

SOP: 2.0

Title: A/BSL-3 Facility: PPE Donning & Doffing - Interim

Required SOP: This SOP must be used in conjunction with the A/BSL-3 Facility: Entry & Exit – Interim SOP (SOP 1.0)

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I. PURPOSE

- To describe the personal protective equipment (PPE) requirements and proper procedures for safe donning and doffing of PPE to enter and exit the A/BSL-3 Facility at the Vermont Department of Health Laboratory (VDHL).
- To reduce the risk of exposure to infectious agents of all UVM, OACM, and VDHL staff who are authorized to work within the A/BSL-3 facility, as well as of all other VDHL occupants. Exposure to biological agents requiring A/BSL-3 containment may have serious or potentially lethal consequences.

II. EQUIPMENT

- Personal Protective Equipment (PPE):
 - Solid-front, fluid-resistant gown with ties and Velcro closures
 - Tyvek coveralls
 - Tyvek booties and/or shoe covers
 - Nitrile gloves with short and long cuffs
 - 3M Versaflow PAPR:
 - ◇ Hood
 - ◇ Belt with blower, HEPA filter, and cover
 - ◇ Connecting hose with plastic covers
 - ◇ Battery and battery charger
 - ◇ Airflow indicator
- Storage bag for PAPR
- Metallic rack with hook to place and decontaminate PAPR (ABSL-3 side)
- 2 hooks on the wall to hang and decontaminate PAPR (BSL-3 side)
- Scrubs, dedicated A/BSL-3 Facility clothing, or street clothing
- Dedicated footwear (e.g., tennis shoes that stay in the locker room)
- Biowaste containers
- Disinfectant spray (e.g., 70% ethanol and 10% bleach) and wipes (e.g., peroxigard)
- Stool
- Handwashing sink, soap, and paper towels
- Heat-resistant gloves for use with the autoclave

III. APPLICABILITY

IV. ENTRY & EXIT PROCEDURES

A. ENTRY INTO THE ABSL-3/BSL-3 FACILITY & PPE DONNING

1. Follow Entry procedures in *SOP 1.0, A/BSL-3 Facility: Entry & Exit*.
2. If not using street clothes, change into scrubs or dedicated A/BSL-3 Facility clothing. Change into dedicated footwear.
3. Secure VDHL badge to your clothes: use pockets around the lapel area, spaghetti straps, suspenders, etc. Find a system that works for you depending on your height.
4. Don inner nitrile gloves (regular or long cuff).
5. Don Tyvek coveralls, placing gloved thumbs through the thumb loops (loops are over the gloves, not under).
6. Don Tyvek booties or shoe covers over dedicated laboratory footwear.
7. Retrieve your PAPR unit and battery - check your battery level.
8. Turn on PAPR unit and complete safety checks:
 - a. Put battery into PAPR unit ensuring that it clicks in and turn on the PAPR.
 - b. Check the airflow on the motor blower using the airflow indicator. The ball should flow at least as high as section F on the indicator.
 - c. Inspect the hose to make sure it is intact (no cracks).
 - d. Check airflow at end of the hose as well.
 - e. Inspect the PAPR hood to make sure its integrity is not compromised and there is good visibility (e.g., visor is not scratched or blurry).
9. Don the PAPR unit, ensuring that the chin collar of the hood is secured under the chin and the brow band is positioned just above the eyebrows.
10. Enter the high containment area (ABSL-3 and BSL-3 corridors) using ****any of the 2 designated entry points, independently of whether you are going to work in the BSL-3 side (*in vitro* labs) or ABSL-3 side (*in vivo* animal holding and procedure rooms):**
 - a. Bring PAPR storage bag into the ABSL-3 or BSL-3 Facility with you.
 - b. If in the ABSL-3 Facility corridor (2600), hang the PAPR storage bag from the metallic rack or attached hook in the doffing area.
 - c. If in the BSL-3 Facility corridor (2400), hang the PAPR storage bag from a hook on the wall of the doffing area.
 - d. **** Exception:** During cage removal time, a sign will be posted on the door inside Locker Room B to limit traffic into the ABSL-3 facility. Enter the A/BSL-3 Facility through the BSL-3 side (Locker Room A).

11. Once in the ABSL-3 (2600) or BSL-3 (2400) Facility corridors, you should be wearing the following PPE: PAPR, Tyvek suit, 1 pair of gloves, and 1 pair of booties/shoe covers.

B. ENTRY INTO THE BSL-3 LABS, ABSL-3 ROOMS, & PPE DONNING

If you are going to conduct any experiments or check on animals:

1. Enter the BSL-3 lab or ABSL-3 anteroom.
2. Don outer disposable gown, making sure that the Velcro closure on the neck is secured so it can be easily opened for doffing.
3. Don outer (extended cuff) gloves, making sure to pull the cuff over the cuff of the gown.
4. At this time, you should be wearing the following PPE: PAPR, gown, Tyvek suit, 2 pairs of gloves, and 1 pair of booties/shoe covers.
5. If you are going to work in any of the ABSL-3 rooms, also don a second pair of shoe covers in the ABSL-3 anteroom.

C. EXIT FROM THE BSL-3 LABS TO THE BSL-3 CORRIDOR (2400) & PPE DOFFING

Inside the BSL-3 labs, in the absence of a demarcation line, the area closest to the door is considered clean and constitutes the doffing area. Follow doffing procedures in this order:

1. After completing work in the biosafety cabinet, and securing research materials, don a new pair of outer gloves.
2. At this time, you should be wearing the following PPE: PAPR, gown, Tyvek coveralls, 2 pairs of gloves, and 1 pair of booties.
3. Decontaminate the BSC, spray gloves with 70% ethanol, and walk to the PPE biowaste bin by the door.
4. Spray and/or wipe (wiping helps remove microorganisms) the exposed part of the PAPR hood with 70% ethanol.
5. Untie the gown by breaking the tie string in the front of the gown and pull it away from the body so the Velcro closure in the back of the neck unfastens. Do not reach behind the gown with your outer gloves.
6. Turn the gown inside out, fold or roll into a bundle, and dispose of it in the biowaste bin located inside the “dirty” area – remove outer gloves and discard them in the biowaste bin.
7. Spray your shoe covers and inner gloves with the bottle of disinfectant designated only for inner PPE (inner-glove bottle).
8. Once you have removed the outer layer of PPE used in the lab, do not enter the dirty area of the lab.
9. At this point, you should be wearing the following PPE: PAPR, Tyvek coveralls, 1 pair of booties, and the inner pair of gloves.
10. Exit to the BSL-3 corridor (2400).

11. The PPE worn in the BSL-3 corridor (2400) is the same as the PPE worn in the ABSL-3 corridor (2600), so you can exit the A/BSL-3 Facility from either corridor.

D. EXIT FROM THE ABSL-3 ROOMS TO THE ANTEROOM AND ABSL-3 CORRIDOR (2600) & PPE DOFFING

Inside the ABSL-3 rooms (between an animal holding room and the anteroom), in the absence of a demarcation line, the area closest to the door is considered clean and constitutes the doffing area. Follow doffing procedures in this order:

1. Untie the gown by breaking the tie string in the front of the gown and pull it away from the body so the Velcro closure in the back of the neck unfastens. Do not reach behind the gown with your outer gloves.
2. Turn the gown inside out, fold or roll into a bundle, and dispose of it in the biowaste bin located inside the “dirty” area.
3. Remove the outer shoe covers by stepping over the line of demarcation and discard them in the biowaste bin (*notice the difference with BSL-3 labs, where people only wear one pair of booties*).
4. Remove outer gloves and discard them into the biowaste bin.
5. Spray your inner gloves, PAPR, and inner booties with disinfectant using the bottle of disinfectant designated only for inner PPE (inner-glove bottle).
6. At this point, you should be wearing the following PPE: PAPR, Tyvek coveralls, 1 pair of booties, and the inner pair of gloves.
7. Exit to the ABSL-3 anteroom.
8. From the ABSL-3 anteroom: If exiting to the ABSL-3 corridor (2600): Spray your booties and inner gloves with the inner-glove bottle.
9. The PPE worn in the ABSL-3 corridor (2600) is the same as the PPE worn in the BSL-3 corridor (2400), so you can exit the A/BSL-3 Facility from either corridor.

E. EXIT FROM THE BSL-3 CORRIDOR (2400) or the ABSL-3 CORRIDOR (2600) TO THE LOCKER ROOM & PPE DOFFING

Follow Exit procedures in *SOP 1.0, A/BSL-3 Facility: Entry & Exit - Interim*. A demarcation line is present on the floor at the locker room doors in the BSL-3 corridor (2400) and ABSL-3 corridor (2600). The line separates the “dirty” space, or part of the corridor used for general traffic within the facility, from the “clean” space, or area designated for PPE doffing. Once you have removed your PPE, do not enter the “dirty” area.

1. Look from inside the lab (BSL-3) or anteroom (ABSL-3) to ensure that there isn't a lot of traffic in the hallway – one person should doff at a time, use social distancing to avoid crowding the doffing area.
2. Decontaminate PPE with an appropriate disinfectant (usually 70% ethanol or peroxigard) ensuring the appropriate contact time has been reached and/or remove it, discard disposable PPE in the biowaste container, and store PAPR in the locker room following the procedure described below:

Procedure

- i. PAPR storage bags should already be in the BSL-3 or ABSL-3 doffing area.
- ii. Before doffing, ensure that the stool is inside the clean area, near the biowaste container.
- iii. Remove Tyvek booties or shoe covers while stepping over the line of demarcation into the clean zone. Use the wall or stool for support, if necessary.
- iv. Dispose of Tyvek booties or shoe covers in the biowaste container.
- v. Spray inner gloves with 70% ethanol.
- vi. Remove PAPR unit belt from waist and hang on one of the hooks (wall hooks on BSL-3 and metallic rack hooks on ABSL-3) - make sure it is secure so it does not fall.
- vii. Leave hood on and attached to unit. **PAPR should be on.**
- viii. Disinfect PAPR hood and hose with disinfectant spray and/or wipes to the extent possible.
- ix. Disinfect PAPR unit, belt and battery with disinfectant spray and/or wipes - wiping aids in physical removal of contamination.
- x. Remove coveralls by carefully rolling down and discard it in the biowaste container.
- xi. Remove PAPR hood and hang it on another hook (wall hooks on BSL-3 or metallic rack hooks on ABSL-3).
- xii. Do a final disinfection of the hood and hose, especially in areas you may have missed or that were more difficult to reach, while you were still wearing the hood.
- xiii. **Turn PAPR off.** Disconnect the PAPR battery from the unit and place it on a safe location (rack under the stool on BSL-3 or metallic rack on ABSL-3).
- xiv. Put PAPR unit without the battery inside the bag.
- xv. Spray inner gloves and PAPR bag with disinfectant.
- xvi. Hang bag on the hook closest to the door.
- xvii. Remove and discard inner gloves.
- xviii. Wash hands with soap and water in the sink near the locker room entrance for at least 30 seconds.
- xix. Optional: If you want to wear gloves at this time → walk back to the glove dispenser and don new gloves (one or two sizes larger so it is easier to put them on).
- xx. Retrieve the bagged PAPR unit and battery and proceed to Locker Room A (BSL-3 side) or Locker Room B (ABSL-3 side).
- xxi. Hang PAPR bag into your cubby in Locker Room B and charge your battery.
- xxii. If wearing gloves: dispose of gloves in a biowaste container used only for gloves in the locker room.
- xxiii. When the biowaste container in the locker room is nearing full capacity, an A/BSL-3 user will

tie the biowaste bag and bring it into the A/BSL-3 Facility, discarding it into the PPE biowaste container.

Changing Clothes in Locker Room A

1. If using scrubs, change to personal clothes and store scrubs in designated location (For OACM staff: if soiled, place them in the designated soiled scrub bin).
2. Remove dedicated laboratory footwear and don street footwear.
3. Exit the facility following Exit procedures described in *SOP 1.0, A/BSL-3 Entry & Exit – Interim*.