

BioSide Lines

July 2002

The Newsletter of the UW Office of Biological Safety

www.fpm.wisc.edu/biosafety

The SOP

The Standard Operating Procedure (SOP) is a valuable tool and worth the preparation time, but it is underutilized in academia. SOPs go beyond the basic "cookbook" procedural description of materials and methods and also provide details about the appropriate precautions.

Here are some examples of topics that lend themselves well to the SOP format:

- ◆ inventory procedure for stock/reference cultures
- ◆ disposal of hazardous materials, including sharps, chemicals and biological materials
- ◆ surface decontamination
- ◆ spill procedure (the biosafety website provides a generic spill protocol)
- ◆ operation and maintenance of equipment such as the centrifuge, BSC, and autoclave
- ◆ transportation of hazardous materials between facilities

In general, SOPs force a person to think through a procedure step by step and to standardize the materials and methods. The exercise of writing the SOP is valuable and the SOP itself is a useful training tool and a reminder to staff of the correct procedures. In some situations, SOPs may be required for compliance with regulations (e.g., Good Laboratory Practices, Food and Drug Administration, 40 CFR 160.81).

The best approach to writing an SOP is to *do it, write it, and test it*. Be brief and succinct; the shorter, the better. Anyone - student, support staff, post-doc or principal investigator, can prepare them. The SOPs should be available in the laboratory, not filed away in an office drawer.

A typical SOP contains the following elements: purpose and scope, definitions, materials and equipment needed, safety concerns, who is responsible, step-by step procedure with identification and emphasis of "critical steps," records to be kept, copies of forms to be used, and references. SOPs should be reviewed annually at a minimum.

[Based on a presentation by Dr. Michael Mispagel (University of Georgia), 2002, 7th National Symposium on Biosafety. Reproduced with his permission.]

The Ins and Outs of Purchasing a BSC

Selection of the appropriate containment/isolation equipment is a critical decision for which many factors must be considered. An overview of the important differences between the biological safety cabinet (BSC), clean air bench, and fume hood, was provided in the previous issue of BioSide Lines. The purchasing process for this specialized equipment is more complicated than buying other typical lab paraphernalia like a freezer or a centrifuge. It is tightly controlled, which ensures that the product will be suitable for the intended purpose. The contract specifies a high construction standard and includes a reliable warranty policy. In some situations, facility renovation may be required. It usually takes two months to work through all the steps, selection to delivery, for the straightforward BSC purchases.

The following factors need to be considered whether you are selecting a new BSC or moving a used one: **Size.** BSCs are available with a work surface that is 2, 4, or 6 feet long. Make sure the dimensions of the BSC fit the available space in the room. Also, the work surface must be big enough to handle all the

materials that must be placed in the cabinet to perform the tasks, including waste disposal containers. A longer hood should not be purchased for the sake of accommodating side-by-side workers.

Use of hazardous chemicals. Use of volatile chemicals and carcinogens is the key component that determines whether a BSC should be ducted to a building exhaust system or not. The HEPA filtration system will capture particulate contaminants but not chemical vapors and gases. If use of hazardous chemicals is anticipated, an engineer must evaluate the building mechanical systems to determine if they are adequate to support the ventilation requirements for the BSC. This approval is a prerequisite for the purchase order.

Microscope Use. The BSC can be ordered with a modified front sash to accommodate use of a microscope. The manufacturer can provide assistance with this determination.

Location within the lab. The BSC should be located away from doors, traffic areas, supply diffusers, and other equipment such as a fume hood that could disturb the laminar airflow. There must be 6 inches or more clearance between the ceiling and top of the cabinet. A typical BSC, installed with the work surface at 30" (seated operation) is 90" tall.

Available utility services. The BSC needs a dedicated 120 VAC, 20 amp electrical outlet that must be accessible without moving the unit or other unmovable equipment. Determine if the BSC should have air, gas, and/or vacuum lines installed. The gas line will need to have an exterior shutoff valve. Water is allowed only under special circumstances such as in necropsy areas.

Remodeling. Considerable cost and time delays could be incurred if the laboratory needs to be remodeled. The worst case scenario is when a new ventilation system is required to exhaust the BSC, which could be costly. Early communication between the PI, Building Manager, and Biosafety is essential. When remodeling is done for the BSC, the laboratory will also be upgraded to meet current health, safety and building codes/regulations.

Time frame. The preferred steps are to 1) select a BSC in consultation with Darren Berger or Jack Wunder, 2) submit the requisition to UW Purchasing, and 3) Purchasing gets necessary approvals and releases the purchase order (P.O.). The internal requisition process may take 4-6 weeks until release of the P.O. The Baker Company currently ships standard models within 10 days of receipt of the P.O. and delivery can be expected within 14 days.

Delivery. Delivery must be carefully planned. Since large interstate trucks are not allowed on campus, the unit must be dropped off at a local shipping terminal (usually Reynolds Transfer & Storage) and re-loaded onto a smaller truck for final delivery. Many loading docks cannot accept large items in high bed trucks, and an alternate route into the building must then be arranged. Cabinets can not be stored on loading docks. If it is necessary to have the unit shipped before the space is ready, it must be stored either at the local shipper or somewhere in the building. The move from the loading dock to the lab may be arranged with the moving company; the warranty against shipping damage will be voided if building workers move the cabinet.

Inspection. Upon delivery to the loading dock or storage location, the BSC should be uncrated and inspected by the Environmental Health Program (262-1809) for any visible damage incurred during shipping. Any damage is covered under the warranty and needs to be documented for repair.

Certification. After it is installed, the BSC should be tested and certified according to an NSF 49 testing protocol. The Environmental Health Program provides this service for a fee. Annual testing and certification is required for work involving biohazards.

The contract. UW–Madison uses a contract to specify the detailed standards to be met. The contract is reviewed every three years and all manufacturers are encouraged to bid on it. The bidding process for the BSC contract is open to all manufacturers. Currently, The Baker Company is the only vendor to meet the UW-Madison specifications. *Purchase of other vendors' products currently is not approved.*

Used BSCs. Used cabinets may be sold to UW investigators but they may not be offered for sale to the public. Cabinets generally have a service life of 20 years. The biosafety website maintains a list of available cabinets.

Guidance on selection and the purchasing process is available from Darren Berger (Office of Biological Safety, 263-2187) and Jack Wunder (Environmental Health Program, 262-0490). They will help you get through this complicated process.

Shipping Infectious Substances and Other Biological Materials

The Office of Biological Safety will provide training and certification for shipping infectious substances and other biological materials, with a focus on safety and regulatory compliance for research laboratories. The Department of Transportation requires that persons involved in shipping hazardous materials in commerce be trained and certified in proper handling of these materials.

Thursday, July 11, 2002
Union South 1:00 to 3:00 p.m.
Refreshments will be served.

Registration is required. Contact Margy Lambert at 3-9013 or mlambert@fpm.wisc.edu.

Staff approaching their two-year expiration for certification will receive a notice in advance of that date. All staff are welcome to attend the class. Computer-based training is available as an alternative, but only for those who have attended the class for their original certification.

OBS Contacts

Jan Klein	Biological Safety Officer	263-9026	jklein@fpm.wisc.edu
Margy Lambert	Biosafety Specialist	263-9013	mlambert@fpm.wisc.edu
Darren Berger	Facilities Engineer	263-2187	dberger@fpm.wisc.edu
Nancy Schensky	Administrative Support	263-2037	nschensky@fpm.wisc.edu
General Contact		263-2037	biosafety@fpm.wisc.edu