



Laboratory Safety Guidance in Preparation for a Scheduled Power Shutdown

Laboratory Equipment and Operations

Turn off sensitive equipment prior to the shutdown to prevent potential damage in the event of a power surge and/or ensure power surge protection is in place on sensitive equipment. Turn off and unplug other electrical equipment such as stirrers; hot plates; shaker tables; ovens; tube furnaces; heating mantles, tapes, or baths; autoclaves; etc. These items could create hazards or damage the equipment when normal power is restored. If possible, shut down water to equipment with water connections, such as MilliQ dispensers, or confirm that tubing connections remain tight and secure.

Chemicals

Ensure that all chemical containers are secure, closed, and stored properly.

Glove Boxes

Verify that gloveboxes are on emergency backup power (generally a red receptacle). Check caps on chemical containers, especially pyrophoric or water-reactive chemicals and anhydrous solvents, to ensure they are tightly sealed. If not on emergency power, make arrangements for an extension cord to be plugged into an emergency backup power outlet.

Fume Hoods

Shut down and unplug any equipment such as stirrer/hot plates, chillers, vacuum pumps, etc. Replace open radioactive/chemical container lids and then close the sash to contain any possible airborne contaminants. Fume hood sashes may need to remain open a couple of inches if the fume hood has significantly higher face velocity when the sash is closed.

Biosafety Cabinets (BSC)

Secure and discontinue operations: ensure that any work left in the BSC is put into a "safe" mode, i.e., (1) can't pose a risk to people if the BSC has no power or exhaust, and (2) won't be ruined (e.g., contaminated) by possible excessive outside air coming into the BSC. The BSC should be left with the internal blower ON, especially if there is work left inside the BSC. Leaving it ON also will help EHS identify (and hopefully confirm) that the BSC is on standby power and will continue running as it is supposed to when normal power is disrupted.

Refrigerators and Freezers

Verify that refrigerators/freezers are on emergency backup power (generally a red receptacle) or make arrangements for an extension cord to provide backup power. If necessary, take extra steps to ensure temperature-sensitive chemicals and biological samples (especially Risk Group 2 materials) remain cold, such as consolidating or relocating materials. Place absorbent material on floors beneath refrigerators/freezers to absorb any liquid from defrosting.



If you have questions or need assistance, contact your EHS Division [Health & Safety Representative](#)

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Radiation and Radiological Materials Work

If working with a radiation generating device, turn off or disconnect power to the device. If working with dispersible material, re-cap or re-containerize. If working with material or devices capable of producing high level of radiation, put material back in its shielded containment or storage.

Toxic and Flammable Gases

In Fume Hoods: If the gas flow control system does not have automatic shutdown, manually shut off the gas cylinders (following any specific WPC activity procedures for shut down) and close the fume hood sash. Fume hood sashes may need to remain open a couple of inches if the fume hood has significantly higher face velocity when the sash is closed.

In Gas Cabinets: If the gas flow control system does not have automatic shutdown, manually shut off the gas cylinders (following any specific WPC activity procedures for shut down). Ensure the gas cabinet door(s) and window(s) are closed.

Pressurized Systems

Secure the pressure source and reduce the system pressure to the extent possible. If working with a toxic or flammable gas that vents to a fume hood or other local exhaust ventilation system, leave the pressure system in static mode and ensure that it will not exceed the maximum operating pressure limit due to failure of an electronic controller.

Laser Operations

Turn off laser systems to avoid a hazardous situation when power is restored

Roughing Pumps

Check any oil-based roughing pumps to confirm that isolation valves are in place; pumps that do not have such valves could back-flow oil into the pumped apparatus during a power failure.

Cryogenics

During power outages, ventilation will be significantly reduced in laboratory areas and will make handling of cryogenic liquids indoors unsafe. Before any planned power outage, empty all open Dewar flasks and make sure that no cryogenic-liquid-cooled vacuum traps are in use. If possible, empty any low-pressure transfer or storage Dewars, or chain them up outdoors. If you have critical operations (e.g., filling detectors, checking NMRs) that must take place during a prolonged power outage, contact EHS in advance (if possible) to plan how to conduct work safely, e.g., with escort, air monitoring, etc. Entry into areas with large quantities of cryogenic liquid storage must be coordinated with EHS upon resumption of power to confirm adequate ventilation.



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