

Palm Beach State College

Florida's First Public Community College



PALM BEACH STATE
COLLEGE

CHEMICAL SPILL RESPONSE PLAN

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1. Introduction

Despite the best efforts of faculty and students to work carefully in the academic or photographic laboratory, accidents resulting in the release of chemicals or hazardous waste will occur. Likewise, the potential for spills in Hazardous Waste Accumulation Areas maintained by the Facilities Department also exists. NOTE: Throughout this Plan, the term “chemical” shall also refer to hazardous waste. For this reason, it is essential that all personnel working in such areas or others where chemicals are used or stored know the appropriate procedures for responding to a chemical spill, and the College shall ensure that such personnel receive training in these procedures.

2. Chemical Spill Categories

Chemical spills will fall into two categories, minor and major, which are characterized by the following:

- **Minor Chemical Spill**
 - Chemical is known.
 - Does not pose an immediate or potential significant risk to safety or health, i.e., no fire, explosion, or chemical exposure hazard.
 - Does not have the potential to become an emergency.
 - Can be absorbed, neutralized, or otherwise controlled and cleaned up by personnel in the immediate area or by Facilities personnel.

- **Major Chemical Spill**
 - Chemical is unknown.
 - Chemical is highly toxic or reactive.
 - Poses an immediate significant risk to health.
 - Involves a fire hazard outside a fume hood or an explosion risk.
 - Involves injury to personnel in the vicinity.
 - Response and cleanup are beyond the expertise and ability of personnel in the immediate area or Facilities personnel, and the equipment and materials for adequately containing and cleaning up the spill are not available.

3. Spill Control/Containment and Clean-up Materials/Supplies

Every laboratory that uses chemicals must have access to a spill control kit appropriate to the chemicals used with at least enough containment and cleanup materials to handle a 1-gallon spill of liquid or 1 kg of dry chemical (or the largest container in the laboratory). Although the contents of most spill kits are common items that may be found throughout the lab, they must be consolidated into a kit for quick access in the event of an emergency. In addition, each laboratory, especially those with floor drains should stock spill socks, pillows, pads, and/or

enough bulk absorbent to contain the spilled material away from the drain. Spill kits must be located strategically near work areas so that they are easily accessible in an emergency.

The following is a list of recommended items for a chemical spill kit:

Personal Protective Equipment (PPE) if not already being worn (should be in a separate sealed container):

- Safety goggles.
- Protective gloves (e.g., neoprene, latex, nitrile).
- Long-sleeved lab coat and corrosives apron.
- Plastic vinyl booties.
- Dust mask

Absorbents/Neutralizers:

- Spill socks, pillows, or pads in sufficient quantity to contain a spill and keep it away from any floor drains.
- Universal spill absorbent – a 1:1:1 mixture of unscented kitty litter, sodium bicarbonate, and sand. This all-purpose absorbent is good for most chemical spills including solvents, acids, and bases. Other commercially available absorbents, e.g., vermiculite, may also be used.
- Solvent absorbent – inert absorbents such as vermiculite, clay, or sand.
- Acid spill neutralizer – sodium bicarbonate, sodium carbonate, or calcium carbonate.
- Alkali (base) spill neutralizer – sodium bisulfate.

Clean-Up Materials:

- Broom, plastic dustpan, and scoop.
- Plastic bags (30 Gallons, 3 mil thickness) for contaminated PPE.
- One plastic bucket (5-gallon polyethylene) with a lid for spill and absorbent residues.

Other:

- Aspirator bulb and mercury decontaminating powder if mercury is used in the lab.
- pH paper.
- Tongs.

Commercial spill kits can also be purchased through most vendors that sell chemicals or safety supplies. Spill kits must be checked periodically and replenished after each use.

4. Minor Chemical Spill Response Procedures

Trained laboratory/Facilities personnel are responsible for the following:

- Alert people in the immediate area of the spill and evacuate them as necessary.
- Isolate the area by closing doors, etc. as necessary.
- If spilled material is flammable, remove or turn off ignition and heat sources and unplug nearby electrical equipment.

- Establish exhaust ventilation, if possible, by turning on fume hoods; avoid breathing vapors from the spill.
- Locate the spill kit.
- Put on personal protective equipment (PPE), including safety goggles, suitable gloves, and a long-sleeved lab coat.
- Confine and contain the spill by applying 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 dustpan and place into a plastic bucket or bag.
- Wet mop the spill area. Be sure to decontaminate the broom, dustpan, etc. with soap and water.
- Place all contaminated PPE into a plastic bag.
- Store waste in designated areas until waste pick-up is scheduled.
- Contact the Facilities Manager to obtain cleanup assistance from Facilities personnel if necessary.
- Notify Security after you have cleaned up the spill so that the incident can be documented.
- Notify the Health and Safety Manager.

See Appendix CSRP-A for additional information on cleaning up specific chemicals.

5. Major Chemical Spill Response Procedures

Laboratory personnel are responsible for the following:

- Attend to any injured or contaminated persons and remove them from exposure.
- Alert people in the immediate area to evacuate.
- Call 911 for potential or actual fire or risk of explosion or if injuries are involved. Provide as much of the following information as is known.
 - Name and address of the facility.
 - Time and type of incident (e.g., spill, fire).
 - Name and quantity of the chemical(s) involved.
 - Location of the incident on campus.
 - Nature and extent of any injuries or damage incurred, if any.
 - Control measures taken.
 - Your name and phone number (or where you will be located) and how you can be identified.
 - Possible hazards to human health, or the environment, outside the facility.
- Use eyewash or safety showers in other areas as needed to rinse spilled chemicals off people.
- If spill material is flammable, turn off ignition and heat sources if that can be done safely.

- If danger is believed sufficient – activate the nearest fire alarm (**unless there is a chance of explosion from the chemical spill**) and evacuate the building. If there is a possibility of explosion by activating the fire alarm, evacuate the building manually by alerting others by voice.
- Close doors to the affected area.
- Notify Security.
- Meet responders.

Security will coordinate with or notify the following:

- Appropriate emergency response personnel (e.g., local Fire Department, Palm Beach County Fire and Rescue).
- The Facilities Manager, who will obtain assistance from an outside spill response and clean-up contractor(s) retained by the College, if necessary. See Appendix CSRP-B for a listing of outside contractors.
- Health and Safety Manager, who will act in the absence of the Facilities Manager to obtain assistance from outside contractors, if necessary. The Health and Safety Manager will also perform any required notifications to outside agencies, e.g., the U.S. Coast Guard National Response Center at (800) 424-8802 and the State Warning Point at (800) 320-0519, including submitting any required follow-up report of the incident.

CSRP-A

QUICK REFERENCE FOR CHEMICAL SPILL CLEAN-UPS

The table below provides a synopsis of the type of chemicals that may be spilled and the recommended clean-up materials and procedure for them. As always, the Safety Data Sheet for the particular chemical is the preferable reference. If you choose to purchase pre-packaged, commercially available spill kits, the clean-up procedures shown in the table below would be modified to reflect specifics, e.g., Acid Spills: Use container "A" from spill supplies in accordance with directions on the package.

Chemical Spilled	Clean-Up Procedures
Acids, organic	Apply sodium bicarbonate. Absorb with a spill pillow or vermiculite.
Acids, inorganic	Apply sodium bicarbonate/calcium oxide or sodium carbonate/calcium oxide. Absorb with a spill pillow or vermiculite.
Aldehydes	Absorb with a spill pillow or vermiculite.
Aliphatic Amines	Apply sodium bisulfite. Absorb with a spill pillow or vermiculite.
Aromatic Amines	Absorb with a spill pillow or vermiculite. Avoid skin contact or inhalation.
Aromatic Halogenated Amines	Absorb with a spill pillow or vermiculite. Avoid skin contact or inhalation.
Azides	Absorb with a spill pillow or vermiculite. Neutralize with 10% ceric ammonium nitrate solution.
Bases (Caustic Alkalis)	Neutralize with acid, citric acid, or commercial chemical neutralizers. Absorb with a spill pillow or vermiculite.
Chlorohydrins	Absorb with a spill pillow or vermiculite. Avoid skin contact or inhalation.
Cyanides	Cover solids with a damp paper towel and push them onto a dustpan or use a HEPA filter vacuum to collect the solids. Absorb liquids with a spill pillow or vermiculite.
Halides, organic or inorganic	Apply sodium bicarbonate. Absorb with a spill pillow or vermiculite.
Halogenated Hydrocarbons	Absorb with a spill pillow or vermiculite.
Hydrazine	Avoid organic matter. Apply "slaked lime." Absorb with a spill pillow or vermiculite.
Inorganic Salt Solutions	Apply soda ash. Absorb with a spill pillow or vermiculite.
Mercaptans/Organic Sulfides	Neutralize with calcium hypochlorite solution. Absorb with a spill pillow or vermiculite.
Nitriles	Sweep up solids. Absorb liquids with a spill pillow or vermiculite.
Nitro Compounds/ Organic Nitriles	Absorb with a spill pillow or vermiculite. Avoid skin contact or inhalation.
Oxidizing Agents	Apply sodium bisulfite. Absorb with a spill pillow or vermiculite.
Peroxides	Absorb with a spill pillow or vermiculite.

Phosphates, Organic and Related	Absorb with a spill pillow or vermiculite.
Reducing Substances	Apply soda ash or sodium bicarbonate. Absorb with a spill pillow or vermiculite.
Waste Acid Liquids (D002)	Apply sodium bicarbonate. Absorb with a spill pillow or vermiculite.
Waste Basic/Caustic Liquids (D002)	Neutralize with acid, citric acid or commercial chemical neutralizers. Absorb with a spill pillow or vermiculite.
Waste Fixer (D011)	Absorb with a spill pillow or vermiculite.
Waste Flammable Liquids (D001)	Absorb with a spill pillow or vermiculite.
Waste Flammable Solids (D001)	Sweep up solids. Absorb liquids with a spill pillow or vermiculite.

APPENDIX CSRP-B

OUTSIDE CONTRACTORS

Hazardous Waste Transportation and Disposal

Contact Purchasing at (561) 868-3462 to obtain a quote from a hazardous waste transportation and disposal company on the College's vendor list.

Chemical/Hazardous Waste – Major Spill Response

The probability of occurrence of a major spill requiring the services of an outside spill response contractor is believed to be extremely low (there is no credible scenario under which a major spill of chemicals or hazardous waste would occur, considering the chemicals used at the College and the quantities that would be present on the campus at any one time). Nonetheless, prudence dictates that the campus must be prepared for such a contingency by retaining an outside spill response contractor in the event of a chemical or hazardous waste spill possibly involving the following:

- Chemical is unknown.
- Chemical is highly toxic or reactive.
- Poses an immediate significant risk to health.
- Involves a fire hazard outside a fume hood or an explosion risk.
- Response and cleanup are beyond the expertise and ability of personnel in the immediate area or Facilities personnel, and the equipment and materials for adequately containing and cleaning up the spill are not available.

The determination that the services of an outside spill response contractor are necessary will be made by either the campus Facilities Manager, the College's Chief Fire Official, or the College's Health and Safety Manager.

Potential service providers are currently under review and will be listed following the completion of appropriate procurement protocols.