

1.0 INTRODUCTION

This standard describes the circumstances where employees may be at risk of a bird and rodent-borne diseases. The cause, symptoms and treatment of the diseases, precautions to be used around bird and rodents, and preventive measures.

2.0 SCOPE

All employees and contractors required work in or around contaminated areas.

3.0 REFERENCES

NB OHS General Regulation 91-191	
HSEE-03-18	Respiratory Protection.
CCOHS	

4.0 TERMS AND DEFINITIONS

Acute (Short Term) effects	Severe, immediate reactions can occur after a single large exposure
Chronic (long term) effect	Might take days, months or years to appear, usually resulting from repeated small exposures
Hantavirus	Hantavirus is a virus that is primarily carried by deer mice but may also be present in any rodent population.
Cryptococcus	A known disease that can be caused by inhalation of Cryptococcus neoformans. This yeast might proliferate to reach in high concentrations in pigeon excrement.
Histoplasmosis	An infection disease caused by inhaling the spores of a fungus called Histoplasma capsulatum.

5.0 ROLES AND RESPONSIBILITIES

5.1 Division/Site manager

- Ensure preventative measures (such as pest controls programs) are established to limit and prevent the accumulation of bird and rodent droppings where required.
 - Prior to conducting major maintenance, construction, project, or outage work, ensure the team responsible for the work shall conduct a job site visit to determine if there are accumulated droppings/carcasses that need cleaning prior to starting work.
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5.2 Supervisor

- Provide required PPE to employees
- Ensure employees are competent to perform clean up
- Ensure employees are respirator fit tested
- Shall ensure areas of accumulated excrement are properly remediated according to this standard.

5.3 Employees

- Report any found bird or mouse droppings to your supervisor.
- Aware of the hazards and controls of working around bird and rodent droppings
- Competent in the clean-up procedures (if required)
- Respiratory protection training and fit tested

6.0 STANDARD

Certain diseases can spread from bird and rodents to people through contact with the infected animals or their excrement (for example, breathing in contaminated air, touching contaminated materials and then touching eyes, nose, mouth).

This standard describes levels of contamination and the corresponding level of control to keep workers and building occupants safe.

Eating and drinking is prohibited in the affected area.

6.1 Control Measures

Small amounts of bird and rodent activity are inevitable in many of our buildings and working in lightly contaminated facilities presents little risk of exposure. Sites that are infested and have large accumulations shall be cleaned and disinfected prior to work being performed. This work may be done by competent NB Power staff or contractors.

Regardless of who does the work, proper precautions shall be observed to minimize the risk of infection to themselves and others.

When using a cleaning product, ensure the Safety Data Sheet (SDS) is understood prior to work beginning.

6.2 Levels of Contamination and Remediation

Minimal disturbance of material is preferred prior to remediation

The most important factor is to protect the health and safety of the space occupants and workers. This may mean the relocation of employees to an alternate location while the remediation is taking place.

The levels of contamination:

1. Small <1 sq ft
 2. Medium 1-10 sq ft
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3. Large >10 sq ft (or any contamination in HVAC or air handling system will be treated as large)
Small and medium projects generally undertaken by competent employees
Large scale projects are generally undertaken by professional remediation contractors.

Goals of remediation are:

- Isolation of the contaminated area to prevent cross contamination and protect occupants
- Remove and discard all of contamination
- Worker protection
- Maintain a high level of cleanliness to ensure areas are clean
- Identify pre-existing hazards (i.e. asbestos, lead)
- In all situations, the underlying cause of the infestation must be rectified, or re-infestation growth will recur.

6.2.1 Minor Contamination (< 1 square feet)

1. Before starting to clean: Ventilate the space by opening doors and windows for at least 30 minutes to allow fresh air to enter the area. Use cross-ventilation whenever possible. It is important for all people to leave the area during the airing-out period.
 2. Avoid stirring up dust by sweeping or vacuuming (unless using a HEPA vacuum) up rodent urine, droppings, or nesting materials
 3. Wear rubber, latex, or vinyl gloves when cleaning rodent urine and droppings.
 4. Spray the urine and droppings with a disinfectant or a mixture of bleach and water and let soak for 5 minutes. The recommended dilution of bleach solution is 1-part bleach to 9-parts water (10% solution).
 5. When using a commercial disinfectant, ensure it has current Health Canada DIN registration number and the manufacturer's instructions on the label for dilution and disinfection time.
 6. Use a paper towel to pick up the urine and droppings and dispose of the waste in the garbage.
 7. After the rodent urine and droppings have been removed, disinfect surfaces and items that might have been contaminated by rodents or their urine and droppings.
 8. When you're done with cleaning: a) Remove gloves and put in the garbage, and thoroughly wash hands with soap and water (or use a waterless alcohol-based hand rub when soap is not available, and hands are not visibly soiled; however, it is important to wash hands with soap and water as soon as a sink is available).
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6.2.2 Moderate and Large Contamination

Moderate and Large contaminations generally follow the same steps, the primary difference being that large contamination requires higher levels of protection and may require additional subject matter expertise to ensure worker and occupant safety. Large contaminated areas will require a competent 3rd party to do abatement.

Develop a plan of action

- Define the cause of the infestation and make a plan to control it.
- Define the scope of work
 - Identify hazards
 - Identify extent of the damage
 - Identify solutions, corrective actions
- A written remediation plan will accomplish the following:
 - Types of PPE to be used
 - Level of containment that must be erected
 - Emergency planning
 - Procedures to be followed to clean and/or remove impacted building materials
 - Disposal

6.3.1 Area Preparation

- Cover and seal all duct work and diffusers in the work area. Isolate the HVAC system
- The abatement area must be secured and access restricted. Install red barrier tape to limit the amount of traffic.
- Consider isolating the work area with an enclosure constructed of fiber-reinforced polyethylene sheeting of 6-millimeter polyethylene sheeting, taped and supported as required. Isolation required for large contamination
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6.3.2 Area cleaning:

- Cleaning requirements apply to all impacted surfaces within the work area.
 - Use a 10% bleach solution or disinfectants with a current Health Canada DIN registration number. Apply product according to the DIN label, observing the requirements for mixing / dilution and rinsing.
 - Do not dry sweep, dry whisk, or shovel, never use compressed air to clean surfaces.
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6.3.3 Personal Protective Equipment

- Moderate Contamination
 - Eye protection – goggles (or Full-Face Respirator)
 - Impermeable gloves (i.e. Nitrile)
 - Full body dust impervious coveralls (tyvek) ensure Tyvek is secure and tight at wrists and ankles (taped)
 - Steel toe rubber boots so they can easily be wiped down.
 - Rubber boots are preferred
 - Respiratory Protection
 - Minimum ½ face air purifying respirator. Recommended- full face APR / PAPR
 - HEPA P100 filters
- Large Contamination
 - Eye protection – n/a
 - Impermeable gloves (i.e. Nitrile)
 - Full body dust impervious coveralls (tyvek) ensure Tyvek is secure and tight at wrists and ankles (taped)
 - Steel toe rubber boots so they can easily be wiped down.
 - Rubber boots are preferred
 - Respiratory Protection
 - Full-face powered air purifying respirator (PAPR) with protection factor of 1000, equipped with HEPA P-100 filters.

6.3.4 Waste Disposal:

- Remove all waste as contaminated material, including by not limited to: Building material, disposable coveralls, respirator filter / cartridges and poly sheeting.
- All waste should be immediately double bagged into two 6 mil polyethylene bags, each individually sealed. If material cannot be bagged due to shape or weight restrictions, then wrap in two layers of 6 mil polyethylene sheeting and seal with duct tape.
- Ensure the cause of the pest infestation has been identified and an action plan initiated to prevent future occurrence if possible.

Following remediation when exiting the work area, workers are to wash hands, face and any exposed areas of the skin with soap and water.

7.0 TRAINING

Workers must review and understand this standard prior to performing light or moderate abatement.

8.0 APPENDIX

Appendix A – Bird and Rodent Droppings – Health Effects



DOCUMENT APPROVAL/REVISION RECORD

Revision #	Date	Revision Summary	Author	Reviewed By	Approved By
New	2023-01-16	New	N. Allen M. McFarlane	THS Team	Roland Roy

Appendix A – Bird and Rodent Droppings – Health Effects

1. Hantavirus

Hantavirus is a virus that is primarily carried by deer mice but may also be present in any rodent population. The virus is shed in the saliva, urine and feces of infected animals. It is very rarely transmitted to people but can cause very serious illness or even death.

Exposure occurs by breathing disturbed dust in areas frequented or inhabited by rodents, direct contact with rodents or their droppings, or from bites. It is also possible to become infected by eating food or drinking water contaminated by rodents. Cats and dogs are not believed to be carriers but may bring humans into contact with rodents.

Symptoms and Treatments

Hantavirus Pulmonary Syndrome begins with symptoms similar to the flu.

The most common symptoms are:

- tiredness,
- fever and
- severe muscle aches in the large muscle groups,
- breathing difficulty that comes on quickly and rapidly gets worse.

There are no specific treatments for HPS other than treating the symptoms as they occur.

Hospitalization is necessary. Anyone developing flu-like symptoms with breathing difficulty within 60 days of possible exposure should seek immediate medical attention and inform the attending physician that they may have been exposed to Hantavirus.

2. Histoplasmosis

Histoplasmosis is an infectious disease caused by a fungus called *Histoplasma capsulatum*.

It grows in soils with high nitrogen content, especially in soils that are enriched with bird or bat droppings. It can be carried on the wings, feet, and beaks of birds. Known sources of high levels are starlings, blackbirds, pigeons, bats, and poultry.

Bats may already be infected as disease carriers and droppings will already contain spores.

Prevention of histoplasmosis relies on avoiding exposure to dust in a contaminated environment.

Symptoms and Treatments

Symptoms usually occur 3-17 days following exposure with an average latency period of 10 days.

If signs or symptoms do appear, they may include:

- A general ill feeling
 - Fever
 - Chest pain
 - Dry or non-productive cough
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- Headache
- Loss of appetite
- Shortness of breath
- Joint and muscle pain
- Chills
- Hoarseness

Confirmation of a histoplasmosis diagnosis often requires laboratory examinations which identify *Histoplasma capsulatum* in sputum or lung biopsy. Blood and skin tests, and x-rays may be performed but they are only of secondary value in diagnosis.

Most patients who develop histoplasmosis do not require treatment. Some may only require supportive treatment that relieves the symptoms of the disease. Severe symptoms with a large involvement of the lungs require treatment with specific antifungal drugs.

3. **Cryptococcus Neoformans**

C. neoformans is a fungal agent that grows well in dry pigeon feces out of direct sunlight and is not typically associated with fresh droppings. Cryptococcosis (infection of *C. Neoformans*) is contracted through inhalation of the spores. Confirmed infections are much less common than Histoplasmosis, and most people readily overcome infection without symptom development.

The disease can manifest in the central nervous system as cryptococcal meningitis, which is difficult to diagnose and can be fatal if not treated properly.

Symptoms and Treatments

- Fever
 - Malaise
 - Chest pain
 - Cough
 - Hemoptysis (blood in the sputum)
 - Headaches
 - Vision changes
 - Skin changes
 - Nausea and / or vomiting
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