat guano (droppings) in the attic and first floor of a 3,600 SF building. AET's remediation team was headed by a Certified Industrial Hygienist (CIH) who inspected the attic and first floor work areas and prepared a site-specific microbial response work plan.

### Scope of Work - Actions Taken

1. Each work area was sealed off and vented with HEPA air filtration devices (AFDs) to establish a negative pressure enclosure.
2. A worker decontamination system was constructed for work area ingress and egress. Workers wore personal protective equipment including tyvek suits and NIOSH approved air purifying respirators.
3. Bulk removal of guano/droppings was performed by misting the droppings with a 10% bleach/water solution and shoveling of the guano into 6-mil plastic bags.
4. HEPA vacuums were used for fine cleaning of horizontal and vertical surfaces in the work areas.
5. Surfaces were then wet wiped cleaned. A bleach solution was used for surface disinfection in the attic. A quaternary ammonium solution was used on the 1<sup>st</sup> floor so that wood surfaces would not be discolored.
6. Surfaces within the work areas were inspected with a black light to confirm or dismiss the presence of bat urine. Surfaces identified with urine were re-cleaned and disinfected.

### Final Clearance Criteria - How Clean is Clean (Project Acceptance)

The following criteria was used for contractor release purposes and to verify project completion.

- No visible guano deposits in the work areas.
- No residual dust or debris in the work areas.
- All waste materials removed from the work areas.
- No objectionable odors.
- Non-detectable Acceptable Air Quality Testing Results for *Histoplasma Capsulatum*, *Chlamydomyces Psittaci* or *Cryptococcus Neoformans* (analysis by Polymerase Chain Reaction (PCR) or DNA testing).



This project was completed by a 4-man work crew over a 5-day period. Initial failure of clearance air criteria for HC resulted in additional re-cleaning on the first floor. The project clearance criteria was achieved after retesting of the first floor.

**About our Organization:** AET has over 28 years of environmental contracting/consulting experience. AET's proven track record includes 24/7 emergency response, trained professional decision-making and cost effective, on-time, on-budget resolution of our client's environmental problems.

**Need help or have a question???** Email Roy Mosaicant, CIH at [r.mosaicant@aetinc.biz](mailto:r.mosaicant@aetinc.biz) or call AET at 610-891-0114 or 800-9696-AET. We provide nationwide services; phone consultations are free. Check out the full range of environment consulting and contracting services AET provides at our [www.aetinc.biz](http://www.aetinc.biz).

*Accredited Environmental Technologies, Inc.*