



**SAFETY PROCEDURE/GUIDELINES
Sheep Containment Unit**

NUMBER: Procedure Guideline SF-03
**SUBJECT: Removal of Materials from the Sheep Containment Facility for
Re-use, Waste Disposal or Use Elsewhere**
Occupational Health and Safety

PAGES: 6

EFFECTIVE DATE: ~~June-December~~ 2012

SUPERSEDES: ~~January-2007~~ June 2012

APPLIES TO: All Personnel

**APPROVED: ~~June-December~~ 2012, Biosafety Committee Chair and Biohazards
Subcommittee**

1.0 Introduction

- 1.1 Sheep are a common reservoir of the zoonotic agent *Coxiella burnetti*, a rickettsial micro organism which, if transmitted can infect humans and may cause an illness called Q fever. About one half of people infected with *C. burnetti* show signs of clinical illness with a small percentage of clinical cases developing pneumonia and some cases developing liver disease or rarely, endocarditis.

Human infection usually occurs through inhalation of contaminated dusts and aerosols generated by infected animals, their waste products, placental tissues and fluids and contaminated straw or bedding.

The risk of exposure for personnel is significantly higher when work with pregnant sheep where large numbers of organisms may be present in placenta, birth tissues and amniotic fluids of infected animals. Persons at risk (i.e. those with valvular heart disease, persons who are immune suppressed or pregnant women) should be advised of the risk of serious illness that may result from Q fever and should seek medical advice before working with pregnant sheep.

For more information on Q-Fever, please see:

(Health Canada) <http://www.phac-aspc.gc.ca/msds-ftss/>
(CDC) <http://www.cdc.gov/ncidod/dvrd/qfever/>

2.0 Measures to reduce the Risk of Exposure to Q Fever

- 2.1 Sheep will only be admitted to the facility where there is no record of Q fever infection in the originating flock as determined by the best available testing methodology (See SOP 169).
- 2.2 The sheep housing facilities and operating rooms at Western will be designed and operated at the standard required by Health Canada as stated in the “*Guidelines for Biomedical Facilities using Sheep as Research Animals*” December 2000”. This standard is available at: www.phac-aspc.gc.ca/ols-bsl/aminres_e.html
- 2.3 Entrance to the sheep facilities will be limited to approved persons only.
- 2.4 ***These procedures and SOPs are intended to reduce the risk of exposure to Q Fever for all personnel who work in the Sheep Containment Facility at Western University. It is essential for the protection of all, that all procedures are followed at all times by all personnel.***

3.0 REQUIREMENTS:

All materials leaving the Sheep Containment Unit (SCU) must be effectively decontaminated before removal from the facility. This includes

- a) items for removal from the unit for waste disposal
- b) items for removal from the unit for laundering or washing and reuse
- c) items for removal from the unit for work elsewhere

- 3.1 Decontamination may be achieved by:
 - 3.1.1 Autoclaving at 121°C for the necessary time to destroy any potential pathogens according to Western procedures as described in the Laboratory Health and Safety Manual for General Laboratory Practices
 - 3.1.2 Disinfection using an approved disinfectant** for a time required to kill potential pathogens
 - 3.1.3 Incineration following Western procedures as stated in the Laboratory Health and Safety Manual for General Laboratory Practices.

4.0 AUTOCLAVING

- 4.1 Materials leaving the SCU which must be autoclaved include:
 - a) laboratory equipment and lab ware used for sheep blood or tissues that have not been contaminated by disinfection.
 - b) papers, books, documents, chart recordings etc. not otherwise disinfected.
 - c) any items to be removed for laundering and/or re-use.
- 4.2 All materials to be autoclaved must be packaged, sealed then bagged and sealed and sprayed with the appropriate disinfectant, before being transported to the autoclave room.
- 4.3 Do not overfill the autoclave chamber.
- 4.4 All Autoclaving must be performed as per Standard Operating Procedures for Autoclaving.
- 4.5 All personnel who operate the autoclaves must be trained in the correct operation of the autoclave by the Manager, ACVS or alternate.
- 4.6 The temperature and cycle time record on the autoclave must be recorded.
- 4.7 Autoclave biological indicators should be used with every cycle as a check that the load has been subject to autoclaving.
- 4.8 Cycle Times

The following cycle times have been verified for use for the appropriate loads:

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| a) Lab wastes, Combustible 26" x 36" bag: | 40 minutes |
| b) Disposable clothing etc. for reuse: 36" x 36" | 40 minutes |
| c) Papers, books, cloth wrapped | 40 minutes |
| d) Scrubs, clothing to be laundered | 40 minutes |

4.9 VERIFICATION OF AUTOCLAVE CYCLE TIMES

- a) The effectiveness of all autoclave cycles must be verified using integrator or biological indicators at the start of experimental work and for every load thereafter. Records must be kept.
- b) The Manager, ACVS and the Biosafety Officer (BSO) must be notified of any failure of autoclave cycle.

c) After autoclaving the loads may be discarded into the regular waste stream, reused or removed from the facility.

5.0 DISINFECTION

5.1 Only approved** disinfectants may be used for decontamination in the SCU

5.2** Approved disinfectants for use in the SCU are:

- i) Virobac
- ii) Profilm
- iii) Envirochem
- iv) 1:100 dilution of household bleach
- v) 5% solution of H₂O₂
- vi) 1:100 dilution of Lysol

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5.2.1 Application to use a non-approved disinfectant must be made to the BSO in writing, stating the reason for requested use.

5.2.2. Quaternary disinfectants may be used for sanitizing and cleaning sheep holding rooms during an experiment.

5.3 Disinfection must be used for the following materials:

- i) liquid wastes
- ii) waste sheep blood and body fluids used in laboratory procedures
- iii) disinfection of sheep housing rooms, operating suites and work surfaces
- iv) any equipment which cannot be autoclaved such as compact disks or memory sticks
- v) surface disinfection of prescription and/or safety glasses.

5.4 Disinfection Procedure:

5.4.1 The item to be disinfected must be immersed in or sprayed with disinfectant and remain wet for a minimum of 10 minutes.

5.4.2 Work surfaces or facility surfaces must be thoroughly wetted with the disinfectant and remain wet for as long as possible.

5.4.3 Liquid wastes must be diluted to a final concentration of 10 percent dilution of Virobac or Envirochem. Liquid wastes must sit with disinfectant for at least 10 minutes before discharge to the drain or sewer.

5.5 Radioactive Wastes:

These wastes must be chemically disinfected as above and then sent for disposal as indicated on the Isotope Permit. Radioactive wastes can not be put in an autoclave.

6.0 INCINERATION

The following wastes must be incinerated for disposal:

- a) sheep carcasses, fetuses and products of birth
- b) disposable clothing, gloves and paper discarded from “dirty” areas
- c) bedding excreta from sheep
- d) other materials unable to be autoclaved or disinfected as designated for disposal
- e) sharps containers (see section 7.0)

- 6.1 Materials for incineration must be sealed into double bags for disposal. The outside of the bags must be sprayed with an approved disinfectant immediately before removal from “dirty” area.
- 6.2 The outer bag must be labelled according to the University regulations for incinerated waste as stated in the Laboratory Health and Safety Manual for General Laboratory Practices. This consists of a red label containing the origin of the waste, orange tape indicators and Waste Class A2.
- 6.3 Materials for incineration should be taken directly from the SCU in carts and stored in cold room until the next burn date.
- 6.4 After incineration the ash is disposed of into the regular garbage stream.

7.0 SHARPS DISPOSAL

7.0.1 Sharps are defined as needles and syringes, blades, wires and any other small piece of equipment which could penetrate the skin. This does not include scissors or tongs or other larger metal items and all glass items larger than vacutainers. These must be disinfected prior to disposal.

7.0.2 All sharps used in the SCU must be disposed of into approved biomedical sharps containers.

- 7.1 Needles must not be recapped. Dispose of the entire unit into the sharps container.
- 7.2 Do not fill containers more than two thirds full.

- 7.3 When two thirds full, securely cap the container. Place container into a plastic bag and seal. Label as in 6.2 adding the word SHARPS on the label. Spray the outside of the bag with an approved disinfectant immediately before removing the container from the dirty area. Incinerate as in 4.3 above.