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Spill and Release Response Procedures

1. Purpose / Background

This document describes the procedures used by the Massachusetts Institute of Technology (MIT) faculty, staff and students to respond to spills or releases of chemicals, petroleum oils, biohazardous materials, and radioactive materials.

2. Scope

These procedures cover spills or releases of oil and hazardous materials on MIT's Cambridge campus, including chemical, biological, and radioactive materials and waste.

3. Prerequisites

Students, Faculty and employees must understand the hazards associated with any chemicals, oils, biohazardous materials, or radioactive materials they work with or which are located in their laboratory or workplace. MIT's Environment, Health and Safety (EHS) Office provides Hazard Communication training, Chemical Hygiene training, Radiation Protection training, Biosafety/Bloodborne Pathogens training and Managing Hazardous Waste training; all of these help familiarize trainees with hazardous materials and spill response. Personnel working in a lab/space should be prepared through pre-planning and training to handle a spill situation involving the hazardous materials in their space.

Spill supplies and kits should be stocked in each laboratory or other workspace that are appropriate to clean up a minor spill (see definition below) of the hazardous materials in that space. The MIT EHS Office operates a chemical spill kit distribution program, and users can request a spill kit for their laboratory or workplace via the [EHS website](#).

4. Procedures

4.1. Classifying Spills as Minor or Major

Response procedures vary depending on whether the spill event is considered a "minor" or "major" spill. These terms are defined in Section 10. An individual discovering or causing a spill or release event must quickly assess the situation and determine if they are comfortable with performing the clean-up or if additional help is needed. In any event, personal safety is paramount. If a responder is unsure whether the spill should be classified as minor or major, it should be treated as a major event.

4.2. Minor Spills or Releases (For definitions, see Section 10)

Minor, indoor spills that present no immediate, significant threat to personal health or safety, or of being released to the environment, are to be cleaned up by the person(s) responsible for the spill (unless they are not comfortable doing so). This practice was developed because the researcher or user of the material is often most familiar with the material properties and proper safety precautions to be used. Recommended steps to take for cleaning up a minor spill include:

- Notify personnel in the immediate area and isolate the area of the spill, evacuating the area if necessary.
- Gather personal protective equipment (PPE) and spill clean-up supplies appropriate to the specific spill.
- Put on your PPE, including laboratory coat, sturdy gloves, eye protection, and other gear appropriate to the material spilled.

4.2.1. Minor Chemical Spill

Spill cleanup actions will vary depending on the type of material, location and amount of the spill; however, there are some general guidelines which should be considered:

- Take steps to confine the spill and limit its scope if this can be done safely. Examples would be to surround the spill area with absorbent socks and/or cover the spill with absorbent pads.
- Effort should be made to prevent spills from reaching the environment via sinks and drains, or from migrating from a lab or controlled space into a common area such as a hallway.
- If there are fume hoods in the immediate area with 'emergency purge' buttons, activate these to increase the ventilation in the space.
- Use the spill equipment on hand in the chemical spill kit to absorb/collect the spilled chemical. Work from the outside of the spill inwards.
- Collect clean-up waste materials into a leak-proof container or clear plastic bag. Label the container with a hazardous waste red tag, place it into a satellite waste accumulation area and arrange for disposal using normal hazardous waste disposal procedures.

4.2.2. Minor Biological Spill

- Cover the entire spill area with paper towels.
- Saturate the paper towels with an approved disinfectant such as 10% bleach.
- Wait 10 minutes to ensure complete disinfection.
- Pickup towels and dispose as biological waste. If broken glass or sharps are involved in the spill, use tongs to pick up the debris and dispose into a biological sharps container.
- Surface disinfect the area of the spill and wait 5-10 minutes and wipe or allow to air dry.

- A final wipe down with 70% ethanol might be necessary for sensitive surfaces.

4.2.3. **Minor Radioactive Material Spill:**

- Normal household cleaners should be used to clean up the spill.
- Always wipe outside-in, not a circular motion, to avoid spreading contamination.
- After cleanup, verify the area is free of contamination using a meter or wipes.
- All spill materials must be sealed in a bag or container and disposed of as radioactive waste.
- Notify your supervisor and the DLC EHS Coordinator. For minor chemical spills also notify the EHS Office at 617-452-3477, or via the MIT Operations Center (617-253-1500) if after hours. You can also use these numbers to get advice or assistance in cleaning up minor spills.

4.3. **Major Spills or Releases (For definitions, see Section 10)**

- Notify personnel in the immediate area and evacuate to a safe distance or area.
- Personal safety is paramount, however if you are familiar with the material, counter measures such as shutting off a valve, diking or covering of drains, or activation of fume hood emergency purge systems may be taken to control the spread of the release, if safe to do so.
- Major spills or releases must be immediately reported to the MIT emergency number at (617) 253-1212 (x100 from a campus telephone).
- Any time there is notification of a 'major spill', personnel from the EHS Office are contacted to respond. Notification of a major chemical spill will often result in a response from the Cambridge Fire Department.
 - EHS and MIT follow the Incident Command System as established under National Incident Management System (NIMS) and described in the MIT Emergency Preparedness Plan and Emergency Notifications Plan. EHS will support the campus Incident Commander as appropriate and will defer to the Cambridge Fire Department once they are on site, fully briefed, and accept control.
 - EHS will determine if notification to outside authorities is required (and if so, will make the notification).
 - EHS or their delegate will procure the services of an outside contractor if required, provide oversight of the clean-up work, and arrange for disposal of any materials.
- EHS will facilitate communication among the affected parties, the EHS Office, Emergency Management Department staff, and (if applicable) outside authorities during assessment and remediation.
- EHS will also conduct all monitoring that is required to give the "all clear" for an area to be reoccupied.

5. Roles & Responsibilities

- 5.1. **PIs/Supervisors** are responsible for 1) ensuring supplies and equipment are available for cleaning up minor spills and 2) ensuring all personnel under their direction who work with chemicals, oils, biohazardous materials, and radioactive materials in the laboratory have appropriate training for assessing and responding to a spill.
- 5.2. **Researchers/workers/students** who are responsible for the area in which a spill occurs are also responsible for cleaning up (minor spill) and/or reporting (major spill) spills in that area, as described in Section 4.
- 5.3. **DLC EHS Coordinators** are responsible for documenting spills as part of their Incident Investigations. As subject matter experts for their DLC, EHS Coordinators can also play a role in communications and coordination of spill response in their DLC.
- 5.4. **EHS Office** is responsible for providing support to the responsible parties in spill response. Depending on the situation, support may consist of hazard or exposure assessment, clean-up advice or assistance, coordination of outside consultants or contractors, waste removal service, coordination with or notifications to outside agencies, and participating in after-action reports and investigations.

The primary responsibilities within EHS in spill response situations depend on the type of material that is spilled and the work being performed.

- 5.4.1. **Biosafety Program** staff assumes the lead role on all spills involving biohazardous materials. For spills involving both biohazardous materials and chemical or radioactive materials (or both), Biosafety is involved as long as biohazards remain active.
- 5.4.2. **Industrial Hygiene Program** staff provides hazard assessment and clean-up advice or assistance on chemical spills, especially those that occur in laboratory settings.
- 5.4.3. **Environmental Management Program** staff 1) manage the contractors who perform clean-up for major spills; 2) provide hazardous waste removal services for oil and chemical spill clean-up materials; 3) provide clean-up advice or assistance on oil and chemical spills and 4) determine the need to, and where appropriate, make release notifications to local, state, and federal authorities.
- 5.4.4. **Radiation Protection Program** staff assumes the lead role on all spills involving radioactive materials.

6. Training

MIT provides training on spill response policy and procedures in numerous venues, including the Oil Spill Prevention Control and Countermeasure (SPCC) training for members of the Department of Facilities, Managing Hazardous Waste training for anyone who generates chemical wastes, Radiation Protection training for users of radioactive materials, General Biosafety and Blood Borne Pathogen training for those who work with or might come into contact with biological materials, General Chemical Hygiene training for chemical users, and other modules. Each of these training modules and events are available to interested members of the MIT community. DLCs provide training on these procedures through their Department Safety Committees and departmental training (e.g., lab-specific Chemical Hygiene training). In addition, EHS staff receive annual EHS Response System Training to instruct them on how to assist in spill response across disciplines and DLCs.

7. Monitoring Requirements

In the event of a spill, monitoring may be needed to assess the appropriate level of protection for responders. EHS has monitoring capability and should be contacted for all major spills or for minor spills for which monitoring is desired.

8. Record Management

All major and minor spills should be documented, with the reporting DLC and EHS working together to complete the incident investigation and report.

The EHS Office maintains records of spill responses using the Incident Reporting/Investigation Quickbase Application. RPP maintains a record of radiation events.

9. References

9.1. Other SOP/SOGs

To view the SOPs/SOGs go to <https://ehs.mit.edu/sops/> and search for the SOP/SOG listed. MIT Certificates are required to view SOPs/SOGs.

- EHS Office Administrative SOP, EHS-04-0044: Records Retention

9.2. Supplementary Documents

- MIT Hazardous Waste Contingency Plan
- MA Contingency Plan (310 CMR 40)
- Oil Spill regulations (40 CFR 112)
- MIT Spill Prevention and Countermeasure Plans (SPCC)

10. Definitions

10.1. Minor Spill or Release is one in which all of the following conditions are met:

- the responsible party is at the scene; and

- the material spilled is known; and
- the material spilled is not highly toxic; and
- the quantity spilled is small; and
- there is no fire hazard present; and
- the spill is completely contained inside a building; and
- the material has little or no potential to reach the environment (e.g., via a drain); and
- the spill is not in a common area (e.g., a hallway) or other area accessible to the general public; and
- medical attention is not required; and
- advanced personnel protective equipment (i.e., more than gloves and a half-face respirator) is not needed to respond to the spill; and
- on-site personnel are trained, equipped, and able to clean up spill.

10.2. Major Spill or Release is one in which any of the following conditions apply:

- the responsible party is unknown (it's an "orphan" spill); or
- the material spilled is unknown; or
- the material spilled is highly toxic; or
- a large (or undetermined) quantity was spilled; or
- a significant fire hazard may be present; or
- medical attention is required; or
- the spill occurred outside; or
- the material has the potential to reach the environment (e.g., via a drain); or
- the spill is in or affects a common area (e.g., hallway) or other area accessible to the general public; or
- advanced personnel protective equipment (more than gloves and a half-face respirator) is required to respond to the spill; or
- on-site personnel are not trained or not equipped to clean up spill; or
- a responder is unsure whether the spill should be considered "Minor" or "Major".

10.3. Release is any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (water, sewer system, land or ambient air). A spill becomes a release when spilled material reaches and environmental receptor.