

TRENT UNIVERSITY

Emergency Procedures

A guide to responding to unplanned incidents

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This guide presents some emergency response procedures to be used by University personnel in the event of unplanned incidents such as power outages, chemical spills, fire alarms, etc...

Emergency Procedures

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1.0 Introduction

In any given procedure or process, there are inherent risks, and regardless of the extent of planning, things may “go off the rails”. It is important that lab personnel know and understand in advance Emergency Procedures in the event of an “un-planned incident”. The following gives some basic information on how to respond to some incidents in labs. This is not a detailed document on incident management but will provide the user information on the basic emergency equipment in the lab and initial instructions on dealing with the un-planned incidents described below. A copy of this document must be easily accessible in each lab.

This guide is an integral part of the Science Health and Safety Program as outlined in the Science Health and Safety Program core document. The relevant sections of this guide should be read by all personnel in advance of performing any work, so that they are at least familiar with the procedures. The procedures described below are general in nature and meant for initial response only.

1.0 Training/Laboratory Orientation

As part of orientation, it is the supervisor’s responsibility to ensure that all individuals are familiar with the use and locations of the following equipment *in all areas* in which they will be working. Training on using these safety devices is available from Science Facilities or the Risk Management Office.

Typically labs contain the following emergency equipment as a minimum:

Fire extinguisher

Eye wash station

Safety shower (or access to one nearby)

Labs are encouraged to have their own:

First aid kits (which are available from the Risk Management Office)

Small spill kits outfitted appropriately for the types of chemical or biological hazard found in their labs. All personnel in the lab should be trained, understand and be confident in using these kits to contain and clean up small spills.

3.0 Emergency Equipment

3.1 Fire and Fire extinguishers

Fire is a very plausible emergency situation that can occur in the laboratory. It is imperative that all reasonable precautions are taken to ensure that fires are prevented and that there is an understanding of the types of fires, how fires begin, how they are sustained and how they are controlled.

Classes of Fires and Extinguishers

CLASS A	Ordinary Combustibles e.g. paper, wood, rubber, many plastics
CLASS B	Flammable Liquids e.g. flammable and combustible liquids, oils, greases, tars, oil based paints, flammable gases, lacquer.
CLASS C	Energized Electrical Equipment e.g. wiring, fuse boxes, circuit breakers, plugged-in electrical equipment.
CLASS D	Combustible Metals e.g. sodium, lithium, aluminum, titanium.

Maintenance and Inspection of Fire Extinguishers

Fire extinguishers are inspected on a monthly basis and maintained as needed. If you notice a fire extinguisher that you feel is inadequate contact the Physical Resources Department at ext. 1366 or email to Fixit@trentu.ca. Fire extinguishers should be conspicuously located and the area around them kept clear. The standard fire extinguisher is a Class A, B and C combined unit.

3.2 Emergency Showers and Eyewash Stations

Emergency (safety) showers and eyewash stations are the primary methods for decontamination after exposure to a hazardous substance. Treatment in the first 15-20 seconds following an exposure is critical to prevent serious injuries, particularly when working with a corrosive substance.

Design and construction of eyewash stations and emergency showers are to meet the requirements in American National Standards Institute (ANSI) standard Z358.1-2009.

Eyewash stations and emergency showers are to be readily available and easily accessible for each laboratory, i.e. less than 30 metres from a hazard and accessible within less than 10 seconds.

Eyewash stations and emergency showers are to be unobstructed at all times.

Emergency showers and eyewash stations should have additional signage to prominently display their location.

Eyewash stations are to be tested monthly to verify operation, flush the pipes and ensure they are functioning properly. If you become aware of an eyewash station which isn't functioning properly please contact Fixit@trentu.ca to report.

Emergency showers are tested annually by the Physical Resources department.

Any dysfunction of an emergency shower or eyewash station is to be reported to Physical Resources immediately at fixit@trentu.ca or ext 1366.

4.0 Emergency Incidents and Emergency Responses

It is the laboratory supervisor's responsibility to consider and plan for possible laboratory emergency situations including those discussed below. It is also the responsibility of the supervisor to ensure that all lab personnel are aware of the emergency equipment and how to use them properly. These plans are to be documented and effectively communicated to all other lab personnel and are to provide specific information related to the emergency procedures of the laboratories with consideration of the particular materials, equipment, samples, procedures, personnel, etc. Laboratory supervisors are responsible for ensuring that there are appropriate evacuation procedures for persons with disabilities.

All staff and students are to participate in emergency drills as applicable and respond to all fire alarms by promptly following emergency procedures and evacuating the building. Elevators are not to be used during an evacuation. Do not re-enter the building until the all-clear has been given fire fighters, Campus Security or a Fire Warden.

4.1 Fire

Fire can be described using the fire triangle (below):

Fire cannot begin or be sustained without the three ingredients pictured below and therefore the removal of any one of these items leads to the basis of fire control.

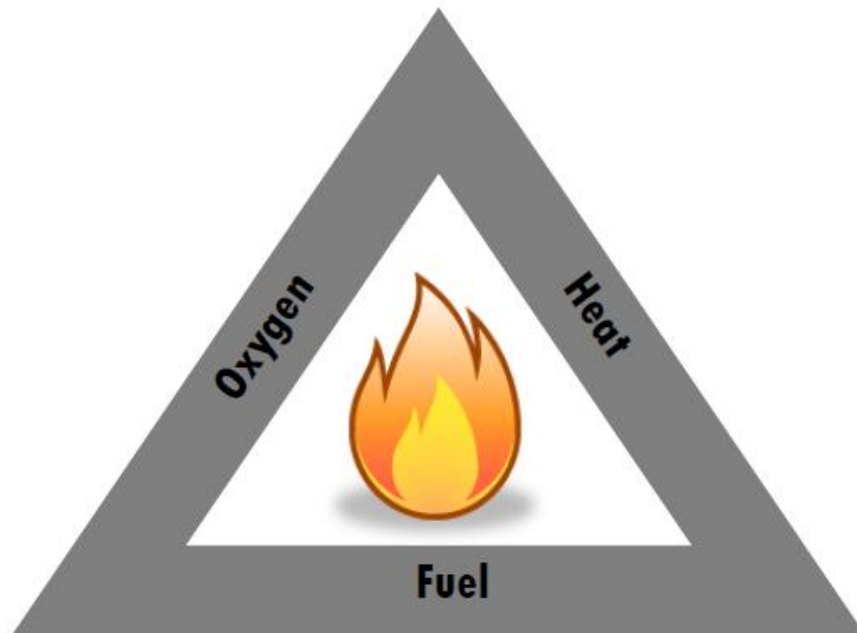


Figure B – Fire safety triangle

4.1.1 In: the event of a fire.

Try to extinguish the fire if you can do so without putting yourself or others at undue risk.

Locate a fire extinguisher appropriate for the type of fire.

Position yourself between the fire and the exit, so that you always have a route out of the area.

Pull the pin.

Aim the extinguisher nozzle or hose at the base of the flame.

Squeeze the trigger.

Sweep. Using a sweeping motion, extinguish the fire.

Remember that portable extinguishers contain only enough material for 8-45 seconds depending on their size.

If at any time, the fire becomes uncontrollable, activate the evacuation alarm (fire alarm) and evacuate.

Liaise with emergency responders to ensure that all relevant information is communicated.

Seek medical attention if required.

4.1.2 If your clothing catches on fire:

Stop.

Drop to the floor.

Roll to smother the flames.

Get to the safety shower and rinse with copious amounts of water.

Seek medical attention.

If another person's clothing catches on fire:

Assist them in the **Stop, Drop and Roll.**

Assist in smothering the flames by covering them in a fire blanket, clothing or other appropriate item.

4.1.3 If you hear or see alarm:

Stop whatever you are doing.

Quickly, but safely, secure hazardous material or processes.

Close the Fumehood sash.

Leave the lab, closing door behind you.

Leave the building and proceed to the nearest parking lot, obey the instructions of fire marshalls.

4.2 Chemical Spills

It is important that you respond to spills only if you are trained in proper spill response, are comfortable and confident in the proper procedures for cleaning up the spill, can clean-up the spill safely and the spill is considered “incidental” (see Chemical Use, Storage, Spills and Waste Guide section 4.4)

If a spill in a lab occurs:

Determine if the size and nature of the spill is something you are trained and confident in handling and others are not a risk.

If you decide you cannot deal with it, leave the area, inform others in the vicinity and contact Security at 1333.

If you decide you can deal with it:

Stop source and contain if safe to do so.

Inform supervisor, security

Prepare cleanup supplies.

Clean up

Dispose of all waste as hazardous unless otherwise directed by your supervisor or university personnel.

For more details on Chemical Spill Response see the Chemical Use, Storage, Spills and Waste Guide section 4.4

4.3 Chemical Contact

For skin contact with hazardous chemicals:

For a small, easily accessible area of the skin, e.g. the hand

Proceed to the nearest sink.

Remove contaminated clothing and jewellery.

Rinse for at least 15 minutes.

For a large or inaccessible area of skin

Remove contaminated clothing and jewellery

Go to the nearest emergency shower.

Rinse for at least 15 minutes.

Seek medical attention if required. Provide applicable MSDS to medical personnel.

For chemical contact with the eyes:

Go to the nearest eyewash station.

Rinse for at least 15 minutes.

If wearing contact lenses, remove them as quickly as possible, while continuing to flush.

Hold your eyelids open with your fingers.

Roll your eyeballs, so that water can flow over the entire surface of the eye.

Lift your eyelids frequently to ensure complete flushing.

Cover the injured eye with dry sterile gauze pads.

Seek medical attention. Provide applicable MSDS to medical personnel.

Follow up with medical professionals should be initiated after any chemical contact.

Employees and students should report any inadvertent exposure to laboratory chemicals to the Risk Management Office.

4.4 Cuts and Needlestick Injuries

First aid treatment for minor scrapes, scratches, cuts, or needlestick injuries include the following:

Apply gentle, direct pressure with a clean cloth or bandage to stop bleeding. If bleeding profusely, elevate injury above the level of the heart.

Clean the wound with running water. Clean surrounding area with mild soap and running water, removing any dirt.

Cover with a bandage or gauze square attached on all sides with adhesive tape. Avoid removing blood soaked bandages as this could damage a fresh clot – add additional bandages over top of the originals if necessary.

Medical attention beyond first aid is required for:

Deep cuts that may require stitches.

Wounds caused by dirty or soiled objects to determine whether or not tetanus immunization is necessary.

Wounds caused by an object that has contacted blood or body fluids to determine if immunization or post-exposure prophylaxis is required.

Any injury that doesn't show signs of healing or you notice redness, swelling, warmth or drainage.

For more serious lacerations:

Call for emergency response, ext 1333.

Attempt to stop the bleeding by elevating injured area above the level of the heart and applying direct pressure with a clean bandage or cloth.

Follow up with medical professionals should be initiated after any needlestick injury:

The Risk Management office should be contacted after any serious cut or following any needlestick incident. If medical attention is sought, the risk management office must be notified.

4.5 Poisoning

Over-exposure to toxic substances can occur through inhalation, absorption, ingestion or injection. When assisting a victim of poisoning:

Call extension 1333 and report the situation.

Ensure that the area is safe to enter before attempting to aid the victim.

If safe to do so, move the victim away from the contaminated area and provide first aid as required.

Contact the Poison Control Centre at 1-800-268-9017 for further instructions.

Provide emergency medical personnel with the MSDS for the toxic substance.

Always ensure that the victim receives medical attention, even if the exposure seems minor.

Follow up with medical professions should be initiated after any work-related chemical exposure. If you seek medical attention then the Risk Management Office must be notified as well.

4.6 Power failure

Power failures result in the loss of most services within the sciences. Emergency back-up power is designed for critical equipment, services and life safety systems only. Emergency lighting is designed to allow you to exit the lab/building but is not designed to allow you to continue working.

Laboratory supervisors should consider the consequences of prolonged loss of power to equipment.

As well, in the event of a power failure, fume hood ventilation may be lost or reduced. Personnel using hazardous material in a fumehood (or not) when a power outage occurs should

Cease Work

Cap and make safe all chemicals

Close fumehood sash

Leave Lab

Work shall not resume until the power is restored and lab safety systems (such as fumehoods) are functioning normally.

4.7 Domestic Water Interruption

In the event of a domestic water interruption:
Notify Physical Resources at ext. 1366.

Stop all work with or near hazardous materials until water is restored. Loss of water translates to inoperable emergency showers, eyewash stations, taps and fire suppression devices like sprinklers and hydrants.

4.8 Flooding

Laboratory personnel should be aware of the locations for water shutoff within their labs. Laboratory personnel should ensure that electrical plugs, power bars etc. are not stored directly on the floor for protection against flooding.

Stop source of flood if possible (e.g. turn off tap, shut off water supply to the lab etc.). If the source is unknown, contain flooding if possible.

If the source of the flooding is unknown, the flood is uncontrollable, or significant damage is sustained: Contact Physical Resources at ext 1366 and Security at ext 1333 or Science Facilities at ext 7061.

If at any time you feel that your safety is being compromised, evacuate the lab and call for emergency response.

4.9 Natural Gas Leak

Laboratory personnel should be aware of whether or not the lab and building are supplied with natural gas, and if so where shutoff(s) are located for the lab so that it can be turned off in the event of a leak. Natural Gas has an chemical known as mercapturan added to it to enhance the odour. It typically smells very sour and some describe it as a “Rotten Egg Odour”. It is quite distinctive and it helps make even the smallest leak detectable with your sense of smell.

If a natural gas leak is suspected:

Turn off the gas supply, if accessible.

Evacuate the lab.

Notify building occupants (may involve activating the evacuation alarm).

Call Security at ext 1333

4.10 Fume hood/Biosafety Cabinet Malfunction

In the event that fume hoods or biosafety cabinets become non-functional:

Stop conducting any work requiring fume hood/biosafety cabinet ventilation.

Ensure that all containers in the fume hood/biosafety cabinet are capped/sealed appropriately.

Close sash.

Notify other lab personnel of the malfunction and label the cabinet “Do Not Use”.

Contact Physical Resources at ext 1366.

If an odour begins to accumulate, all personnel are to evacuate the lab until ventilation is restored.

If a hazardous leak of chemical, vapours or biohazardous aerosols has resulted and has the potential to spread to other areas, activate the evacuation alarm and evacuate the building.

4.11 Biohazardous Material Spill

It is important that you respond to spills only if you are trained in proper spill response, are comfortable and confident in the proper procedures for cleaning up the spill, can clean-up the spill safely and the spill is considered “incidental”.

If a spill in a lab occurs:

Determine if the size and nature of the spill, is something you are trained and confident in handling and others are not a risk.

If you decide you can not deal with it, leave the area, inform others in the vicinity and contact Security at 1333. Contact your Supervisor and the Biosafety Officer ext 7061.

If you decide you can deal with it, follow the procedures outlined in the Biosafety Manual.

4.12 Radioactive Spills

In the event of a spill of radioactive material:

It is important that you respond to spills only if you are trained in proper spill response, are comfortable and confident in the proper procedures for cleaning up the spill, can clean-up the spill safely and the spill is considered “incidental”. All spills of radioactive material must be reported to the Radiation Safety Officer ext 7061 and Security ext 1333.

If a spill in a lab occurs:

Determine if the size and nature of the spill is something you are trained and confident in handling and others are not a risk.

If you decide you cannot deal with it, leave the area, lock and post the door “Do Not Enter, inform others in the vicinity and contact Security at 1333. Contact your Supervisor and the Radiation Safety Officer ext 7061. Remain near the danger but out of harms way.

If you decide you can deal with it:

Contact your Supervisor and the Radiation Safety Officer.
Gather Spill containment supplies and PPE.
Clean up spill as per procedures outlined in the Radiation Safety Manual
Dispose of all material as radioactive waste.
For detailed procedures read the Radiation Safety Manual.

Any release to environment must be reported immediately to Risk Management Office (who will report to MOE)

4.13 LOCKDOWN (also known has shelter in place)

If you hear the Emergency Communications System announcement to "**LOCKDOWN**", it means there is an armed intruder in your vicinity.

You should:

- hide out - i.e. **LOCKDOWN** ; close doors and blinds, turn off lights and any communications equipment that might signal your presence. If you are not alone, quietly plan your strategy should the attacker enter your space.
- keep out - barricade the door to deter the attacker. Do not let anyone in unless advised that it is safe to do so by the Emergency Communication System or a uniformed police officer.
- spread out - if there are a number of you. This will make it harder for the attacker to select a target
- call out - to 911, quietly, if you hear shots in the vicinity or someone tries to get in to your room.
- take out - the attacker (s) if you outnumber them. Disarming and subduing them will increase your chances of survival. On average active shooter incidents last 19 minutes before the shooter kills himself or the Police arrive and subdue him. Having a survival strategy dramatically increases your odds of getting through those 19 minutes. Quickly and quietly plan your strategy and then act on it should the attacker enter your room.

5.0 **Important Numbers**

Campus Security	(705) 748-1333 (emergency)
	(705) 748-1328 (non emergency)
TUEFRT	contact campus security (1333)
Physical Resources	(705) 748-1366
Science Facilities	(705) 748-1011 x 7061 (manager)
	(705) 748-1011 x 6253 (assistant)

