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SCOPE

This Standard applies to all persons that are directing or involved in the handling or storage of biohazards as a part of research and teaching activities under the auspices of the University of Calgary.

PURPOSE

This Standard describes requirements regarding responding to and reporting biosafety-related emergencies, as well as different types of notifications required.

RESPONSIBILITIES

Supervisors

- Follow the requirements of this Standard
- Complete Biosafety (Annual Refresher) Training
- Complete worksite-specific training (as determined by review of training needs assessment)
- Inform the University Biosafety Officer (biosafety.officer@ucalgary.ca) in cases of reportable incidents
- Follow the requirements of the University Emergency Instructions

Workers

- Follow the requirements of this Standard
- Complete Biosafety (Annual Refresher) Training
- Complete worksite-specific training (as determined by review of training needs assessment)
- Inform the University Biosafety Officer (biosafety.officer@ucalgary.ca) in cases of reportable incidents
- Follow the requirements of the University Emergency Instructions

Environmental Health and Safety (EHS)

- Provide information on appropriate legislation, codes, standards and best practices for biosafety and emergency response
- Assist affected parties with interpretation of this Standard
- Review and update this Standard

Emergency Telephone Numbers

Hazard	Report to
Life threatening emergencies or situations	911 and then Campus Security at 403-220-5333
Biological, chemical or radiation	EHS at 403-220-6345 during business hours or Campus Security at 403-220-5333
Building-related emergencies (water leaks, broken glass, power outages)	Facilities at 403-220-7555 during business hours or Campus Security at 403-220-5333
Security threats	Campus Security at 403-220-5333

Incident Reporting and Investigation

Supervisors and Workers are required to inform the University Biosafety Officer (biosafety.officer@ucalgary.ca) in cases of:

- any incident that has caused or may have caused disease in an individual
- missing, lost or stolen human pathogens or toxins, or
- inadvertent possession, production or release of human pathogens or toxins

Post-Exposure Protocol for Biological Hazards

- If a known or suspected exposure to a biohazard has occurred, refer to the Post-Exposure Protocol for Biological Hazards. This protocol includes immediate first aid, assessment requirements and follow up instructions.



Biohazard exposures include any incident that has caused or may have caused disease in an individual. Biohazard exposures are to be reported as a Level 2 (minimum) incident in Online Accident Reporting System. The University Biosafety Officer reports these incidents to the Public Health Agency of Canada, as required.



Managers or Supervisors are responsible to conduct the incident report and investigation, and EHS assists, as required.

For further information refer to the Incident Reporting and Investigation website.

Spill Response Procedures

Refer to the Spill Response Procedures for Minor and Major Spills of hazardous materials.

Biohazard Spill Response Procedures

The procedure for clean up of a **biohazard** spill, outside a Biosafety Cabinet, follows the Spill Response Procedures with the specific addition of steps 1 and 8 indicated below (in bold).

- 1. If infectious aerosols are created, evacuate the area for 30 minutes;** this will allow the ventilation system to exhaust aerosols.
2. Don the appropriate personal protective equipment (PPE).

3. Protect floor drains from flowing spills using a spill sock.
4. Contain the spill by pouring a ring of absorbent around it.
5. Remove sharp objects using tongs or forceps placing them directly into the empty spill kit pail.
6. Pour more absorbent on the spill, sweep from outer edge toward the centre of spill working absorbent in until liquid is absorbed. Add more absorbent if spill area still appears wet or if there is still free liquid. Repeat until all liquid is absorbed.
7. Collect the absorbent with the brush and dustpan and place in a plastic bag. Include spill sock if used.
8. **Disinfect the spill area, and all surfaces and/or equipment (e.g. centrifuge) that has come in contact with the biohazard. Employ a disinfectant whose concentration and contact time has been shown to be effective.**
9. Wipe the spill area with a damp paper towel and place in a plastic bag.
10. Complete disposal procedures. Close plastic bag with zip-tie, label bag identifying contents. Place plastic bag, PPE, brush and dustpan in pail and seal lid. Label outside of pail identifying contents including absorbent (if used for a liquid spill).
11. Follow disposal procedures and report in OARS.

Biohazard spill in a Biosafety Cabinet

If a spill occurs within a Biosafety Cabinet, it is considered contained; the next step is to disinfect equipment and interior surfaces, as required.

Power Failure

In the event of a power failure while working with biohazards, close/cover all containers. Follow the requirements of the University Emergency Instructions. Resume normal work when power is restored.

Failure of Primary Containment Devices

In the event of a power failure while working in a primary containment device (e.g. Biosafety Cabinet, “glove box”, etc.), close/cover all containers. Wait until power returns. Start-up procedures must be performed again. Alternatively, closed containers can be safely moved to a functional primary containment device to continue work.

“Puff-back” from Class II B2 Biosafety Cabinet

Contact University Biosafety Officer prior to ducting a Biosafety Cabinet and develop a procedure where such a cabinet exists.

Loss of Containment

In the event of loss of containment (e.g. failure of building ventilation, etc.), close/cover all containers. Wait until containment is re-established. Start-up procedures must be performed again.

Animal Escape

In the event of animal escape, where the animal was administered a biohazard, follow the procedures of the Animal Health Unit.

Notification of Key Personnel and Relevant Federal Regulatory Agency (or Agencies)

Refer to Incident Reporting and Investigation.

Notification for Shipping of Biohazards

Notification to the University Biosafety Officer is required by following the Biohazard Transfer Procedure for International Import/Export and Domestic Receipt/Transfer of biohazards.

Fire, Explosion, Evacuation, Shelter in place, Natural Disaster, Armed Assailant, Bomb Threat, Violence

Refer to University Emergency Instructions.

DEFINITIONS

Aerosol	A suspension of fine solid particles or liquid droplets in a gaseous medium (e.g. air) that can be created by any activity that imparts energy into a liquid/semi-liquid material.
Biohazards	Biohazards include, but are not limited to, infectious material (e.g. bacteria, viruses, fungi, cell lines, blood, prions, animal pathogens, aquatic animal pathogens, vector-borne pathogens & plant pests) and microbial toxins (e.g. botulinum toxin, cholera toxin & diphtheria toxin).
Biosafety Cabinet (BSC)	A primary containment device that provides protection for personnel, the environment and the product (depending on BSC class), when working with biological material.
Containment	The combination of physical design parameters and operational practices that protect personnel, the immediate work environment, and the community from exposure to biological material. The term "biocontainment" is also used in this context.
Incident	An event or occurrence with the potential of causing injury, harm, infection, intoxication, disease, or damage. Incidents can involve infectious material, infected animals, or toxins, including a spill, exposure, release of infectious material or toxins, animal escape, personnel injury or illness, missing infectious material or toxins, unauthorized entry into the containment zone, power failure, fire, explosion, flood, or other crisis situations (e.g., earthquake, hurricane). Incidents include accidents and near misses.

REFERENCES AND RELATED DOCUMENTS

University of Calgary Biosafety Manual
University of Calgary Post-Exposure Protocol for Biological Hazards
University of Calgary Spill Response Procedures
University of Calgary Online Accident Reporting System
University of Calgary Emergency Instructions
University of Calgary Biohazard Transfer Procedure
Public Health Agency of Canada – Canadian Biosafety Standard