



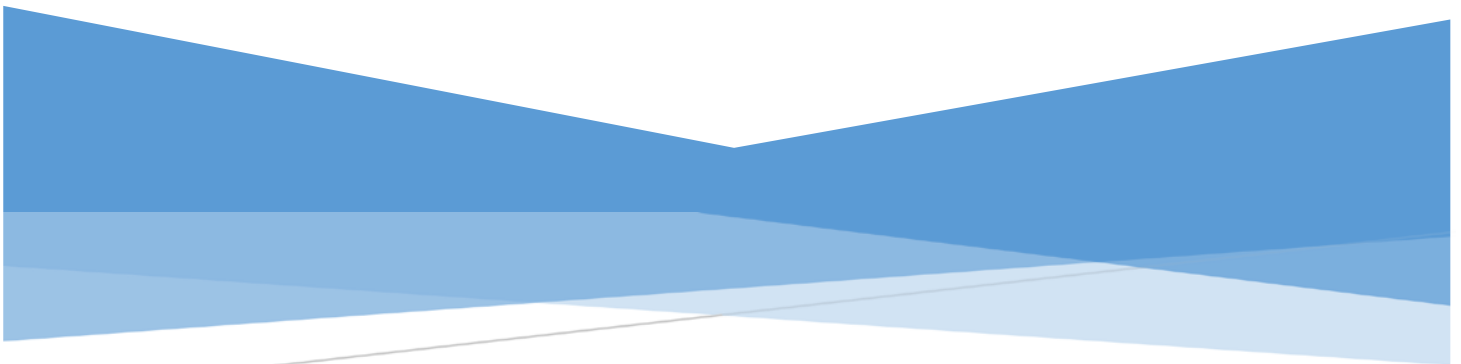
UNIVERSITY OF
TORONTO

Lash Miller Laboratories St. George Campus

**Emergency
Preparedness
Plan Guide**

Laboratory of: ...

Room #: ...





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Lash Miller Laboratories St. George Campus

Overview

⇒ The University of Toronto encourages appropriate emergency response to maintain safety of students, staff, visitors, and university property within the campusbuilding. Each laboratory in the Department of Chemistry is responsible for developing their individual emergency response plan. There may be some labs with specific procedures not outlined in this document.

Purpose

⇒ The Emergency Preparedness Plan developed for Lash Miller Laboratories at the University of Toronto is designed to provide a guideline when developing laboratory-specific emergency response procedures and to provide information for preparing, preventing and responding to emergencies.





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General Information

- ⇒ In the case of an outage, the emergency power feeds the emergency lighting, fire pumps, elevators, some auxiliary heating, cooling, and domestic water systems, sump pumps, and fume hood exhaust systems.
 - Emergency panel RP-2E4 (room 456), has limited capacity to serve faculty equipment including the cold room in DB352 and a -80°C freezer room LM439.
- ⇒ The labs DO NOT have emergency power. Have a plan to protect sensitive equipment from power surge (when the power returns after a blackout). Connect equipment to plugs via power-surge protectors. Alternatively, if a loss of power, un-plug all sensitive equipment.
- ⇒ For additional emergencies such as floods, leaks, etc. consider that power loss may be a secondary consequence. Identify materials that could be damaged and develop an emergency response plan for them.
- ⇒ In a catastrophic event, the fuel running the buildings generators will diminish. Consider contacting a colleague to ask about availability in a secondary location (i.e., freezer space) as it is the only method to ensure safe long-term storage of critical material.
- ⇒ Identify your emergency responders. These should be senior people that can readily respond and are fully trained in lab-specific hazards and associated safety precautions. Use Appendix A to identify your responder and make this information available to lab members and the DOTS (grace.flock@utoronot.ca)
- ⇒ When developing the lab-specific emergency preparedness plan, think on all those items (equipment, samples, etc.) that, if lost, they will have a catastrophic consequence for your research
- ⇒ **As part of your lab-specific emergency response plan; ensure to complete a full inventory of critical equipment for the lab. (Appendix B)**
- ⇒ **Post on every fridge and or freezer the emergency contacts. (Appendix C)**
- ⇒ **Develop special instructions for each “critical” equipment identified in your inventory. (Use Appendix D)**



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Emergency Preparation

- ⇒ Be aware of the emergency response plan, and locations of fire pull alarms, extinguishers, and first aid kits.
- ⇒ List at least two individuals as 24-hour emergency contacts, review information quarterly to guarantee up-to-date data. Use Appendix A. Provide contact information to the DOTS.
- ⇒ Post contact information on refrigerators, freezers, and any other important or frequently used equipment (Appendix C)
- ⇒ Each lab must identify the critical equipment that will need an emergency plan developed and create an inventory (i.e., HPLC, GC, Freezer, Fridge, Incubator, Glove Box, etc.)
- ⇒ Conduct a risk assessment (based on probability of an event to take place and the consequence if the event takes place). Ask yourself:

Is it ...

- Inexpensive, easy to acquire?
 - Expensive, easy to acquire?
 - Expensive, hard to acquire and/or irreplaceable?
- ⇒ Approximate a time frame for materials that can last untouched during a power outage, then act accordingly based on the prioritized response time.
 - ⇒ Ensure critical computer systems are backed up, and list equipment that, in the event of power loss, must be restarted following a particular sequence to properly function again. **Keep instructions close to equipment.**
 - ⇒ Assign lab personnel to come to the lab on a 24-hour basis to follow lab specific response actions, being aware of vacation time.
 - ⇒ Ensure inventory freezers, refrigerators, and other equipment. Be aware of equipment that depends upon other utilities (i.e., some freezers have CO₂ feeds, incubators require CO₂). Contact the DOTS, Grace Flock if uncertain.
 - ⇒ Know the LM-Emergency Response, Fire Response, First Aid, Spill Response SOPs



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Lash Miller Laboratories St. George Campus

During the Emergency (i.e.; power loss, flood, HVAC failure, etc.)

- ⇒ The priority is to protect life safety, take required actions.
- ⇒ Lab work is strictly prohibited if hazardous conditions occur. Immediately stop experiments with hazardous material, and confirm they will not create uncontrolled dangers.
- ⇒ Ensure to check fume hoods, close sashes and discontinuing experiments that emit hazardous fumes, vapor, or infectious material. Close chemicals and put them away, and cap open containers.
- ⇒ DO NOT open freezers and refrigerators unless vital
- ⇒ If fume hood alarm goes off, post a sign omitting the use and report immediately to the DOTS.
- ⇒ Contain hazardous materials that can be released and ensure the emergency response does not harmfully impact the environment.
- ⇒ Unplug all unnecessary equipment, such as computers, printers, and other devices with sensitive circuitry. This reduces risks of damage when power returns. Ensure to follow instructions on equipment and consider the order in which to unplug all devices. Be aware of devices that act both as stirrers and as heating sources and ENSURE the latter is turned off.
- ⇒ If HVAC affects fume hood operation, stop working with all hazardous materials that require fume hoods. Close sash and post sign as per Fume Hood use SOP.
- ⇒ Refrain from using dry ice to supplement freezers. DO NOT use dry ice in small enclosed spaces (example: cold rooms), since hazardous concentrations of carbon dioxide may accumulate.
- ⇒ Consider to store cell-stocks in “cryovials” (not in Eppendorf tubes) that could easily be transferred to liquid nitrogen dewars during loss of power. Ultra freezer (-80° C) CO₂ keep freezer at (-62° C).



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Lash Miller Laboratories St. George Campus

After the Emergency

- ⇒ Ensure to check all equipment and restart or reprogram as necessary.
- ⇒ Check fume hoods and biosafety cabinets for air flow, permit 5 mins of continuous operation prior to opening sash.
 - Report issues with equipment to DOTS, Grace Flock
 - If equipment outside the building functions incorrectly, contact manufacturer
- ⇒ If there are any hazardous results, contact the DOTS, Grace Flock
- ⇒ Omit usage of fume hoods until repairs are made
- ⇒ Review lab emergency plan to evaluate any corrective actions.

Appendices

Appendix A – Lab-Emergency Responders

Appendix B – Critical Inventory Form

Appendix C – Lab Freezer/ Fridge Emergency Contact & Response Post

Appendix D – Equipment Specific Instructions



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Appendix A: LAB EMERGENCY RESPONDERS

Dr

A) LABORATORY INFORMATION

Location of

Pod color:

Room #:

B) CONTACT INFORMATION

Primary Contact (PI):

Name:

Email:

Phone (cell):

Emergency Responder 1:

Name:

Email:

Phone (cell):

Emergency Responder 2:

Name:

Email:

Phone (cell):

PRINT FORM AS NEEDED



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Lash Miller Laboratories St. George Campus

Appendix B: CRITICAL INVENTORY FORM

| EQUIPMENT (be specific) Name, bar code & location | UTILITIES & CONSUMABLES REQUIRED (i.e., power, chilled water, steam, CO ₂ , Liq N ₂ , etc.) | EMERGENCY RESPONSE PROCEDURE (i.e., describe sequence of steps that must be followed during and post emergency) |
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NOTE: To prepare this inventory do a walk through of your lab and identify all items that your lab cannot leave without. Develop the emergency response plan for those identified items.

APPENDIX C



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Equipment Barcode Number (FRZ, REF, ULT, CRY #):

Equipment belongs to:

Freezer/Fridge Room #: _____ (add # and description of location)

Temperature Set Point: _____ ° C or (modify as needed)

Alarm Set Point: _____ ° C & _____ ° C or (modify as appropriated)

CO2 triggered temperature Set Point: - 60° C (if applicable)

Persons to be contacted in the event of failure (24/7) & the DOTS, Grace Flock will be contacted if no response and after hours:

| Name | Emergency Phone # | Work phone # |
|---|-------------------|--------------|
| Responsible Lab Personnel: Name: | | |
| Responsible Lab Personnel: Name: | | |
| Principal Investigator: Name: | | |
| Principal Investigator: Name: | | |
| DOTS: Name: Grace Flock | 647-444-3596 | 647-444-3596 |
| Facilities and Services | 83000 | 416-978-3000 |

If a freezer is not holding the temperature, locate a backup freezer and transfer all content from disable freezer to the backup freezer. Unplug broken freezer and activate freezer defrost SOP (do not leave the unplugged freezer unattended or you will cause a flood in the facility. Have a plan for re-location to secondary facility.



Lash Miller Laboratories St. George Campus

Appendix D: EQUIPMENT SPECIFIC INSTRUCTIONS

EQUIPMENT (insert name & bar code) SPECIFIC PROCEDURES REQUIRED (prepare one sheet per equipment and post on location). Include instructions during the emergency (example: turn off procedures) and post emergency (for example start-up procedures).