

**Purpose:** To define minimum standards for personal protective equipment (PPE) when working with research animals at the University of Michigan for the purpose of preventing or controlling personnel exposure to zoonotic organisms and allergens inherent in the animals. Additional PPE may be required to protect personnel from additional hazards that may be encountered in the research setting, including the following: chemicals, toxins, infectious organisms, or radioactive materials purposefully administered to animals in an approved animal use protocol; physical, chemical or noise hazards present in cage wash facilities or diagnostic laboratories; and hazards associated with field research or wild caught animals. PPE required for use in these settings must be determined after consultation with the Department of Environment, Health and Safety (EHS). Contact EHS Biological Safety at 647-1143 for additional information. Use of additional PPE may be required by ULAM to help protect the health of the animals or humans. Personnel with compromised immune systems or who are pregnant may need additional protections as required by a physician or occupational health specialist. EHS and UM-Occupational Health Services will evaluate potential risks and make recommendations for individuals upon request.

**Note** - Animal care personnel should be aware that exposure to infectious and/or hazardous materials can occur through cuts/punctures with contaminated sharp objects, blood or other potentially infectious materials entering a break in the skin, splashes to the eyes, nose or mouth. The proper use of standard personal protective equipment will significantly reduce the risk of exposure to potentially hazardous materials. If employees have an open cut, wound or skin abrasion, cover the affected area with a bandage or other type of waterproof dressing and wear double gloves to prevent transmission through breaks in the skin before entering the space. Any exposure incidents should be reported immediately to the area supervisor and complete the [Work Connections Illness or Injury Report Form](#). Treatment and counseling following such an incident is available through Occupational Health Services (734-764-8021).

This PPE chart does not cover the requirements for containment rooms. Please refer to the ULAM SOP, [Animals Administered a Hazardous Substance Requiring Containment](#), for the specific requirements for those rooms.

*If an employee is unable to wear PPE as required, consult EHS and the faculty veterinarian to determine if alternate options are available. EHS and the Faculty Veterinarian must approved any alternate PPE and it is the individuals department's responsibility to provide the PPE. Personnel are not able to conduct work tasks in which PPE is deemed necessary, if unable to wear required PPE or alternate PPE is not acceptable.*

## **Responsibilities:**

1. It is the responsibility of the Principal Investigator to ensure that laboratory staff members are trained in the appropriate use of PPE when working with animals or tissues in research and that their staff appropriately utilize the required PPE.
2. It is the responsibility of EHS to periodically reassess potential risks within the animal facility that could be mitigated by use of PPE and amend PPE requirements as needed.
3. It is the responsibility of EHS to perform a risk assessment and determine the appropriate PPE for use in situations for which this policy does not apply (e.g., for pregnant or immunocompromised personnel).
4. It is the responsibility of the management of each animal facility to ensure the signage detailing required PPE is clearly visible to all facility users and that all users are monitored for appropriate PPE use.

For questions regarding this document, please contact EHS at 647-1143.

## **Definitions:**

**Animal body substances** – tissues or fluids of animal origin (e.g., urine, feces, blood, saliva).

**Dedicated clothing**- a garment (e.g., scrubs or laboratory coat) worn only in the animal facility or research laboratory but not in general public areas. These garments must not leave the workplace and must be laundered and stored in the workplace.

**Face Mask**- covering for the mouth or face that supplies splash and gross debris protection (should be water resistant), but is not intended to provide respiratory filtration (see EHS approved respirator). A surgical mask is not considered a respirator

**Fixed tissue** - tissues processed with a chemical substance (e.g., formalin, formaldehyde, glutaraldehyde) known to inactivate select biological hazards.

**In-room observation** – visual observation of an animal within a room (e.g., housing room, procedure room, behavioral suite) of the animal facility that does not include touching of the animal or, when applicable, opening of a microisolation cage.

**Personal Protective Equipment**- protective coverings (e.g., clothing, gloves, hair covers, goggles, mask) designed to protect the wearer's body from exposure to infectious agents or allergens associated with animals.

**EHS Approved Respirator**- NIOSH certified N-95 or higher particulate respirator or positive air purifying respirator (PAPR).

**Sealed eye protection**- goggles with closed top, side, and bottom and indirect vents that fit snugly against the face forming a seal around the eyes, thus preventing liquids from splashing or dripping into the eyes. Goggles must meet standards described in 29 CFR 1910.133 Eye and Face Protection and ANSI Z87.1 - 1989.

**Sheep with increased risk of Q Fever**- Q fever is a zoonotic disease caused by *Coxiella burnetii*. Pregnant female sheep, newborn or nursing lambs can shed high levels of the organism in the placental membrane, birthing fluids, milk, feces and urine.

## Attachment: Minimum PPE for Animal Handlers

- 1) Minimum required PPE for mammalian/avian species: ***Dedicated outer-covering or disposable outer-covering with long sleeves, disposable gloves, closed-toed shoes, and long pants or equivalent leg covering.***
- 2) Wear appropriate eye protection, when there is a potential for splashes.
- 3) Refer to Table 1 and Table 2 for additional PPE based on species and tasks.
- 4) Always consult room specific PPE requirements posted at the entrance

**Table 1**

| Tasks or Animals Involved   | Direct contact with animals (including post mortem examination of animals "necropsy")  | Contact with animal caging, bedding or equipment  | In room observation only  | Handling or processing animal body substances or unfixed tissues  |
|---|--|---|---|---|
| Working with Rodents and Rabbits  | No additional PPE  | EHS approved respirator ( <b>only for husbandry and dirty cage wash staff changing/dumping cages w/out engineering controls</b> )   | No additional PPE   | No additional PPE   |
| Carnivores (Dogs, Cats, Ferrets)  | <ul style="list-style-type: none"> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Waterproof gown</li> </ul>  | <ul style="list-style-type: none"> <li>• Waterproof gown</li> <li>• Waterproof shoe covers or waterproof dedicated shoes (<b>only required when in the animal room &amp; dirty cage wash</b>)</li> </ul>  | <ul style="list-style-type: none"> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Waterproof gown</li> </ul>   | No additional PPE   |
| Cattle, Pigs, Goats, and Sheep in a Research Building (See Table 2 below for Sheep with Orf lesions and/or increased risk for Q fever transmission) | <ul style="list-style-type: none"> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Waterproof gown</li> </ul>  | <ul style="list-style-type: none"> <li>• Waterproof gown</li> <li>• Waterproof shoe covers or waterproof dedicated shoes (<b>only required when in the animal room &amp; dirty cage wash</b>)</li> </ul>  | <ul style="list-style-type: none"> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Waterproof gown</li> </ul>   | No additional PPE   |
| Non-Human Primates:   | <ul style="list-style-type: none"> <li>• Waterproof gown</li> <li>• Sealed eye protection</li> <li>• 2 layers of disposable gloves</li> <li>• Surgical mask or EHS approved respirator (for procedures producing aerosols/particles)</li> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Hair bonnet</li> </ul> | <ul style="list-style-type: none"> <li>• Waterproof gown</li> <li>• Sealed eye protection</li> <li>• Sealed eye protection and face shield when spraying room or cages</li> <li>• 2 layers of disposable gloves</li> <li>• EHS approved respirator</li> <li>• Waterproof shoe covers or waterproof dedicated shoes (<b>only required when in the animal room &amp; dirty cage wash</b>)</li> <li>• Hair bonnet</li> </ul> | <ul style="list-style-type: none"> <li>• Waterproof gown</li> <li>• Sealed eye protection</li> <li>• 2 layers of disposable gloves</li> <li>• Surgical mask</li> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Hair bonnet</li> </ul> | <ul style="list-style-type: none"> <li>• Waterproof gown</li> <li>• Sealed eye protection</li> <li>• 2 layers of disposable gloves</li> <li>• Surgical mask or EHS approved respirator (for procedures producing aerosols/particles)</li> </ul> |
| Birds   | Shoe covers or dedicated shoes   | Shoe covers or dedicated shoes ( <b>only required when in the animal room &amp; dirty cage wash</b> )   | Shoe covers or dedicated shoes  | No additional PPE   |

Table 2

| Tasks or Animals Involved   | Direct contact with animals (including post mortem examination of animals “necropsy”)   | Contact with animal caging, bedding or equipment   | In room observation only   | Handling or processing animal body substances or unfixed tissues   |
|---|---|--|--|--|
| <p><b>Sheep with ORF Lesions in a Research Building</b></p>   | <ul style="list-style-type: none"> <li>• Water-resistant jumpsuit/coverall that covers entire body and arms that is either discarded after each use or sterilized</li> <li>• Surgical mask (recommended)</li> <li>• Eye protection</li> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> </ul>                           | <ul style="list-style-type: none"> <li>• Water-resistant jumpsuit/coverall that covers entire body and arms that is either discarded after each use or sterilized</li> <li>• Waterproof shoe covers or waterproof dedicated shoes <b>(only required when in the animal room &amp; dirty cage wash)</b></li> </ul>  | <ul style="list-style-type: none"> <li>• Dedicated outer-covering or disposable outer-covering with long sleeves can be worn in place of water resistant gown</li> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> </ul>   | <ul style="list-style-type: none"> <li>• Dedicated outer-covering or disposable outer-covering with long sleeves can be worn in place of water resistant gown</li> </ul>   |
| <p><b>Working with Sheep with Increased Risk of Q fever Transmission in a Research Building</b></p> | <ul style="list-style-type: none"> <li>• Water-resistant jumpsuit/coverall that covers entire body and arms that is either discarded after each use or sterilized</li> <li>• EHS approved respirator</li> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Hair bonnet</li> <li>• Sealed eye protection</li> </ul> | <ul style="list-style-type: none"> <li>• Water-resistant jumpsuit/coverall that covers entire body and arms that is either discarded after each use or sterilized</li> <li>• EHS approved respirator</li> <li>• Waterproof shoe covers or waterproof dedicated shoes <b>(only required when in the animal room &amp; dirty cage wash)</b></li> <li>• Hair bonnet</li> <li>• Sealed eye protection</li> </ul> | <ul style="list-style-type: none"> <li>• Water-resistant jumpsuit/coverall that covers entire body and arms that is either discarded after each use or sterilized</li> <li>• EHS approved respirator</li> <li>• Waterproof shoe covers or waterproof dedicated shoes</li> <li>• Hair bonnet</li> <li>• Eye protection</li> </ul> | <ul style="list-style-type: none"> <li>• Water-resistant jumpsuit/coverall that covers entire body and arms that is either discarded after each use or sterilized</li> <li>• EHS approved respirator</li> <li>• Hair bonnet</li> <li>• Eye protection</li> </ul> |

- 1) Minimum required PPE for Amphibian, Reptile, Aquatics: **Disposable gloves**
- 2) Refer to Table 3 for additional PPE requirements based on species and task
- 3) Always consult room specific PPE requirements posted at the entrance

**Table 3**

| <b>Tasks or Animals Involved</b>              | <b>Direct contact with animals (including post mortem examination of animals “necropsy”)</b> | <b>Contact with animal caging, bedding or equipment</b>               | <b>In room observation only</b> | <b>Handling or processing animal body substances or unfixed tissues</b> |
|---|--|---|---------------------------------|---|
| <b>Terrestrial Amphibians and Reptiles</b>    | No additional PPE  | No additional PPE   | No PPE required                 | No additional PPE   |
| <b>Aquatic Amphibians, Reptiles, and Fish</b> | Disposable gloves of suitable length to prevent skin contacting water                        | Disposable gloves of suitable length to prevent skin contacting water | No PPE Required                 | No additional PPE   |

For additional information on working with sheep with ORF lesions or increased risk of Q fever transmission refer to the [ULAM SOP: Procedures to Reduce Human Exposure to Orf \(Contagious Ecthyma\) and Q Fever \(Coxiella burnetii\)](#)

- 1) Minimum required PPE for sheep in a farm setting: ***Dedicated closed-toe shoes or waterproof shoe coverings (farm use only), long pants or equivalent leg covering***
- 2) Refer to Table 4 for additional PPE based on species and tasks.

**Table 4**

| <b>Task or Animals Involved</b>  | <b>Additional PPE required</b>  |
|--|---|
| <b>General work in corals, pens, pastures with no animal contact</b>                                 | <ul style="list-style-type: none"> <li>• No additional PPE</li> </ul>   |
| <b>Feeding, cleaning sheep areas, direct contact (e.g., shearing, blood collection, dyeing wool)</b> | <ul style="list-style-type: none"> <li>• Disposable gloves or dedicated farm work gloves</li> <li>• Dedicated farm work clothes laundered at the farm</li> </ul>  |
| <b>Direct contact with sheep with ORF lesions</b>  | <ul style="list-style-type: none"> <li>• Dedicated outer covering or disposable outer covering with long sleeves</li> <li>• Disposable gloves</li> <li>• Eye protection</li> <li>• Surgical mask (recommended)</li> </ul> |
| <b>Direct contact with sheep with increased risk of Q fever transmission</b>                         | <ul style="list-style-type: none"> <li>• Water resistant jumpsuit/cover-all</li> <li>• Hair bonnet</li> <li>• Sealed eye protection</li> <li>• EHS approved respirator</li> <li>• Disposable gloves</li> </ul>            |