Quest Diagnostics

TRAINING UPDATE

Lab Location:	SGAH & WAH	**Date Distributed:**	10/17/2012
Department:	Microbiology	**Due Date:**	11/17/2012

DESCRIPTION OF PROCEDURE REVISION

Name of procedure:
Biological Safety Cabinet SGAH.M20, WAH.M20 v001
Description of change(s):
5.3.5 Add ‘at least 4 inches from the front grill’ 5.3.7 Change 3 min to 5 min 5.4 Added QC / Maintenance section 5.6 Added separate heading for completion of work

Document your compliance with this training update by taking the quiz in the MTS system.

Approved draft for training all sites (version 001)

Non-Technical SOP

Title	**Biological Safety Cabinet**	
Prepared by	Leslie Barrett	Date: 8/24/2009
Owner	Ron Master	Date: 8/24/2009

Laboratory Approval		
Print Name and Title	**Signature**	**Date**
Refer to the electronic signature page for approval and approval dates.		
Local Issue Date:	Local Effective Date:	

12 month (or new) management review and approval: Signature acknowledges SOP version remains in effect with NO revisions.		
Print Name	**Signature**	**Date**

Form revised 3/31/00

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1. PURPOSE

To describe the operation of the Biological Safety Cabinet.

2. SCOPE

The plating and processing of all microbiology specimens should be handled under the hood. All positive mycobacterium and fungal culture isolates must also be worked up in the BSC.

3. RESPONSIBILITY

This procedure applies to staff assigned to microbiology.

4. DEFINITIONS

Biological Safety Cabinet (BSC) - device used to provide containment of infectious splashes or aerosols generated by many microbiological procedures. The BSC is a primary protection barrier, which provides protection to the laboratory personnel and to the environment. The BSC also provides protection from external contamination of the materials being manipulated inside the cabinet.

5. PROCEDURE

5.1 Air Flow Inside the Biological Safety Cabinet

1. Room air under negative pressure enters the BSC.
2. The room air is drawn up through the back of the BSC as contaminated air, under negative pressure.
3. The room air moves through the HEPA filter as contaminated air, under positive pressure.
4. 80% of this clean air moves down into the work surface. Once the clean air enters the work area the air is diverted to the front and back of the work surface.
5. All work should take place in the center of the work area.

5.2 General Parameters

1. The blower is to be left on at all times.
2. The view screen must be placed to allow an opening of 8 to 10 inches. The sash alarm will be activated whenever the sash is raised above this level. To mute the audible alarm, press the alarm button. The indicator will continue to flash. After five minutes, the alarm will sound again to remind you to lower the view screen. Never completely close the sash with the blower running.
3. The ground fault interrupter (GFI) protects the outlets. The GFI is designed to protect the operator from a possible electrical hazard. If the GFI detects a hazardous condition, it will cut off electricity to all of the outlets.

5.3 Start-up Procedure

1. If the unit **has not** been left running continuously, press the blower on/off switch. The yellow indicator light below the switch will light. Make sure you have cabinet airflow by listening for the blower sound. Check the reading on the mag gauge, it should be consistent with the last time the unit was on.
2. Turn on the fluorescent light. (There is no ultraviolet light.)
3. Check to determine that the drain valve is in the closed position or the drain coupling is capped.
4. Wipe down the interior area of the cabinet with a surface disinfectant. The work area is decontaminated after each use or at a minimum of once per shift using approved disinfectant.
   Note: Some disinfectants, such as bleach or iodine, may corrode or stain the steel surfaces. If this happens, thoroughly clean the surfaces afterward with a detergent and rinse with sterile water to prevent corrosion.
5. Place all materials to be used inside the cabinet on the solid work surface, at least 4 inches from the front grill. **Disinfect the exterior of the materials prior to placing them on the work surface.** Everything required (**and nothing more**) should be placed in the cabinet before beginning your work so that nothing passes in or out through the air barrier, until the procedure is completed. Implements should be arranged in the cabinets' work area in logical order so that clean and dirty materials are segregated, preferably to opposite sides of the work area.
   Avoid blocking the front and rear perforated grilles. If wipes or absorbent towels are used on the work surface, be sure to keep them away from the grilles.
6. After your equipment is in place inside the cabinet, adjust the sliding window sash so it is open no higher than the correct access opening height (8 or 10 inches). An alarm will signal if you have exceeded the design opening. This is important to maintain proper airflow.
7. After the cabinet has run for at least five minutes with the window in the proper position, you are ready to begin.

5.4 Quality Control / Maintenance

1. Frequency
   a. Performed by each shift that the cabinet is used
2. Cleaning
   a. Clean BSC with disinfectant and rinse with dH_2O before and after use.
   b. Record on the Preventive Maintenance Chart
3. Record the magnahelic gauge reading and confirm that the reading is within the specified range. If the gauge reading is not within the specified range, DO NOT USE the BSC. Notify a supervisor or manager to have the BSC checked.
4. Record visual check that airflow vents are not blocked.

5.5 Working in the Cabinet Space

1. Hands should be washed thoroughly before and after work in the cabinet. **Long-sleeved gowns or lab coats with tight fitting cuffs and sterile gloves must be worn.** This minimizes the shedding of skin flora into the work area and protects hands and arms from contamination.
2. Perform all work on the depressed area of the solid work surface, at least 4 inches from the front grill. Work with a limited number of slow movements. Do not move your arms in and out through the air barrier.
3. Because opening and closing doors in the laboratory causes air disturbance which might interfere with cabinet airflow, this kind of activity should be kept to a minimum while the cabinet is in use. Personnel should also avoid walking by the front of the cabinet while it is in use.
4. Avoid using floor-type pipette discard canisters. It is important that your used pipettes be discarded into a tray or other suitable container inside the cabinet. This reduces the temptation to move in and out of the work area unnecessarily.
5. **Never operate your cabinet while the window sash alarm is on.** The operating position of the sash provides either an 8 or 10-inch high access opening, depending on the design set at the factory. This restricted opening permits optimum operating conditions for the cabinet.
6. Always use good laboratory technique to reduce splatter and aerosolization of biological materials within the cabinet.

5.6 Completing Work in the BSC

1. When work is completed, decontaminate the entire surface. The cabinet should then be allowed to run for at least three minutes with no activity so that airborne contaminants will be purged from the work area. Decontaminate any containers and equipment to be removed from the BSC. Remove all equipment from the cabinet.
2. After you have removed all materials, cultures, etc. decontamination of the surfaces should be repeated. **Never use the cabinet to store supplies of laboratory equipment.**
3. It is recommended that the cabinet be left running continuously to ensure containment and cleanliness. **If the cabinet is turned off at the end of a work session, the blower must be left running for at least 3 minutes after the completion of work. After the blower is turned off, the window should be**

closed completely. The sash alarm will be silenced when the window is in the closed position.

5.7 Procedural Notes

1. Never use the top of the cabinet or the work area for storage purposes.
2. Whenever maintenance, service or repairs are needed in a contaminated area of your cabinet, a certified handler must first decontaminate the cabinet with formaldehyde gas. **Only qualified technicians should perform decontamination procedures.**
3. The High Efficiency Particulate Air (HEPA) filter is one of the essential components of a biological safety cabinet. It is the shield, which stands between the operator and environment and the agent. The HEPA filter consists of a continuous sheet of glass filters pleated over rigid corrugated separators and mounted in a rigid frame. It is very delicate and the filter media **should never** be touched. The efficiency of HEPA filters is 99.99% for particles 0.3 microns in diameter. HEPA filter **is not** intended to filter gases or vapors. The life of a filter is at least **five - eight years** under normal laboratory conditions.
4. **Never use toxic, explosive, or flammable materials in the BSC**.

6. RELATED DOCUMENTS

None

7. REFERENCES

1. The Baker Company, Operator's Manual, Biological Safety Cabinets
2. Biosafety in Microbiological and Biomedical Laboratories (BMBL) 4th edition, CDC. http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm
3. Goals for Working Safely with Mycobacterium tuberculosis in Clinical, Public health, and research Laboratories, CDC. http://www.dcd.gov/od/ohs/tb/tbdoc2.htm
4. Primary Containment for Biohazards: Selection, Installation, and Use of Biological Safety Cabinets, CDC and National Institutes if Health, Sept 1995.
5. http://www.cdc.gov/od/ohs/biosfty/bsc/bsc.htm

8. REVISION HISTORY

Version	Date	Reason for Revision	Revised By	Approved By
		Supersedes SOP M009.002		
000	8/28/12	5.3.5 Add 'at least 4 inches from the front grill' 5.3.7 Change 3 min to 5 min 5.4 Added QC / Maintenance section 5.6 Added separate heading for completion of work	R. Master	R. Master

9. ADDENDA AND APPENDICES

None