

Laboratory Guidance to Prevent the Spread of COVID-19

This guidance is provided to assist lab personnel with preparations for bringing their research laboratories back online after a temporary shutdown and for implementing procedures for the safe continuity of teaching and research activities to prevent the spread of COVID-19. Please contact Safety and Risk Management (SRM) with any questions or concerns related to the information provided.

Questions to Consider:

1. How can we prepare for the full return of classes and laboratories while maintaining social distancing and other CDC guidelines to prevent the spread of COVID-19?
2. What lessons did we learn from the last laboratory shutdown and how can we improve the process if operations are suspended again?

Laboratory Resumption Checklist

1. Initial Re-Entry into the Laboratory

It is recommended to do a preliminary inspection of the laboratory as soon as possible when campus operations resume. It is important to check that supplies are intact and equipment is functioning properly so any problems can be addressed well before classes and research activities begin.

Use caution when entering the laboratory for the first time after the shutdown. Think about any potential hazards in the space (escaped gas, time-sensitive chemicals, etc.) and listen for audible alarms? Plan ahead, what will you do if there is a problem in the area?

If you discover a hazardous condition that poses a threat to yourself or to others, isolate the hazard (i.e. stop the leak if safe to do so, and close the lab door), notify other occupants, activate the alarm if needed, and exit the building. Contact Safety & Risk Management to clean up any spills that cannot be easily handled by laboratory personnel.

Contact Numbers	
Campus Police Emergency	828-227-8911
Campus Police Non-Emergency	828-227-7301
Safety & Risk Management	828-227-7443 (M-F 8am-5pm)
Facilities Management	828-227-7442

If the area appears safe to continue, then conduct a thorough inspection to check for broken or leaking chemical containers, old waste, refrigerator/freezer functionality, and equipment failure, as outlined below.

2. Resuming Laboratory Operations

Equipment Functionality	
	Review start-up procedures for energized equipment, compressed gas cylinders, and/or gas distribution systems. Start-up the equipment to ensure it is functioning properly and monitor the area. If equipment damage has occurred due to the closure, please contact Safety and Risk Management (SRM) within 24 hours of discovering the loss.
	Conduct leak testing for gas distribution systems.
	Confirm chemical fume hoods, local ventilation systems, and biosafety cabinets are operating properly. Do not use the equipment if it isn't functioning and contact SRM.
	Check laboratory utilities (i.e. gas, vacuum, air lines) to ensure functionality.
	Flush eyewash station to remove sediment and stagnant water and document on inspection log. Report any problems to SRM. SRM will flush the safety showers.
	Pour water down dry traps/floor drains to mitigate sewer gas smells that are often confused with natural gas leaks. Flush the sinks with running water and check for leaks.
Chemical Safety	
	Conduct a hazardous material inventory to ensure no loss of material.
	Check chemical containers to ensure they are intact, securely closed, and properly labeled.
	Carefully inspect time-sensitive chemicals that may have become unstable during the shut-down (i.e. peroxide formers) and manage accordingly. Do not touch any containers that appear to be bulging or damaged in any way. Contact Safety and Risk Management for disposal.
	Put away any chemicals left out during the shutdown.
	Check for expired supplies and dispose of accordingly.
Biological Safety	
	Conduct a biological agent inventory to ensure no loss of material.
	Dispose of full sharps containers and autoclave any biological waste.
	Manage any regulated medical waste appropriately.
Cleaning & Disinfection	
	Clean up and put away any chemicals, glassware, supplies, equipment, and other items left out during the shutdown.
	Benchtops and other surfaces must be kept uncluttered and organized to ensure proper cleaning and disinfecting procedures are in place. Minimize the amount of glassware in use, remove trash, and keep areas clear.
	Determine an appropriate cleaning protocol to disinfect surfaces and high-touch areas regularly (benchtops, equipment, door handles, etc.).
	Apply an EPA approved disinfectant for use against SARS-CoV-2 and follow manufacturer directions for use and contact time to effectively kill the virus.
	Identify areas that are not cleaned by housekeeping staff and establish cleaning procedures and responsibilities accordingly. The campus sanitization plan and information for cleaning protocols is available on the WCU Operations and Procedures Cleaning and PPE website.

Cleaning & Disinfection Continued	
	Establish disinfecting procedures for shared laboratories and equipment. Maintain a supply of sanitizing wipes/sprays to disinfect equipment before and after use.
	Establish a system for tracking when decontamination has been completed (i.e. use a checklist to sign/date or a signage system to post on equipment when sanitized).
	Ensure there is an adequate supply of soap and paper towels for handwashing in all laboratory areas.
	Please review the guidance for safe Cleaning and Disinfection available on the Safety and Risk Management COVID-19 Health and Safety Resources website.
General Considerations	
	Establish a working schedule to ensure social distancing (minimum 6 feet) can be maintained when working in the laboratory. As always, avoid working alone with hazardous materials and equipment.
	Employ good hygiene practices (i.e. frequent hand washing), wearing appropriate personal protective equipment (PPE), and face coverings when required.
	Establish procedures for entering and exiting the lab (i.e. handwashing, wearing face covering, removing PPE, etc.).
	Expect delays with purchasing supplies and plan accordingly.
	Consider ways to mitigate congestion in the hallways when students are between classes. If possible, adjust meeting times, or implement directional flow of foot traffic.
	Consider shared spaces such as break rooms, food prep areas, computer work stations and schedule usage when possible.
	Employ a sign-in/out activity log to document laboratory usage (i.e. class attendance or working shifts). This will be used for contact tracing should an individual test positive for COVID-19.
	An SOP Template: Resuming Research Laboratory Operations is available on the Laboratory Safety webpage to assist you in developing and documenting laboratory procedures to prevent the spread of COVID-19. Laboratory personnel should review and sign the SOP to attest that they understand the procedures in place.
Shared Equipment	
	Establish a schedule for entering a shared equipment space (i.e. instrument lab) to maintain social distancing.
	Establish a reservation system for shared equipment.
	Ensure cleaning and disinfecting procedures are being followed for shared equipment.
Personal Protective Equipment (PPE)	
	Assess stock of PPE (disposable gloves, masks, safety glasses, lab coats, etc.) and ensure there is an adequate supply for each person working in the laboratory.
	Do NOT share PPE. There should be an adequate supply so all personnel can have their own lab coat (if required), safety glasses, reusable gloves, etc. If sharing PPE is the only option (i.e. welding face shields), ensure there is a supply of sanitizing wipes to properly disinfect the items before and after use.
	Consider any PPE that may be incompatible with disinfectants (i.e. laser safety eyewear) and follow manufacturer recommendations for care and maintenance.

Personal Protective Equipment (PPE) Continued	
	Ensure proper hand washing before and after use of reusable gloves (i.e. cryogen-handling or autoclave gloves).
	Designate a space in the lab for the proper storage of PPE to ensure that it is separated for each person and kept clean. Use labeled Ziploc bags or containers to keep it free of contamination. Sanitizing wipes should be available for cleaning reusable PPE.
	Ensure that personnel are trained on how to properly put on and remove PPE to prevent contamination spread.
	Do not plan to start work for which you no longer have an adequate supply of required PPE.
	Review the training materials for selecting, donning, and doffing PPE available on the Safety and Risk Management COVID-19 Health and Safety Resources website.
Face Coverings in the Laboratory	
	Follow the Catamounts Care Community Standards . Per University policy, face coverings are required in all classrooms and instructional spaces (labs, simulation rooms, studios, etc). Masks are not required if doing so is contrary to the wearer’s health and safety due to an approved medical condition (contact Safety & Risk Management to determine if alternative protections can be provided).
	A face covering is not a substitute for social distancing, but rather an additional measure to reduce the spread of COVID-19. Maintain social distancing and frequently wash hands when wearing a face covering.
	Laboratory areas all differ in operations, so the supervisor must assess the work tasks involved and the potential for chemical or biological contamination while working in the space. Laboratories with the potential for biological or chemical contamination (i.e. chemistry lab using volatile chemicals, microbiology lab, etc.) should use disposable face masks (i.e. surgical type masks) and remove them, and any additional PPE, before exiting the laboratory to prevent the spread of contamination from the lab activity to outside areas. Use another clean face covering for areas outside the lab. Labs with no risk for contamination (do not handle chemicals or biological materials) may use reusable cloth face coverings inside and outside the laboratory.
	The laboratory procedure or task to be performed must be evaluated by the supervisor (PI, Teaching Lab Coordinator, etc.) to ensure that wearing a mask does not pose an additional risk. If a mask cannot be used, then the work task must be evaluated, modified if possible, and social distancing maintained.
	It is imperative to stress best lab practices and ensure the use of engineering controls (i.e. fume hoods, local ventilation, biosafety cabinets) and administrative controls (i.e. proper training) to prevent chemical vapors or other contaminants from escaping into the room. When best practices are followed, the potential for hazardous exposure is eliminated or reduced to a safe level. If there is a concern about the masks absorbing chemicals, then it is important to ask the question of why chemicals are present in the breathing zone in the first place and adjust work practices accordingly.
	Ensure safe chemical management. Keep all chemical containers closed. Work in a fume hood when handling volatile chemicals. Use shielding when handling reactive or highly flammable chemicals in a fume hood.
	Always work in a Biosafety Cabinet (BSC) when handling infectious agents.
	Always wash hands before and after removing the face covering.

Face Coverings in the Laboratory Continued	
	It is recommended to use masks made of natural fibers (i.e. cotton) and avoid synthetics in a lab, especially in a location where flammable solvents are used/stored. Consider a material similar to what is used for a lab coat. If the lab situation already warrants use of a flame-resistant lab coat, then a similar mask material shouldn't pose an additional hazard.
	Ensure an adequate supply of masks so they can be changed if they do become contaminated inside the lab.
	Store reusable lab-use masks inside the lab in a clean area and labeled for each person's use. Masks may be moist after use, so avoid sealing the storage container to allow air to circulate.
	<p>Eyewear Fog When Using a Face Covering</p> <p>To prevent the eyewear from fogging up when wearing a face covering, try the following:</p> <ul style="list-style-type: none"> • Improve the fit of the mask by bending the metal strip to your nose and cheeks or adjust the straps for a tighter seal. • Tape the mask across the bridge of your nose and across your cheeks. You can use any type of athletic, or medical adhesive tape. • Use a commercial anti-fog solution or wipe for the eyewear (i.e. Fisher Scientific Cat# 19-047-208 or Cat# 19-041-637).
	Review guidance for N95 respirators, face masks, and face coverings on the Safety and Risk Management COVID-19 Health and Safety Resources website.

3. Laboratory Shutdown Procedure

In the event that campus operations are reduced, please consider the following guidelines to ensure safety and security during the suspension of laboratory operations:

Laboratory Shutdown Checklist	
	Develop a list of laboratories that will remain operational and include the personnel who will still be working onsite. Identify the responsible person for the lab and a backup person if that individual is unavailable.
	Establish a schedule for personnel working onsite. Ensure no one is working alone with hazardous equipment or materials. Employ a check-in, check-out procedure.
	Develop a list of laboratories that will be shut down completely and include any areas that will need periodic inspection (i.e. check refrigerator/freezer).
	Shut down equipment that is safe to do so.
	Remove chemicals and supplies from the chemical fume hood, turn off the light, and close sash.
	Identify any equipment that remains operational and requires periodic inspection or preventative maintenance during the closure.
	Put away chemicals, glassware, supplies, and equipment. Clean the benchtops and other surfaces.
	Check chemical storage areas to ensure bottles are intact, sealed, and labeled. Identify time-sensitive chemicals and send for disposal if expiration date is approaching.
	Send chemical waste bottles for disposal. Autoclave biological waste & dispose of appropriately.
	Dispose of trash and full sharps containers.
	Ensure utilities are turned off (gas, vacuum, air lines) and check faucets for leaks.

Laboratory Shutdown Checklist Continued

	Cancel any orders for non-essential supplies.
	Secure the lab, close windows, and lock the door(s).

Resource Websites:

- Safety and Risk Management [COVID-19 Health and Safety Resources](#)
- Safety and Risk Management [Laboratory Safety Program](#)
- WCU Campus [COVID-19 Operations and Procedures](#)