THE UNIVERSITY OF WESTERN ONTARIO
OCCUPATIONAL HEATH & SAFETY

UWO West Valley Sheep Unit Inspection Checklist

Approved by Biohazards Subcomittee: March 27, 2009

The following inspection items have been created to meet the requirements of the Guidelines for Biomedical Facilities using sheep as research animals (December 2000) by the Public Health Agency of Canada and Form C, Document Submission Requirements for the Re-certification Performance and Verification Testing of Containment Level (CL) 3 Laboratories from the Office of Laboratory Security, Version 1.0 – revised December 15, 2003.

The West Valley Sheep Unit is the only approved facility in London, Ontario where Western faculty, staff and students can do research with live sheep. An approved Animal Use Protocol and Biohazardous Agents Registry Form are required prior to the work being done.

PRINCIPAL INVESTIGATOR(s): _____

ROOM NUMBER / BUILDING(s): _____

LAB PHONE NUMBER(s): _____

INSPECTION DATE: _____

ANIMALS & AGENTS IN USE:

OVERALL ASSESSMENT:

Inspector:

_____ _____
OHS Date

Recertification only:

_____ _____
ACVS Representative Date

_____ _____
Physical Plant Representative Date

PHYSICAL REQUIREMENTS

In addition to the requirements provided below, the facility requirements and environmental conditions suitable to sheep as recommended by the Canadian Council for Animal Care (CCAC) should be followed.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
The sheep facility should be located away from areas that are open to unrestricted personnel traffic within the building.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Animal entry to the facility should be provided away from public entrances.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Entry to the sheep facility should be labelled with appropriate signage (i.e. biohazard identification, name and phone number of contact person, specific entry requirements).	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Office areas should be located outside of the sheep facility. Paperwork areas for researchers and animal handlers are permitted within the facility but should be located away from animal holding and surgery areas.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
A double-door entry/egress to sheep holding and surgery rooms should be provided with an area designed to don protective clothing dedicated to the sheep facility. A protocol should be in place to prevent the opening of both entry doors at the same time, or, preferably be equipped with interlocking doors. The exterior entry door should control access by means of a key lock, card key, or proximity reader.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
The area should be designed to facilitate cleaning and disinfection. Interior surface coatings (i.e. floors, walls, ceilings) should be impervious to liquids and chemicals, and penetrations in the containment barrier should be sealed, to facilitate cleaning and decontamination of the area.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Any windows, although not recommended, should be resistant to breakage and sealed shut. *Note: There are no external windows in this facility.*	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
A hand-washing sink with hands-free capability should be provided near the exit door.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable

Comments: _____

The sheep facility should be maintained at negative air pressure with respect to adjoining corridors and facilities. Visual monitoring devices that confirm directional inward airflow should be located at the entry to the sheep facility.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
The exhaust air should not be recirculated to any other areas of the building unless it has passed through HEPA filtration.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Sealed ductwork should be used where sheep facilities are not physically separated from other building activities (i.e. potentially contaminated ductwork passes through occupied areas).	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Exhaust air from the sheep facility should be HEPA filtered where physically separate sheep facilities are not used. Filtration of the exhaust air should be located as near as practicable to the source in order to minimize the length of potentially contaminated ductwork, or, alternatively, sealed ductwork should be considered.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
A ventilation control system and equipment should be installed where physically separate sheep facilities are not used. (e.g. redundant exhaust fan, supply isolation damper to prevent sustained positive pressurization and backdraft of contaminated air). An alarm system to notify personnel of ventilation systems failure should be installed.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
The performance of critical containment components (e.g. testing of HEPA filters – including visual inspection, scan testing and regular replacement, integrity of containment perimeter, verification of HVAC control systems and alarms) and operational parameters should be verified prior to operation. Re-verification should also be performed as required by operational experience. Detailed records of the verification process and test results should be maintained.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable

Comments: Pink highlights/notes – Facilities Management
Green highlights/notes - HEPA

PHYSICAL REQUIREMENTS FOR RECERTIFICATION ONLY

Air supply and exhaust duct work is not required to be retested annually for pressure decay if no physical modifications have been done. A statement to this effect is required. If any changes have been performed then the Public Health Agency of Canada is consulted to determine if testing is required. If required, the test requirements are as follows: all supply air duct work, where backdraft protection is required on supply, and exhaust air ductwork that are between containment room perimeter and HEPA filter or bubble tight damper to be tested *in-situ* by pressure decay in accordance with ASME N510 Testing of Nuclear Air Treatment Systems (1989 – reaffirmed 1995); rate of leakage not to exceed 0.1% of vol/min at 1000 Pa (4"wg).

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

The control systems are not required to be retested on an annual basis if no control logic or upgrades have been done and no HVAC failures or problems have been encountered. A statement to this effect is required. If modifications have been performed, or if control system problems/failures have been encountered, then the Public Health Agency of Canada is consulted to determine the degree of changes/problems and if this test is subsequently required (note: this may necessitate the need for decontamination). If required, the test requirements are as follows: control systems to be tested for fail-safe operation by failure of system components, (i.e. fan failure; electrical failure; BSC failure). This is to include audible alarms testing for the detection of reversal of airflow across a containment barrier and air handling systems failure by simulation of alarm conditions.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

The integrity of HEPA filter housings is not required to be retested on an annual basis if no physical modifications have been done. A statement to this effect is required. If modifications have been performed then the Public Health Agency of Canada must be consulted to determine if testing is required. If required, the test requirements are as follows: integrity of HEPA filter housings to be tested *in-situ* by pressure decay testing in accordance with ASME N510 Testing of Nuclear Air Treatment Systems (1989 – reaffirmed 1995); rate of leakage not to exceed 0.1% of vol/min at 1000 Pa (4"wg).

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Verification of the operation of interlocks, communication and access control/security devices.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Certification of biological safety cabinets in accordance with CSA Z316.3-95 Biological Containment Cabinets: Installation and Field Testing (1995) or NSF 49-2002 Class II (Laminar Flow) Biohazard Cabinetry. *Note: There is a biological safety cabinet in Room 51.*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Comments:

Autoclaves must be verified as operational as specified and tested (with biological indicators) with representative loads.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Verification of water supply backflow preventers in accordance with CAN/CSA-B64.10-94, Manual for the Selection, Installation, Maintenance, and Field Testing of Backflow Prevention Devices/Manual for the Maintenance, and Field Testing of Backflow Prevention Devices (2001).	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Emergency generator test report (previous monthly test report acceptable) and verification that all critical systems including but not limited to controls, fans, security, critical equipment, phones, effluent treatment, etc.).	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Demonstration of inward directional airflow.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Visually, and with smoke pencil, confirm the integrity of all penetrations and seals. Visually inspect floors, walls and ceiling for cracks, chips, wear and verify integrity of wall/floor and wall/ceiling joints.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
In-situ scan testing of HEPA filters according to IEST-RP-CC-0006.2.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable

Comments: Pink highlights/notes – Facilities Management

No effluent treatment.

OPERATIONAL REQUIREMENTS

A documented procedural manual for the sheep facility outlining the safety and containment practices (e.g. entry/exit protocols for persons, animals, equipment, samples, waste) should be written and followed. General protocols should be supplemented with protocols specific for each project in process. Emergency procedures for entry/exit, air handling failure, fire, animal escape and other emergencies should also be written. *Note: Program changes would require submission of revised/new Standard Operating Procedures to The Public Health Agency of Canada.*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Staff, including animal handlers and maintenance personnel, should receive training on the potential hazards associated with the work involved, the necessary precautions to prevent exposure to Q fever, the practices to prevent the release of infectious agents from the facility, the operational protocols for the project in process, and emergency procedures. Staff should show evidence that they understood the training provided. Training should be documented and signed by both the employee and supervisor. *Note: SOP SF-1*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Staff working with and around sheep and sheep products (including bedding, excrement, birth products, and animals or animal tissues) should be enrolled in an occupational health and safety program.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Only persons meeting specific entry requirements (including medical surveillance requirements as dictated by the facility occupational health and safety program) should enter the sheep facility unless the facility has been appropriately decontaminated. Access should be restricted to authorized personnel only. Where necessary, maintenance and service staff may enter the unit under other conditions (e.g. without decontamination) when accompanied by trained facility staff and provided with appropriate personal protective equipment.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

All accidents, overt or potential exposures to infectious materials, breaches of containment, seroconversions, suspected cases of Q fever, and other hazardous occurrences should be reported immediately to the facility supervisor. Written records of such incidents should be maintained.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Researchers using sheep should follow good microbiological practices and perform a risk assessment designed to minimize contact with infectious agents, minimize the creation of infectious aerosols, and reduce the opportunity for exposure of staff and the environment.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Comments:

Staff working in the containment area should have general knowledge of the physical operational and design features of the facility (e.g. negative air pressure gradients, directional airflow patterns, alarm signals for air handling failure).

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Traffic flow patterns from clean to dirty areas should be established and adhered to (i.e. move from least to most contaminated areas). Where this is not possible, operational procedures should be in place (e.g. disinfection/decontamination barriers) to prevent the transfer of contamination to clean areas of the facility.

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Staff entering the sheep facility should wear dedicated protective clothing (i.e. scrubs) to that area. Additional protective clothing may also include solid-front or wrap-around gowns, coveralls, gloves, boots, and disposable shoe covers. Outer gowns should have a liquid proof protective surface. None of this clothing should be worn outside the designated area and should be decontaminated prior to laundering and/or disposal. *Note: SOP's 621, 626 & 628*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

For non-vaccinated staff and those with no demonstrated immunity to Q fever, an N-95 respirator should be used when attending parturient ewes or during surgical procedures that may generate infectious aerosols. *Note: SOP's 621, 626 & 628*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

At the end of high-risk procedures (e.g. when attending parturient ewes or during surgical procedures), staff leaving the area should shower in a designated area before going anywhere else, particularly if primary clothing becomes soiled with potentially infected material. Entry into low-risk areas of the facility with no direct sheep contact (i.e. to read chart records) would not necessitate a shower on exit providing protocols are in place to prevent contamination of such areas. *Note: SOP 626*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Potentially contaminated items (including paperwork) to be removed from sheep holding and surgery areas should be decontaminated on exit from the facility. Alternatively, such items can be double-bagged or placed in impervious containers for processing in a central decontamination area. The exterior surface of such bags/containers and transport containers containing items for further study (e.g. tissue samples) should be disinfected on exit from the facility. Items from low-risk areas of the facility with no direct sheep contact (i.e. chart records) can be removed without further decontamination provided they have been handled in a manner that prevents their contamination. *Note: SF-03*

☐ Compliant
☐ Non-Compliant
☐ Not Applicable

Comments: Pink highlights/notes – Facilities Management
Green highlights/notes - HEPA

At the end of the experiment all supplies remaining in the animal room (e.g. feed, bedding) should be removed and decontaminated.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Animal carcasses and tissues should be incinerated or processed through new technology proven to be effective (e.g. tissue autoclave).	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Potentially contaminated items to be removed from the facility and surfaces in surgical or laboratory areas can be disinfected with a fresh 1:100 dilution of household bleach, 5% solution of H_2O_2, or a 1:100 dilution of Lysol®. *Note: Virobac or Profilm used per SOP SF-03.*	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Areas that have held parturient ewes should be cleaned and decontaminated at the end of an experiment (i.e. when practical and not necessarily at the end of an experiment involving only one of several sheep in the facility) using a fresh 1:100 dilution of household bleach, 5% solution of H_2O_2, or a 1:100 dilution of Lysol®. *Note: Virobac or Profilm used per SOP SF-03 Decontamination can also be achieved by spraying with a liquid formaldehyde disinfectant or fumigating with paraformaldehyde.*	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Smoke testing (i.e. with a smoke pencil) should be done periodically by staff to verify correct airflow and results documented.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Water seals in floor drains and other drainage traps should be maintained (i.e. through regular usage and/or by filling traps in areas that are not being used).	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
Sheep should never be transported through hospital patient-care areas. Transfer of sheep through corridors and other areas not specifically designated as part of the sheep facility should be done using containment transport carts.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable
An effective rodent and insect control program should be maintained.	☐ Compliant ☐ Non-Compliant ☐ Not Applicable

Document History:

Revised: August 23, 2002 - Tyrrel de Langley, Revised: March 20, 2009 - Jennifer Stanley
Approved: March 27, 2009 - Biohazards Subcommittee

Comments: