College of Biological Science - Standard Operating Procedure			
Biosafety Cabinet			
Date:	15-Jan-2008	Prepared by:	A Doane
Revision:	New	Supersedes:	n/a

Purpose:
To provide general instructions on the use of biological safety cabinets for the handling of biohazardous materials.

Application:
All users of biological safety cabinets should be familiar with the procedures outlined below. Biosafety cabinets are used to control exposure to potentially hazardous biological materials (i.e. containment level 2 agents) when performing activities that have may generate aerosols.

Safety Precautions:
- ⚠ All operators must receive training on the safe use of the biosafety cabinet prior to using the equipment. Training may be delegated to a qualified individual, but it remains the responsibility of the supervisor to ensure their personnel are adequately trained.
- ⚠ Do not use biosafety cabinets when handling toxic, volatile or flammable materials.
- ⚠ Do not use open flames inside cabinet at any time.
- ⚠ The UV light must be turned off when the cabinet is in use.

Note:
- Consult EHS before relocating biosafety cabinets or obtaining new cabinets.
- Review the manufacturer's instructions prior to using equipment.

Procedure:
- **Set-up**
  - Plan your experiment so you will have all required items with you when you start.
  - Don required personal protective equipment (lab coat, gloves, and eye protection).
  - Ensure the hood certification is up to date. If a hood certification has expired, do not use the hood – call EHS (x53282) and request recertification.
  - Turn off the UV light.
  - Turn on fan (if switch-operated) and work light, and verify airflow using display or a kimwipe.
  - Allow 5 minutes for airflow to stabilize.
  - Use 70% ethanol or another suitable chemical disinfectant to disinfect the interior surfaces of the cabinet.
  - Retrieve required materials from storage locations. Use a cart or tray when retrieving multiple items.
  - Ensure you have the supplies you need for collecting waste and for dealing with spills.
    - Have containers or bags available within the hood for temporary storage of wastes. This prevents in-and-out movements from the cabinet that disrupt the airflow protecting the user.

        - Have paper towel, chemical disinfectant, forceps and autoclavable bags handy in case you have a spill inside the cabinet (See CBS SOP on Biohazard Spills for further details)
    - Place items inside the hood separated on the basis of 'clean' and 'dirty'.
- **Working in BSC**
    - Arrange your items as near to the back of the hood as you can without obstructing the air vents at the rear.
    - Work cautiously to avoid generation of aerosols and minimize disruptions of airflow. Avoid moving your arms or items in and out of the hood as much as possible.
    - Avoid moving your hands, pipettes, or other items over open containers or plates to avoid cross-contamination.
    - Monitor airflow throughout your work – if unusual variations appear, close all open containers and lower the sash.
    - When finished, close all containers (culture dishes, flasks, etc.).
    - Wipe down all items (including waste bags, all containers, pipettors, instruments) with 70% ethanol or another suitable chemical disinfectant prior to removing them from the hood.
    - Disinfect the interior of the hood with a suitable chemical disinfectant.
    - Allow fan to operate an additional 5 minutes to clear cabinet of contaminants.
    - Turn off work light and fan (if switch operated) and turn on UV light.
    - Remove/change gloves, and wash hands thoroughly.

Contingency Plans:

- **Spills**
    - If a spill occurs within the biosafety cabinet
        - Refer to the CBS SOP on Biohazard Spills
        - Keep the fan operating, and cover the spill with absorbent material.
        - Soak the area in a suitable chemical disinfectant, and leave undisturbed for 20 minutes.
        - Place absorbent materials used in clean in biohazard waste bag.
        - Use a paper towel soaked in chemical disinfectant to clean the interior of the hood, including the tray under the work surface.
        - Allow cabinet to run for an additional 10 minutes.
        - Report the spill to your supervisor and EHS.
- **Equipment failure**
    - If a fan stops working:
        - Immediately stop all work and close all open containers within the hood.
        - Close the sash fully.
        - Remove lab coat and gloves, and thoroughly wash hands.
        - Wait 30 minutes for aerosols to settle.
        - Use a suitable chemical disinfectant, and cautiously wipe down the exterior of all items before removing from hood.
        - Do not attempt to reuse the biosafety cabinet the problem is fully resolved.

Applicable Policies & Regulations:

- University of Guelph Safety Policy 851.11.01
- University of Guelph Safety Policy 851.11.02