Spill Response Procedure	SOP #: RSP.004.00
Effective Date	9/3/19
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1. Purpose

Accidental release of chemicals can occur on campus at any time. A chemical release can result in either an exposure to a person or as a spill contaminating work areas or the environment. There is a potential for the development of harmful effects depending on the chemical involved and the associated hazards.

The following SOP provides general guidance for response to a chemical exposure or a spill, however; if in doubt, STOP and call 911.

2. Related Policy/Authority

29 CFR 1910.1200, Hazard Communication Standard (§1910.1200)

29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories

3. Faculty/Staff Responsibilities

3.1 Assistant Dean for Research

- Provides budget oversight for the BCOM Chemical Hygiene Program
- Provides resources to ensure institutional compliance with federal, state and local laws and regulations

3.2 Chemical Hygiene Officer

- Acts as a resource to lab personnel regarding safe handling of chemicals, personal protective equipment (PPE), spill cleanup, and safety for experimental set-ups.
- Monitors and approves the procurement, use and disposal of chemicals used in the laboratory.
- Works with Laboratory Directors to develop and implement chemical hygiene practices and policies in the laboratory as needed.
- Aids in determining the proper level of PPE required in a laboratory.
- Ensures that appropriate training is available to laboratory personnel.

3.3 Laboratory Director(s) or Associate Laboratory Scientist

- Responsible for chemical hygiene in BCOM Research Laboratories.
- Informs all employees and students of safety and health policies, rules and regulations applicable to the laboratory.
- Ensures lab specific training is provided to lab personnel as required. Ensures this training is documented.
- Ensures lab specific safety protocols are available and have been made available to laboratory personnel.

- Ensures chemical spill kits are appropriately stocked and maintained in BCOM Research Laboratories.

3.4 Laboratory personnel

- Plans and conducts all operations in accordance with established chemical hygiene procedures.
- Successfully completes laboratory safety training.
- Are aware of the hazards associated with chemicals they are working with and methods for safe storage, handling and disposal procedures.
- Uses appropriate safe work practices, personal protective equipment and engineering controls.
- Follows laboratory SOPs.
- Reports unsafe conditions or incidents to their PI, Lab Manager, Lab Director, Chemical Hygiene Officer, or Institutional Safety Official.

4. Definitions/Abbreviations

- Associate Laboratory Scientist – A BCOM employee that reports to the Laboratory Director and may act on behalf of the Laboratory Director by delegation.
- Chemical Hygiene Officer - The Chemical Hygiene Officer (CHO) is an employee who is designated by the employer, and who is qualified by training or experience, to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan.
- Chemical Hygiene Plan - The Chemical Hygiene Plan (CHP) is a written program developed and implemented by the employer which (1) sets forth procedures, equipment, personal protective equipment, and work practices that are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace, and (2) meets the requirements of OSHA's Laboratory Safety Standard; 29 CFR 1910.1450(e).
- Hazardous chemical - Any chemical which is classified as health hazard or simple asphyxiant in accordance with the Hazard Communication Standard (29 CFR 1910.1200).
- Health hazard - Any chemical that is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); aspiration hazard or simple asphyxiant.
- Immediately Dangerous to Life and Health (IDLH) - defined by the US National Institute for Occupational Safety and Health (NIOSH) as exposure to airborne contaminants that is "likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment."
- Incidental spill - a release of a hazardous substance which does not pose a significant safety or health hazard to employees in the immediate vicinity or to the worker cleaning it up, nor does it have the potential to become an emergency.
- Laboratory - OSHA defines a laboratory as “a workplace where relatively small quantities of hazardous chemicals are used on a non-productive basis”.

- Laboratory Director - A BCOM employee responsible for managing laboratory operations.
- Laboratory Personnel - The Laboratory Personnel referred to in the Spill Response Procedure are employees, students, and visiting scientists who may be exposed to hazardous chemicals in the course of his or her assignments.
- OSHA - Occupational Safety and Health Administration.
- PHS - Particularly Hazardous Substances. Chemicals that are a select carcinogen, a reproductive toxin, or a chemical having a high degree of acute toxicity.
- PEL - Permissible Exposure Limit. PELs are the regulatory limit or maximum concentration of a substance in the air that personnel can be exposed to without personal protective equipment or engineering controls (such as a fume hood). These chemicals may also have a "skin designation" that prohibits skin contact.
- PPE - Personal Protective Equipment. Principal Investigator (PI) - The lead scientist that plans and/or conducts the laboratory research and assumes the overall supervisory responsibility for laboratory operations and project completion.
- SDS – Safety Data Sheet. A SDS is a 16 section safety document required by OSHA that details the hazards, ingredients, physical properties, toxicity, exposure controls, storage, handling, and emergency procedures of a substance.
- SOP - Standard Operating Procedure.
- Vermiculite – a non-combustible, inert mineral used as an absorbent.

5. Procedural Steps

5.1. Preparation

Before using any chemicals, laboratory personnel shall evaluate the consequences of potential spills and develop appropriate response procedures.

Hazardous chemical spills must be dealt with promptly. Due to the range and quantities of chemicals used within laboratories, spill response procedures must be clearly defined before work commences. Knowledge and preparedness can minimize potential problems and enhance the ability to effectively deal with routine spills. Personnel shall be instructed on the following in the event of a spill:

- Location and knowledge of the Safety Data Sheets (SDS) for the chemicals used and stored in the work area.
- Location and use of emergency equipment (fire extinguishers, safety shower and eyewash).
- Location and use of appropriate personal protective equipment and spill control equipment (see below for Spill Kit contents).
- Location of available exits.
- Location and content of the BCOM Chemical Hygiene Plan.
- When and who a spill shall be reported to.
- Name and phone number of individual responsible for the work area.

5.2. Spill Response Kits

5.2.1. Spill kits must be situated within easy reach of the chemical storage and use areas. Each spill kit should contain appropriate absorbent, neutralizers and personal protective equipment (PPE).

5.2.2. Items in a BCOM spill kit are as follows:

- Chemical-resistant gloves
- Chemical-resistant booties
- Safety goggles
- Zip-lock baggies
- Drum liners
- Acid and base neutralizers
- Vermiculite
- Small broom & dustpan
- Absorbent pads
- Small plastic spatula
- Reagents necessary for decontamination procedures
- 5 gallon bucket with lid

5.3. Categories of Chemical Spills

5.3.1. Each spill shall be assessed for appropriate action based on many factors, such as material itself, degree of hazard, location of spill and size of spill. There are three basic categories of chemical spills or release events.

5.3.2. Emergency Spill: A spill/release that, in the opinion of the area supervisor or individual responsible for the chemical or area, poses an immediate health threat to the individual and/or other occupants in the building. Guidelines include the following:

- The hazard would cause irreversible adverse health affects
- The hazard would interfere with your ability to escape a confined space unaided
    - Example: Release or formation of smoke or toxic gas
    - The Immediately Dangerous to Life and Health (IDLH) limit for the substance has been exceeded

5.3.3. Non-Emergency (i.e., incidental) Spills

- Complex Non-Emergency Spills: A spill/release that an individual and/or a supervisor feel there is not an immediate health threat but require technical assistance for proper clean-up. Guidelines include the following:
    - Individual is not familiar with the hazards of the material and not comfortable performing clean-up.
    - Individual does not have proper training to perform clean-up. Equipment needed for clean-up is not available
- Simple Spills: A spill/release that an individual and/or a supervisor feel that there is not an immediate health threat and safe for work area personnel to clean-up. Guidelines include the following:
    - Individual is thoroughly familiar with the hazards of the material.
    - Individual has been trained to deal with spills/releases of the size in question.

- Individual has the proper Personal Protective Equipment (PPE) needed for spill clean-up.
- The appropriate absorbent/neutralizers are readily available.
- Take appropriate steps to confine and limit the spill without risk.
- Clean-up spill using appropriate equipment and procedures.
- It is essential that all spill clean-up waste is disposed of properly:
  - Do not place in or around the regular trash.
  - Place the spill clean-up waste in a closed container and attach a label with contents.
  - Contact ORSP for waste pick-up

5.3.4. The following table provides guidance for non-emergency liquid spills; however, it should not be taken as absolute, as some substances may be considerably more hazardous.

Category	Size	Response	Treatment Materials
Small	< 50 mL	Absorption or chemical treatment	Paper towels (if compatible), appropriate absorption spill kit and/or neutralization
Small to Medium	50 mL – 250 mL	Absorption or chemical treatment	Appropriate absorption spill kit and/or neutralization
Medium to Large	250 mL – 2.5 L	Absorption	Appropriate absorption spill kit
Large	>2.5 L	Absorption or Evacuate and call 911	Appropriate absorption spill kit and/or consider outside help.

5.4. Chemical Spill Response

The following information should be used as guidance in the event of these types of spills. If there is the potential for fire or explosion or if someone if injured, call 911 immediately.

5.4.1. High-Hazard Emergency Spill

- Sound the fire alarm to notify others in the area for evacuation.
- Call 911 from a safe location and provide the following information to the dispatcher:
  - Nature of emergency.
  - Chemical involved and quantity.
  - Building name and room number or nearest building location if outdoors.
- Remain on scene to meet response personnel and provide additional information.

5.4.2. Non-Emergency Spills

- Complex Spills:
  - Alert/notify people in the immediate area of the spill.
  - Isolate the area. Close doors and evacuate the area if necessary.
  - Do not allow unauthorized personnel to enter the contaminated area.
  - Contact ORSP (575) 674-2338. After hours contact the BCOM Security Desk at (575) 674-2299.
- Simple Spills
  - Alert/notify people in the immediate area of the spill.
  - Isolate the area. Close doors and evacuate the area if necessary.

- If spilled material is flammable, remove or turn off ignition and heat sources and unplug nearby electrical equipment.
- Establish exhaust ventilation if necessary and possible.
- Locate the spill kit.
- Put on appropriate personal protective equipment (PPE), including safety goggles, suitable gloves and long-sleeved lab coat.
- Confine and contain the spill.
  - Apply spill socks/pillows/pads or other appropriate absorbent material, first around the outside of the spill, encircling the spilled material, then absorb to the center of the spill.
  - Use appropriate materials to neutralize inorganic acid and base spills.
  - For solid/dry chemical spills, cover the spill with a slightly damp paper towel to avoid creating a cloud of dust and push the material into a dustpan or other collection receptacle using the towel.
  - Sweep material, used absorbents/neutralizing agents, etc. into a plastic dust pan and place into a plastic bucket or bag. Decontaminate the area with soap and water after cleanup and place residue in a plastic bag or another sealed plastic container.
- Label the container.
- Place all contaminated PPE into a plastic bag and label.
- It is essential that all spill clean-up waste is disposed of properly:
  - Do not place in or around the regular trash.
  - Contact ORSP for waste pick-up.

5.5. Chemical Exposure to a Person

5.5.1. In the event a chemical spill results in personnel contamination, the following steps shall be followed:

- Remove person from exposure, if you can safely do so. Avoid breathing the vapors of spilled substances.
- Alert people in the immediate area to evacuate.
- If the individual is injured or incapacitated, call 911 immediately and request emergency and medical responders.
  - Provide as much information known about the incident including specific location, nature and extent of injuries, name and quantity of chemical involved, any spill control measures taken and possible health hazards associated with the spill.
  - Provide your name and phone number and remain available.
- Use sink, eyewash or safety shower (in area away from the spill) to rinse chemicals off the contaminated person.
  - For exposure affecting small portions of skin, immediately flush with flowing water for at least 15 minutes. If pain returns after 15 minutes of flushing, resume flushing the area.

- For splashes in the eye, use eyewash and immediately flush for 15 minutes. Remove contact lenses if possible. Hold the eyelids away from the eyeball, moving eye in all directions to wash thoroughly behind the eyelids.
- For spills on clothes, quickly begin showering while removing all contaminated clothing, shoes and jewelry. It may be necessary to cut clothes off in some instances to prevent contamination of eyes. Wash thoroughly for at least 15 minutes. Contaminated clothes should be discarded or laundered separately from other clothing.

- Consult the chemical safety data sheet (SDS) for any potential delayed effects. Keep the SDS with the contaminated person.
- Obtain medical evaluation and treatment, if needed. Medical follow-up after any eye exposure is recommended.
  - Students, for follow-up treatment – Contact the NMSU Student Health Center at (575) 646-1512.
  - Employees, for follow-up treatment – Contact WorkMed at (575) 521-1919.
- Report the incident to your supervisor and file an incident report.
- Any chemical spill requiring follow-up medical care must be reported to the Office of Student Affairs or the Office of Human Resources, respectively.

5.6. Spill Reporting Procedures

5.6.1. A chemical spill report must be submitted to ORSP whenever a hazardous chemical spill occurred that impacted adjoining work areas or resulted in a release to the environment. The information will be used to assist in the determination of the root cause of the spill and to help identify preventative actions that could be implemented to avoid future spills or improve spill response activities. This report is in addition to injury reporting for exposed personnel.

5.7. Spills to Drains

5.7.1. All spills that involve hazardous materials which have or are likely to be released to the sanitary sewers (sink or floor drain) must be reported to ORSP. This is to help prevent damage to the city wastewater system.

6. Reports/Charts/Forms/Attachments/Cross References

6.1. Resources

6.1.1. Chemical Spill Response Form

7. Maintenance

Office of Research and Sponsored Program; reviewed annually or by May 1st of each year.

8. Signature

Signature on File	9/3/19
Joseph N. Benoit, Ph.D., Assistant Dean for Research	Date

9. Distribution List

Internal/External

10. Revision History

Revision Date	Subsection #	Summary of Changes	New/Cancellation/ Replacement Procedure? (if applicable)	Approval Date
1	[e.g., 3.1]			