

UNIVERSITY OF TOLEDO
Occupational Health Program for Research Animal Contact

PROGRAM DESCRIPTION

Purpose

The purpose of Occupational Health Program for Research Animal Contact is to reduce health risks associated with the use of research animals. Personnel involved in the direct care of animals and their living quarters and those individuals who have direct contact with animals (live or dead), their viable tissues, body fluids or wastes are covered under the provisions of this program.

Background

Physical, environmental, and/or biological hazards are associated with the use of animals in teaching and research. Occupational health program guidelines for personnel working with laboratory animals can be found in *Biosafety in Microbiological and Biomedical Laboratories* (current edition) published by the Centers for Disease Control and Prevention and the National Institutes for Health; Code of Federal Regulations, Title 10, Part 20 and Title 29, Part 1910; the *Public Health Service Policy on Humane Care and Use of Laboratory Animals* that codifies the *Guide for the Care and Use of Laboratory Animals* published by the National Research Council; and, *Occupational Health and Safety in the Care and Use of Research Animals* published by the National Academy of Sciences. A description of the occupational health program must be included in the Assurance of Compliance required by the National Institutes of Health. Triennial inspections are conducted by the Association for the Assessment and Accreditation of Laboratory Animal Care, International to assure compliance with all applicable occupational health and safety standards.

Program components must include:

- Hazard Identification and Risk Assessment
- Training
- Hazard Control
- Medical Evaluation and Preventive Medicine

This program includes all:

- Division of Laboratory Animal Resources (DLAR) staff
- Principal investigators and their technical staff
- Instructors, students and volunteers involved with animal related work
- Veterinarians or medical personnel
- Facilities maintenance
- Security

Explanation of Key Terms:

Risk is a statement of probability that harm, injury, or disease will occur in the occupational setting. The degree of risk can, and does, vary with an assortment of factors.

Risk assessment is the evaluation of scientific information on the hazardous properties of an agent and on the extent of human exposure that yields a qualitative or quantitative statement of the probability and degree of risk or harm estimated for individuals or populations.

Hazard is a recognized risk. Once a risk is recognized and assessed, appropriate adjustments can be made to modify the underlying factors that contribute to the risk, or behaviors can be modified to reduce exposure to those risks. The risks can be abated through engineering controls, personal protective equipment, and by administrative control to include: modifying practices and procedures, pre-placement and periodic examinations, training, etc.

Safe is the state of being free from risk or when an acceptable level of risk has been achieved.

Toxic Chemical is a chemical that is classified as a select carcinogen, reproductive toxin and/or a substance which has a high degree of acute toxicity. Reference the Laboratory Safety and Health Manual and Institutional Chemical Hygiene Plan.

Biosafety Level 2 Agent is a biological agent associated with human disease, hazard = percutaneous injury, ingestion, mucous membrane exposure.

Biosafety Level 3 Agent is a biological agent that is indigenous or exotic with potential for aerosol transmission; disease may have serious or lethal consequences.

Hazard Identification and Risk Assessment

The assessment of risk is based on frequency of contact, dose, hazards associated with the animals being handled, hazardous properties of agents used in research, the susceptibility of individual employees, and the hazard-control measures available. The risk assessment is processed through the appropriate Committee and/or Department (see Appendix A).

Enrollment in the Occupational Health Program for Research Animal Contact must occur prior to the participant's exposure to animals, their viable tissues, body fluids or wastes.

After Research and Sponsored Programs (RSP) or a principal investigator initiates the protocol process, the Institutional Animal Care and Use Committee (IACUC) review process begins. An application and protocol form must be completed and reviewed. The IACUC will confirm project personnel on all protocols and annual review forms. All personnel listed on the protocol are required to

- Complete the "Occupational and Medical History for Research Animal Contact Form"
- Review applicable training handouts
- Complete applicable immunization requirements and required documentation

Training

All new hires receive initial employee orientation. The safety program, UT police, infection control and bloodborne pathogens, hazardous materials and wastes, fire safety and extinguishers, emergency management, and other safety tips. Laboratory safety training is provided by the Department of Environmental Health and Radiation Safety for all lab personnel. This training covers recognition and evaluation of hazards, laboratory chemical hygiene plan and hazard control, laboratory emergency preparedness and spill response, chemical storage, and waste disposal. Employees receive additional information on PPD, drug test, and proof of vaccination requirements upon hire.

Animal specific training is located at http://www.utoledo.edu/depts/safety/Animal_Research.html and must be reviewed by animal users prior to contact.

Hazard Control Process:

Biological Agents:

All protocols involving biological agents will be referred to the Institutional Biosafety Committee (IBC). The IBC requires specific forms be completed. The protocol is then reviewed for Animal Biosafety Levels 1-3. Controls will be determined based on the biosafety level. See (Appendix B) for animal use protocols.

Chemical Agents:

All protocols involving chemical agents will be referred to Environmental Health and Radiation Safety (EHRS) and DLAR. The “Use of Potentially Hazardous Chemical Agents in Animals” addendum must be completed. An Occupational Exposure Limit (OEL) is generated, if one does not already exist, using the chemical exposure assessment process. If the chemical exposure assessment tool indicates a potential chemical hazard, one of two options will be employed.

1. Animals will be housed in ventilated cabinets and animal handlers will use standard DLAR animal care practices.
2. If ventilated cages are unavailable or the animals cannot be accommodated, hazard controls are based on chemical safety levels, and other information gathered in the process and managed within DLAR. See (Appendix B) for animal use protocols.

Medical Evaluation and Preventive Medicine:

A. Duty/Site Surveillance of Work Related Injuries (see S-08-018):

1. Injury and Infection Log: Every animal holding facility will maintain an Injury and Infection Log. The injury/illness log will be used for this purpose. All records are kept in EHRS.
2. Reporting Work Related Injuries: Every person working with animals should be aware of the potential danger from animal bites (see S-08-023 Report of Animal Bites). Although an animal scratch or bite might not seem serious, its occurrence should be reported to one's supervisor or instructor so that proper measures may be taken. In addition, employees and students shall promptly:
 - a. Report to Family Occupational Health located in the Emergency Department at UTMC.
 - b. As soon as possible, but no later than the next business day, an Injury and Illness Incident form must be completed and submitted to the Risk Management Department on the Main Campus and the EHRS Department on the Health Science Campus.
3. Several of the agents responsible for viral, bacterial, and parasitic infections in laboratory animals are capable of infecting humans. Some of these agents are covered in this surveillance program. Employees are counseled to report any gastrointestinal, eye, respiratory or skin illnesses that may resemble the signs or symptoms of infections in the animals for which they are caring (See S-08-018) and the University of Toledo's Bloodborne Pathogens Exposure Control Plan.

- ### B. Medical Surveillance: Participants who are enrolled in the Animal Exposure Surveillance Program are periodically recalled for follow-up depending on the specific type of animal exposure. At the time of enrollment in the program, all participants must complete the medical surveillance requirements. At a minimum, medical surveillance requirements will be reviewed and required in conjunction with the triennial protocol review. Participants may be recalled earlier if protocol modification forms suggest a change in risk.

1. Medical Surveillance:
 - i. All participants are advised to return for Tetanus re-vaccination every 10 years.
 - ii. All employees at risk are required by the University of Toledo to submit evidence of the absence of active tuberculosis.
 - iii. Those prospective employees with a history of a positive test must submit to a chest x-ray.
 - iv. Occupational Health offers testing to prospective new employees. If the prospective employee chooses or requires a chest x-ray, it may be done by the employee's own physician.
 - v. If the result is positive, the person will be referred to his/her physician for necessary follow-up evaluation and will not be permitted to work with non-human primates until certified free of infection.
 - vi. Periodic tuberculin skin testing is performed every six months for all employees or participants with Old World non-human primate, product or device contact. Annual tuberculin skin testing is performed for all employees or participants with New World non-human primate exposure.
 - vii. New employees are screened for disease or vaccination titer is checked prior to exposure to non-human primates.
 - viii. An Occupational and Medical History for Research animal Contact is completed and reviewed annually.
2. Occupational Health will review the forms, and follow up with individuals if necessary. To ensure confidentiality the licensed health care professional will sign the back of the form and fax the **BACK OF THE FORM ONLY** to Environmental Health and Radiation Safety.

5. Enforcement:

Laboratory surveys will be completed by EHRS on a regular basis.

B. Basic Occupational Health Care (BOHC)

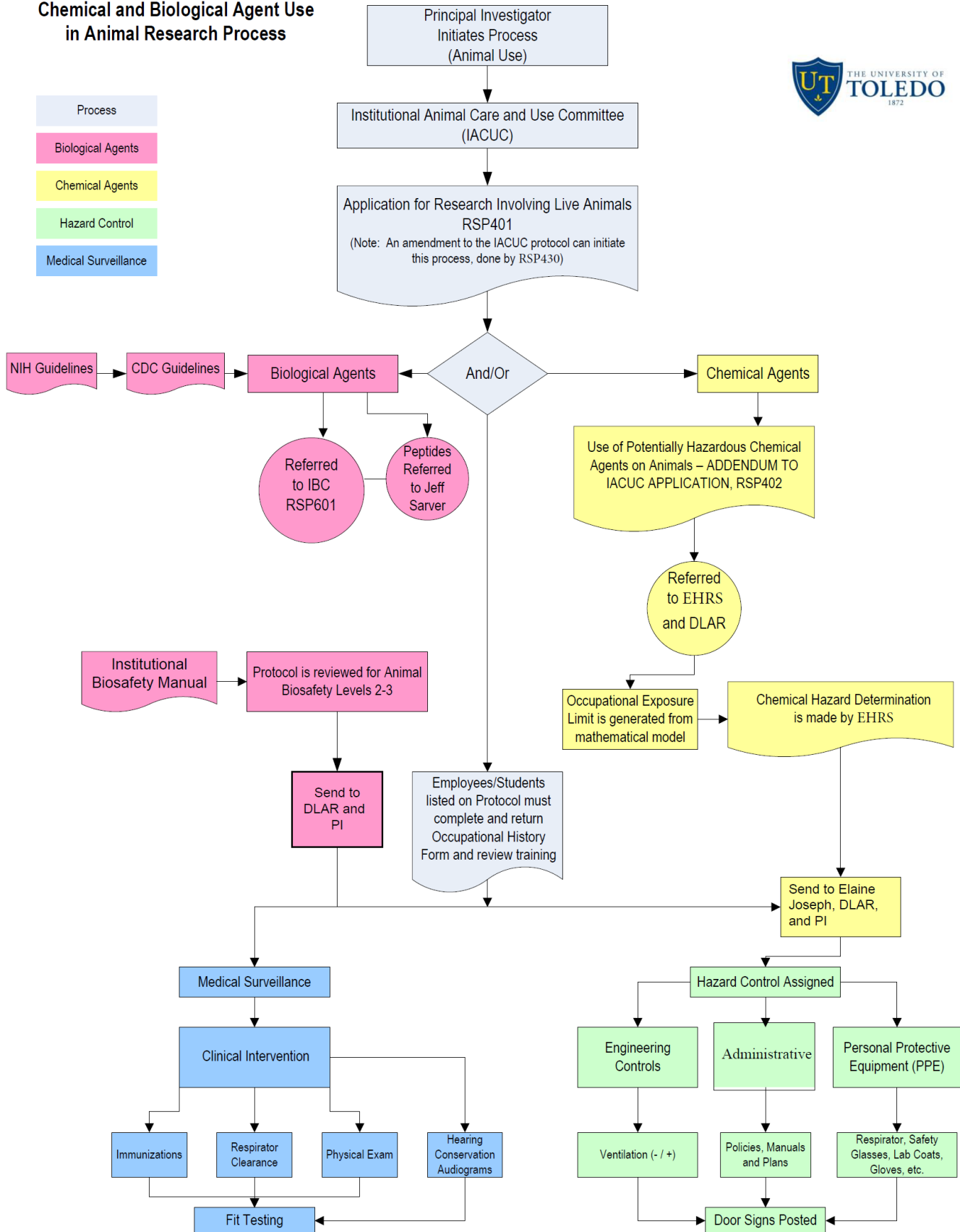
1. Training Handouts: Training occurs through DLAR.
 - a. Topics presented as employee information will include, but are not limited to:
 - i. Program function and coverage description
 - ii. Important zoonosis of animals
 - iii. Points of contact for additional information
 - iv. Provision of informational hand-outs on topical matters
2. Acute Phase Serum Storage: Serum storage is not a standard component of the program. Environmental Health and Radiation Safety will assess which program participants should submit an acute phase serum sample for storage based on risk assessment. Storage and maintenance of sera will fall under the University of Toledo's Bloodborne Pathogens Exposure Control Plan.
3. Immunizations: Participants, depending on their category, will have the following vaccinations documented:

- a. Tetanus Prophylaxis: The CDC Advisory Committee on Immunization Practices (ACIP) recommends immunization against tetanus every 10 years for everyone, it is also recommended if a particularly tetanus-prone injury occurs in an employee where more than five years has elapsed since the last immunization.
 - b. Hepatitis B: Immunization for Hepatitis B is updated according to recommendation of the ACIP. Booster doses will be administered as needed. This is recommended for all personnel with potential exposure to human body fluids.
 - c. Rabies: Immunizations according to risk assessment. All USDA Class B dogs and cats, wild animals, bats and some domestic farm animals could be a source of exposure. Booster vaccinations will be based on titer determinations as appropriate for the risk (basically every 2 years for personnel with continuing "risk").
4. Assessment of Physical Conditioning: EHRS provides ergonomic assessments and training as needed.
 5. Hearing Protection: Noise levels will be evaluated as needed. Hearing conservation will be administered in accordance with the Occupational Safety and Health Administration under 29 CFR 1910.95 if required.
 6. Respiratory Protection: The need for respiratory protection will be evaluated as needed. Respiratory protection will be administered in accordance with the Occupational Safety and Health Administration under 29 CFR 1910.134.
 7. Employees will be queried on allergy risk through the Occupational and Medical History for Research Animal Contact Form.:
 - a. Employees at risk for developing work related allergies include those with a history of pre-existing allergies, asthma, seasonal rhinitis or eczema.
 - b. Enrollees with suspected allergies will be encouraged to seek evaluation through Family Medicine.
 - c. Referral for allergy testing will be provided to employees at the discretion of the licensed health care provider with the employee's consent.

Effective Date: September 2008
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April 2012
April 2013
April 2016
December 2017
November 2019
November 2021

Appendix A Risk Assessment

Chemical and Biological Agent Use in Animal Research Process



Appendix B

Basic Chemical Protection Levels

	Chem 0	Chem 1	Chem 2	Chem 3
Description	Level derived from results of exposure assessment model; chemicals estimated to have environmental levels less than the estimated exposure control limit are classified as Chem 0; management is the same as standard animal care	Level derived from results of exposure assessment model. Requires specific handling based on risk of chemical agent. EHRS & DLAR to determine.	Level derived from results of exposure assessment model. Requires specific handling based on risk of chemical agent. EHRS & DLAR to determine.	Level derived from results of exposure assessment model. Requires specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Room Isolation	Standard DLAR practices	Dedicated room; protocol approved personnel and animals only	Dedicated room; protocol approved personnel and animals only	Requires specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Room Pressure	Standard DLAR practices	Negative	Negative	Negative
Exposure Site	Standard DLAR practices	DLAR and authorized Research Staff only	DLAR and authorized Research Staff only	DLAR and authorized Research Staff only
Room Entry	Standard DLAR practices	Room signage; don PPE in the hall and remove it in the animal room prior to exiting	Room signage; don PPE in the hall and remove it in the animal room prior to exiting	Room signage; don PPE in the hall and remove it in the animal room prior to exiting
Gloves	Standard DLAR practices	Synthetic gloves unless otherwise indicated	Synthetic gloves unless otherwise indicated	Double gloves (synthetic) or designated gloves
Respiratory/Mucous Membranes	Standard DLAR practices	Handle in biosafety cabinet with Surgical Mask	Handle in biosafety cabinet or hazard ventilated rack with Surgical Mask or N95 outside of BSC or hazard ventilated mouse rack.	Handle in biosafety cabinet or hazard ventilated rack with Surgical Mask.
Body Covering	Standard DLAR practices	Disposable isolation gown, single use; if soiled during procedure, remove and replace	Disposable isolation gown, single use; if soiled during procedure, remove and replace	Requires specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Head Covering	Standard DLAR practices	Bouffant cap	Bouffant cap	Bouffant cap
Foot Covering	Standard DLAR practices	Standard DLAR practices	Shoe covers	Shoe covers

	Chem 0	Chem 1	Chem 2	Chem 3
Bedding Disposal	Standard DLAR practices	Empty bedding into a hazard bag in the room; clean corners of cages. The seal bag is placed in the carcass cooler hazard box.	Empty bedding into a hazard bag in the room; clean corners of cages. The seal bag is placed in the carcass cooler hazard box.	May require specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Water Disposal (Drinking)	Standard DLAR practices	Standard DLAR practices; pour the water into the bedding and then into hazardous bag and dispose of.	Standard DLAR practices; pour the water into the bedding and then into hazardous bag and dispose of.	May require specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Cage Cleaning (Primary)	Standard DLAR practices	Bag the entire primary enclosure in the room and label as hazardous for transport to the cage wash room	Bag the entire primary enclosure in the room and label as hazardous for transport to the cage wash room; do not recycle the wash water	Bag the entire primary enclosure in the room and label as hazardous for transport to the cage wash room; do not recycle the wash water
Rack Cleaning (Secondary)	Standard DLAR practices	Standard DLAR practices	Wash with approved disinfectant in the room before removing for standard cleaning	May require specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Water Disposal (Cleaning)	Standard DLAR practices	Standard DLAR practices	Dump the water into the sink or floor drain; use a blue mop head for cleaning; wash the mop head in the wash machine	May require specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Carcass Disposal	Standard DLAR practices	Live animals may leave the room in a clean, covered cage for euthanasia; place the carcasses in a red hazard bag after euthanasia. Soiled cage is cleaned as outlined above	Euthanize the animals in the room (if still a Chem 2) and place the carcasses in a red hazard bag. If animals are no longer considered Chem 2, transport to designated necropsy room, in a clean, covered cage for euthanizing.	May require specific handling based on risk of chemical agent. EHRS & DLAR to determine.
Room Decontamination	Standard DLAR practices	Standard DLAR practices 1 week following last exposure unless all animals are gone	Standard DLAR practices 1 week following last exposure unless all animals are gone	Process to be determined by the nature of the agent used.

Appendix B

Basic Biological Protection Levels

	ABSL1+	ABSL2	ABSL2+
Description	Low pathogenicity agents with transmission mode that makes spread to humans or other animals very unlikely but isolation room is needed	This is the standard procedure for hazardous infectious agents; special considerations may lead to increasing (2+) or decreasing (1+) the containment level	Infectious agents that are not classified as BSL3 yet are highly infectious or routinely cause severe infections where ABSL2 procedures require augmentation
Room Isolation	Dedicated room; protocol approved personnel and animals only	Dedicated room; protocol approved personnel and animals only	Dedicated room; protocol approved personnel and animals only
Room Pressure	Negative	Negative	Negative
Exposure Site	NA	NA	NA
Room Entry	Room signage	Room signage; don PPE in the hall and remove it in the animal room prior to exiting; anteroom preferred	Room signage; don PPE in the hall and remove it in the animal room prior to exiting; anteroom recommended
Gloves	Synthetic gloves	Synthetic gloves unless otherwise indicated	Synthetic gloves (double) unless otherwise indicated
Respiratory/Mucous Membranes	Surgical Mask	Surgical Mask; N-95 when changing or emptying cages	N-95 and safety goggles
Body Covering	Standard DLAR practices. Disposable gowns may be left in the room; discard weekly	Standard DLAR practices; disposable gowns may be left in the room; dispose after cage changing	Disposable isolation gown, single use; if soiled during procedure, remove and replace; dispose after cage changing
Head Covering	Bouffant cap	Bouffant cap	Bouffant cap
Foot Covering	Shoe covers	Shoe covers	Shoe covers
Bedding Disposal	Standard DLAR practices	Empty bedding into an autoclavable hazard bag in the room. Hazardous bag in a labeled red bin	Empty bedding into an autoclavable hazard bag in the room. Hazardous bag in a labeled red bin
Water Disposal (Drinking)	Standard DLAR practices	Pour the water into either the bedding or the sink; pour chemically treated water into the bedding	Pour the water into the bedding; bag and wash routinely; do not recycle the wash water
Cage Cleaning (Primary)	Place the entire primary enclosure in an autoclavable hazard bag in the room for transport to the cage wash room.	Place the entire primary enclosure in an autoclavable hazard bag in the room for transport to the autoclave where they are autoclaved prior to cage wash.	Place the entire primary enclosure in an autoclavable hazard bag in the room for transport to the autoclave where they are autoclaved prior to cage wash.
Rack Cleaning (Secondary)	Standard DLAR practices	Wash with NPD or TBQ in the room before removing for standard cleaning	Wash with NPD or TBQ in the room and spray with a 1:10 bleach solution before removing for standard cleaning

	ABSL1+	ABSL2	ABSL2+
Water Disposal (Cleaning)	Standard DLAR practices	Standard DLAR practices	Dump the water into the sink or floor drain; use a blue mop head for cleaning; wash the mop head in the wash machine
Carcass Disposal	Standard DLAR practices	Euthanize the animals in the room and place the carcasses in an autoclavable hazard bag. Place hazardous bag in appropriately labeled red bin in carcass cooler.	Euthanize the animals in the room and place the carcasses in an autoclavable hazard bag. Place hazardous bag in appropriately labeled red bin in carcass cooler. .
Room Decontamination	Standard DLAR practices	Wash with NPD or TBQ followed by a diluted bleach (10%) rinse	Wash with NPD or TBQ followed by a diluted bleach (10%) rinse