

Guidance Document for Biological Spill Protocols

BACKGROUND

Laboratories at UW-Madison conducting research with biohazardous or potentially biohazardous materials, including pathogenic, infectious and recombinant materials, biological toxins, and human- or primate-source materials, need to be prepared in the event of a spill. Spills of these materials may occur anywhere these materials are handled. Laboratories should be prepared to immediately address these spills by training personnel in advance and by having appropriate spill-control materials and protocols in place. Information regarding spill control procedures should be displayed in laboratories and periodically reviewed with personnel. The UW-Madison Office of Biological Safety (OBS) is available for additional assistance and information at 263-2037 and biosafety@fpm.wisc.edu.

PURPOSE

These templates should be used by laboratory Principal Investigators (PI) and laboratory personnel to create customized biohazardous spill protocols. In addition, completed biohazardous spill protocols should be displayed in laboratories and periodically reviewed with personnel. Template 1: Spill NOT in a BSC with Evacuation should be used for spills that require exiting the room to allow aerosols to dissipate. Template 2: Spill NOT in a BSC should be used for spills that do not require exiting the room. Template 3: Spill in a BSC should be used for spills that occur within a certified biosafety cabinet.

[Template 1 – Not in BSC with Evacuation](#)

[Template 2 – Not in BSC no Evacuation](#)

[Template 3 – Spill in BSC](#)

INSTRUCTIONS FOR TEMPLATE 1: SPILL NOT IN A BSC WITH EVACUATION

Complete Header (Title)

- Enter your PI or laboratory name
- Enter the biological materials, room number, or other information that indicates when this spill protocol will be used.

Immediate Response

1. Stop all work. Alerting others can minimize spreading of the spill, reduce potential exposure to others, and opens opportunities for others to help.
2. A) Is medical attention needed? Think about the materials and agents handled in the lab. Consider the toxicity, infectious dose, route of exposure, and your immune status when deciding if medical attention is needed. People should be aware of the emergency response procedures as outlined in the approved Biosafety protocol.
B) In the event of emergency, do not hesitate to call 911 if necessary. Please be aware that when calling 911 from a VoIP or landline phone in most university-owned buildings the call will be answered by the dispatchers at the UW-Madison Police Department. A call to 911 from a cell phone will be answered by the Dane County 911 Center.
C) Be prepared to provide your location. Posting the street address, building name, and room number near the phone can be helpful in an emergency. For more information on preparing for an emergency, please see the UW-Madison Emergency Procedures Guide (<https://uwupd.wisc.edu/content/uploads/2016/09/EPFG-Final.pdf>).

3. PPE removal is crucial to prevent additional contamination and exposure. Your personal exposure is the primary concern. If personal clothing is also contaminated or potentially contaminated, it must be removed and placed in a biohazard container for decontamination. If clothing must be removed, having a change of clothes (e.g., scrubs) available in the laboratory is strongly encouraged. For more information regarding donning and doffing of PPE, please see the CDC website (<https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf>).
4. Complete drop down. The best practice is to wash hands, wrists, and forearms with soap and water. If your spill location does not have a sink, then hand sanitizer may be used initially with hand washing at nearest sink following evacuation of the room.
5. Signage for posting should be made and available. Signage to post the area as off-limits until potential aerosols have settled.



DANGER Biohazardous Spill - Keep Out (or Do Not Enter)

<https://go.wisc.edu/spill-stopsign-biological>

6. Evacuation may be necessary based on the material spilled. Labs need to think through and consider microbe/hazard, route of infection, concentration and volume, space considerations, and stopping people from walking through/past. Where to evacuate? Is there another location to evacuate to, that is not a public space or hallway? Evacuating into an adjacent laboratory is preferable if possible.
7. Showering may be necessary if clothing, lab coat, or skin was contaminated during the spill. This prevents absorption of spilled material on the skin surface and removes any residual contamination.

Clean Up

1. Complete drop down. Why wait before reentering the spill location? One of the reasons labs have directional airflow balanced negative with respect to hallways is to contain aerosols. Waiting allows particles to drop and allows air exchanges in the room. The time frame is dependent on particle sizes, air exchanges, and concentration in the air. Consideration should be made for spilled volume, concentration, transmission through inhalation, mucosal risk, substrates/other impacting factors for how long it may stay in the air, other reasons it may take longer to settle, updrafts in room, and other equipment in room that may affect air currents such as centrifuges, freezers, fume hoods, BSC, etc.
2. Complete drop down.
 - a. PPE is an essential part of a spill kit and should be prepared in advance. Below is a list of items that can be in your spill kit. PPE may vary depending on the biosafety level, route of infection of agents, etc., but minimally should include disposable gloves, eye protection, and laboratory coats or gowns. Suggested PPE list:
 - i. Disposable lab coats/Disposable gown, external sleeves
 - ii. Disposable gloves (e.g., latex, vinyl, or nitrile), few pairs, multiple sizes
 - iii. Disposable shoe covers (at least 4 pairs)
 - iv. Splash-resistant goggles (at least 2 pairs)
 - v. Face shield or respirator (if possibility of splashing or aerosolization exists)
3. Complete drop down.
 - a. Absorbent materials:

- i. Sufficient absorbent materials (e.g., absorbent pads, sock, or booms, high-absorbency paper towels, non-polymer based absorbent) should be available to absorb the maximum volume of biohazardous materials handled in the laboratory.
 - ii. Paper towels or other absorbent laboratory wipes are commonly utilized and spill-specific materials are available through laboratory supply companies.
 - iii. The Office of Biological Safety does not recommend polymer-based micro-encapsulation absorbents (e.g., BioSorb, Safetec EZ Clean Kit, etc.) for spill kits. If polymer-based micro-encapsulation absorbents will be used, inactivate biohazardous material using a germicidal disinfectant then apply product following appropriate disinfectant contact time.
 - b. Disinfectants:
 - i. Disinfectant(s) effective for the agent(s) used in the lab should be available.
 - ii. If dilutions are made in advance, fresh solutions should be prepared (and dated) on a specific schedule depending on the materials and manufacturer's instructions. Bleach solutions should be made fresh at least weekly.
4. Complete drop down. The same disinfectant used in step 3 should be used in step 4.
5. Complete drop down. Contact time is specific for the disinfectant, agent, and porosity/viscosity/ type of material spilled.
6. Tools are an essential part of a spill kit and should be prepared in advance. Below is a list of items that may need to be in your spill kit.
 - Brush with polypropylene bristles
 - Dust pan/scoop (preferably polypropylene)
 - Tweezers or forceps (for removing contaminated sharps)
 - Biohazard waste bags
 - Biohazard stickers
 - Tape or rubber bands for sealing biohazard waste bags
 - Disposable trash bags
 - Medical sharps container
 - Non-medical sharps container
7. Contaminated materials may be treated in several ways depending on whether they will be reused or discarded. Clear or orange biohazard bags are used for biological waste that will be autoclaved and then sent to the landfill. (Do not autoclave bleach.) Red biohazard bags may only be used with biological waste that will be disposed of through Madison Environmental Resourcing Inc. (MERI). Please note that orange or clear biohazard waste bags can also be used for biological waste going to MERI. Bleached materials can go directly into regular trash after meeting the necessary contact time since they are already disinfected, and bleach should not be autoclaved.
8. Complete drop downs. Decontamination of reusable items that will not be disposed of may need to be followed by washing with water.
9. Complete drop. Decontaminate contact surfaces/splash zone items such as lab bench, floor, clean up tools, outside of biohazard bags, and outside of containers that were touched such as the disinfectant bottle.

Wrap Up

1. Remove and disinfect PPE worn if contaminated. This includes removing and disposing of gloves. Inspect lab coat and other PPE for signs of contamination. The bottom of your lab coat may potentially be soiled if the spill was on was on floor, whereas front of coat may be

soiled if the spill was on the lab bench. What about sleeves? Did eyewear get splashed and need disinfection?

2. Complete drop down. The best practice is to wash hands with soap and water. If your spill location does not have a sink, then hand sanitizer may be used initially with hand washing at the nearest sink.
3. It is important to inform the PI right away.
4. The First Report of Biological Exposure or Release Event form is found on the UW-Madison Biosafety home page. (<https://ehs.wisc.edu/labs-research/biological-safety/>) Anyone can complete the report and it should be submitted within 24 hours of the incident.

Complete Prepared on date

INSTRUCTIONS FOR TEMPLATE 2: SPILL NOT IN A BSC NO EVACUATION

Complete Header (Title)

- Enter your PI or laboratory name
- Enter the biological materials, room number, or other information that indicates when this spill protocol will be used.

Immediate Response-

1. Stop all work. Alerting others can minimize spreading of the spill, reduce potential exposure to others, and opens opportunities for others to help.
2. A) Is medical attention needed? Think about the materials and agents handled in the lab. Consider the toxicity, infectious dose, route of exposure, and your immune status when deciding if medical attention is needed. People should be aware of the emergency response procedures as outlined in the approved Biosafety protocol.
B) In the event of emergency, do not hesitate to call 911 if necessary. Please be aware that when calling 911 from a VoIP or landline phone in most university-owned buildings the call will be answered by the dispatchers at the UW-Madison Police Department, however a call to 911 from a cell phone will be answered by the Dane County 911 Center.
C) Be prepared to provide your location. Posting the street address, building name, and room number near the phone can be helpful in an emergency. For more information on preparing for an emergency, please see the UW-Madison Emergency Procedures Guide (<https://uwupd.wisc.edu/content/uploads/2016/09/EPFG-Final.pdf>).
1. PPE removal is crucial to prevent additional contamination and exposure. Your personal exposure is the primary concern. If personal clothing is also contaminated or potentially contaminated, it must be removed and placed in a biohazard container for decontamination. If clothing must be removed, having a change of clothes (e.g., scrubs) available in the laboratory is strongly encouraged. For more information regarding donning and doffing of PPE, please see the CDC website (<https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf>). Showering may be necessary if clothing, lab coat, or skin was contaminated during the spill. This prevents absorption of spilled material on the skin surface and removes any residual contamination
3. Complete drop down. The best practice is to wash hands, wrists, and forearms with soap and water. If your spill location does not have a sink, then hand sanitizer may be used initially with hand washing at nearest sink following leaving of the room.

Clean Up

1. Complete drop down.

- a. PPE is an essential part of a spill kit and should be prepared in advance. Below is a list of items that can be in your spill kit. PPE may vary depending on the biosafety level, route of infection of agents, etc., but minimally should include disposable gloves, eye protection, and laboratory coats or gowns. Suggested PPE list:
 - i. Disposable lab coats/Disposable gown, extra external sleeves
 - ii. Disposable gloves (e.g., latex, vinyl, or nitrile), few pairs, multiple sizes
 - iii. Disposable shoe covers (at least 4 pairs)
 - iv. Splash-resistant goggles (at least 2 pairs)
 - v. Face shield or respirator (if possibility of splashing or aerosolization exists)
2. Complete drop down.
 - a. Absorbent materials:
 - i. Sufficient absorbent materials (e.g., absorbent pads, sock, or booms, high-absorbency paper towels, non-polymer based absorbent) should be available to absorb the maximum volume of biohazardous materials handled in the laboratory.
 - ii. Paper towels or other absorbent laboratory wipes are commonly utilized, and spill-specific materials are available through laboratory supply companies.
 - iii. The Office of Biological Safety does not recommend polymer-based micro-encapsulation absorbents (e.g., BioSorb, Safetec EZ Clean Kit, etc.) for spill kits. If polymer-based micro-encapsulation absorbents will be used, inactivate biohazardous material using a germicidal disinfectant then apply product following appropriate disinfectant contact time.
 - b. Disinfectants:
 - i. Disinfectant(s) effective for the agent(s) used in the lab should be available.
 - ii. If dilutions are made in advance, fresh solutions should be prepared (and dated) on a specific schedule depending on the materials and manufacturer's instructions. Bleach solutions should be made fresh at least weekly.
3. Complete drop down. The same disinfectant used in step 2 should be used in step 3.
4. Complete drop down. Contact time is specific for the disinfectant, agent, and porosity/viscosity/ type of material spilled.
5. Tools are an essential part of a spill kit and should be prepared in advance. Below is a list of items that may need to be in your spill kit.
 - Brush with polypropylene bristles
 - Dust pan/scoop (preferably polypropylene)
 - Tweezers or forceps (for removing contaminated sharps)
 - Biohazard waste bags
 - Biohazard stickers
 - Tape or rubber bands for sealing biohazard waste bags
 - Disposable trash bags
 - Medical sharps container
 - Non-medical sharps container
6. Contaminated materials may be treated in several ways depending on whether they will be reused or discarded. Clear or orange biohazard bags are used for biological waste that will be autoclaved and then sent to the landfill. (Do not autoclave bleach.) Red biohazard bags may only be used with biological waste that will be disposed of through Madison Environmental Resourcing Inc. (MERI). Please note that orange or clear biohazard waste bags can also be used for biological waste going to MERI. Bleached materials can go directly into regular trash

after meeting the necessary contact time since they are already disinfected, and bleach should not be autoclaved.

7. Complete drop downs. Decontamination of reusable items that will not be disposed of may need to be followed by washing with water.
8. Complete drop down. Decontaminate contact surfaces/ splash zone items such as lab bench, floor, clean up tools, outside of biohazard bags, and outside of containers that were touched such as the disinfectant bottle.

Wrap Up

1. Remove and disinfect PPE worn if contaminated. This includes removing and disposing of gloves. Inspect lab coat and other PPE for signs of contamination. The bottom of your lab coat may potentially be soiled if spill was on floor, whereas front of coat may be soiled if spill was on lab bench. What about sleeves? Did eyewear get splashed and need disinfection?
2. Complete drop down. The best practice is to wash hands with soap and water. If your spill location does not have a sink, then hand sanitizer may be used initially with hand washing at nearest sink.
3. It is important to inform the PI right away.
4. The First Report of Biological Exposure or Release Event form is found on the UW-Madison Biosafety home page. (<https://ehs.wisc.edu/labs-research/biological-safety/>) Anyone can complete the report and it should be submitted within 24 hours of the incident.

Complete Prepared on date

INSTRUCTIONS FOR TEMPLATE 3: SPILL IN A BSC

Complete Header (Title)

- Enter your PI or laboratory name
- Enter the biological materials, room number, or other information that indicates when this spill protocol will be used.

Immediate Response

1. Stop work and **Leave the blower ON** in order to maintain containment. Consider alerting others. Alerting others can minimize spreading of the spill, reduce potential exposure to others, and opens opportunities for others to help.
2. A) Is medical attention needed? Think about the materials and agents handled in the lab. Consider the toxicity, infectious dose, route of exposure, and your immune status when deciding if medical attention is needed. People should be aware of the emergency response procedures as outlined in the approved Biosafety protocol.
B) In the event of emergency, do not hesitate to call 911 if necessary. Please be aware that when calling 911 from a VoIP or landline phone in most university-owned buildings the call will be answered by the dispatchers at the UW-Madison Police Department, however a call to 911 from a cell phone will be answered by the Dane County 911 Center.
C) Be prepared to provide your location. Posting the street address, building name, and room number near the phone can be helpful in an emergency. For more information on preparing for an emergency, please see the UW-Madison Emergency Procedures Guide (<https://uwpd.wisc.edu/content/uploads/2016/09/EPFG-Final.pdf>).
3. PPE removal is crucial to prevent additional contamination and exposure. Your personal exposure is the primary concern. If personal clothing is also contaminated or potentially contaminated, it must be removed and placed in a biohazard container for decontamination.

If clothing must be removed, having another set (e.g., scrubs) available in the laboratory is strongly encouraged. For more information regarding donning and doffing of PPE, please see the CDC website (<https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf>).

4. Complete drop down. The best practice is to wash hands, wrists and forearms with soap and water. If your spill location does not have a sink, then hand sanitizer may be used initially with hand washing at nearest sink following leaving of the room.

Clean Up

1. Complete drop down.

- a. PPE is an essential part of a spill kit and should be prepared in advance. Below is a list of items that can be in your spill kit. PPE may vary depending on the biosafety level, route of infection of agents, etc., but minimally should include disposable gloves, eye protection, and laboratory coats or gowns. Suggested list:

- i. Disposable lab coats/Disposable gown, extra external sleeves
- ii. Disposable gloves (e.g., latex, vinyl, or nitrile), few pairs, multiple sizes
- iii. Disposable shoe covers (at least 4 pairs)
- iv. Splash-resistant goggles (at least 2 pairs)
- v. Face shield or respirator (if possibility of splashing or aerosolization exists)



2. Confirm drain valve is closed.

3. Complete drop down.

- a. Absorbent materials:

- i. Sufficient absorbent materials (e.g., absorbent pads, sock, or booms, high-absorbency paper towels, non-polymer based absorbent) should be available to absorb the maximum volume of biohazardous materials handled in the laboratory.
- ii. Paper towels or other absorbent laboratory wipes are commonly utilized, and spill-specific materials are available through laboratory supply companies.
- iii. The Office of Biological Safety does not recommend polymer-based micro-encapsulation absorbents (e.g., BioSorb, Safetec EZ Clean Kit, etc.) for spill kits. If polymer-based micro-encapsulation absorbents will be used, inactivate biohazardous material using a germicidal disinfectant then apply product following appropriate disinfectant contact time.

- b. Disinfectants:

- i. Disinfectant(s) effective for the agent(s) used in the lab should be available.
- ii. If dilutions are made in advance, fresh solutions should be prepared (and dated) on a specific schedule depending on the materials and manufacturer's instructions. Bleach solutions should be made fresh at least weekly.

4. Complete drop down. The same disinfectant used in step 3 should be used in step 4.

5. Complete drop down. Flood drain pan through the front grill with the same disinfectant used in steps 3 and 4.

6. Complete drop down. Contact time is specific for the disinfectant, agent, and porosity/viscosity/ type of material spilled.

7. Tools are an essential part of a spill kit and should be prepared in advance. Below is a list of items that may be in your spill kit.

- Brush with polypropylene bristles

- Dust pan/scoop (preferably polypropylene)
 - Tweezers or forceps (for removing contaminated sharps)
 - Biohazard waste bags
 - Biohazard stickers
 - Tape or rubber bands for sealing biohazard waste bags
 - Disposable trash bags
 - Medical sharps container
 - Non-medical sharps container
8. Contaminated materials may be treated in several ways depending on whether they will be reused or discarded. Clear or orange biohazard bags are used for biological waste that will be autoclaved and then sent to the landfill. (Do not autoclave bleach.) Red biohazard bags may only be used with biological waste that will be disposed of through Madison Environmental Resourcing Inc. (MERI). Please note that orange or clear biohazard waste bags can also be used for biological waste going to MERI. Bleached materials can go directly into regular trash after meeting the necessary contact time since they are already disinfected, and bleach should not be autoclaved.
 9. Complete drop downs. Clean beneath work surface thoroughly. If bleach or other corrosive disinfectant is used, wipe down thoroughly with 70% ethanol or water.
 10. Complete drop downs. Decontamination of reusable items that will not be disposed of may need to be followed by washing with water.
 11. Complete drop down. Decontaminate contact surfaces/splash zone items such as lab bench, floor, clean up tools, outside of biohazard bags, and outside of containers that were touched such as the disinfectant bottle
 12. Complete drop down. If bleach or other corrosive disinfectant was used, wipe down thoroughly with 70% ethanol or water.

Wrap Up

1. Remove and disinfect PPE worn if contaminated. This includes removing and disposing of gloves. Inspect lab coat and other PPE for signs of contamination. The bottom of your lab coat may potentially be soiled if the spill was on floor, whereas front of coat may be soiled if the spill was on the lab bench. What about sleeves? Did eyewear get splashed and need disinfection?
2. Complete drop down. The best practice is to wash hands, wrists, and forearms with soap and water. If your spill location does not have a sink, then hand sanitizer may be used initially with hand washing at nearest sink.
3. The First Report of Biological Exposure or Release Event form is found on the UW-Madison Biosafety home page. (<https://ehs.wisc.edu/labs-research/biological-safety/>) Anyone can complete the report and it should be submitted within 24 hours of the incident.

Complete Prepared on date