



Chemical Spillages


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Critical Incident Plan.

- Containing and controlling incidents so as to minimise the effects and to limit danger to persons, the environment and property.
 - Implementing the measures necessary to protect persons and the environment.
 - Description of the actions which should be taken to control the conditions at events and to limit their consequences, including a description of the safety equipment and resources available.
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- Training staff in the duties they will be expected to perform.
 - Arrangements for informing local authorities, regulatory bodies (e.g. South West Water, EA) and the emergency services if required.
 - Arrangements for providing assistance with off-site mitigation actions if required.
 - Disposal of clean up materials.
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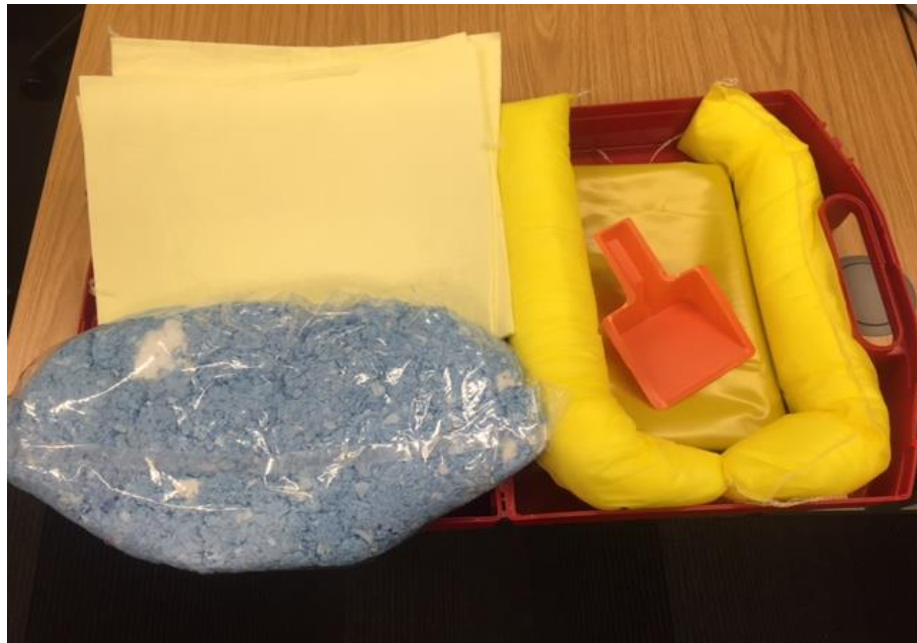
Identification of Spillage

- It is important to understand what has been spilt prior to any action being taken.
 - MSDS and risk assessments should be used to determine responses.
 - Knowledge from those persons carrying out the activity that resulted in the spill
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Spill kits

There are many available on the market to clean up including:

- Chemical spills
- Body Fluid spills
- Mercury spills
- Oil spills



4 principles for all spills are containment, rendering safe, clean-up and disposal

Containment

- Spills involving hazardous materials should first be contained to prevent spread of the material to other areas. This may involve the use of temporary diking, sand bags, dry sand or proprietary booms / absorbent pads.

usage



Rendering safe

- Wherever possible the material should be rendered safe by treating with appropriate chemicals.




Clean-up

Hazardous materials in a fine dusty form should not be cleared up by dry brushing. Vacuum cleaners should be used in preference, and for toxic materials one conforming to type H (BS 5415) should be used.

Disposal

- Treated material should be absorbed onto inert carrier material to allow the material to be cleared up and removed to a safe place for disposal or further treatment as appropriate
- All hazardous waste should be removed via the Universities approved waste disposal contractor.

Make a decision to:

- Firstly evacuate the area affected- contact the Laboratory Manager who will either control the spillage OR
 - If above is not possible raise the fire alarm to call fire brigade.
 - Report the incident via the environmental incident form.
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Clean-up or not?

A spillage should only be dealt with locally if the nature of the spillage is known and by staff who are trained in the use of the required PPE and chemical spillage kits.

If there is any doubt about the hazard involved or ability to deal with the size of the spillage, the Laboratory Manager should be informed and they will, if necessary, raise the alarm for assistance.

Controlling chemical spillages

- Inform others that you intend to deal with the spill. Two trained members of staff should act as a response team. Someone should watch from a safe distance.
- If a flammable liquid is spilt:
 - Eliminate ignition sources, such as naked flames.
 - If a large spill, contact Campus Services, arrange to isolate electrical supply – Do not use switches in the immediate area as spark from the switch may ignite spill.

- Ventilate area and close doors. Open windows (where possible). Do not cross the spill or move further into the room to close doors. If safe, ask others to close doors from adjacent rooms.
- Isolate spill, Consider sealing off the area and displaying warning signs on the doors. If there is a possibility the chemical could seep to the floor below, the occupants must be warned and evacuated.

- Assemble equipment, required and make preparations to deal with the spill in an adjacent but safe room.
- Personal Protective Equipment (PPE) to be used, listed below:
 - Face Masks or Respirator (use half mask, suitable for the fumes)
 - Gloves with wide chemical resistance such as nitrile should be used.
 - Eye protection
 - Lab Coats

Disposal following clean-up

Wearing PPE, place the waste in a suitable container with a tight fitting lid or a suitable sealable plastic bag (which can be later placed in a container with a lid).

Clearly label and identify the chemical waste. If the waste is volatile or fuming, the waste container must be placed open in a vented fume cupboard to allow complete evaporation to take place before sealing.

Small spill waste can be placed within a yellow bag and sent for incineration.

The floor and contaminated surfaces should then be washed with fresh soapy water.

On leaving the area all PPE must be removed carefully and either disposed of in a yellow bag or washed.

Care must be taken not to take off the respirator and eye protection until the contaminated gloves are first removed.

Controlling Biological Spillages

- Laboratories which handle infectious micro-organisms (Hazard Group 2 or above) or fluids which might contain such organisms must have a risk assessment standard operating procedure (SOP) for dealing with relevant spillages.
- Further, a spillage control kit for biological hazards, or the appropriate disinfectants, must always be readily available in these laboratories.

Controlling Mercury Spillages

- Get all people not involved in clean-up out of the area to minimize tracking mercury into other areas.
- Delineate the area that may have mercury droplets with string, tape or other materials. Be careful not to step in the mercury droplets.
- If possible, open a window or door to ventilate with outside air.
- Remove all jewellery from your hands and wrists, since mercury bonds with most metals. Put on disposable gloves. Do not touch the mercury with your bare hands.

- Use stiff paper to push the mercury beads you can see together. Lift the mercury beads into a glass jar or rigid plastic container.
- If there are small beads that you cannot get up with the stiff paper, you can pick them up with sticky tape.
- Wipe the entire delineated area with a damp paper towel or wet wipe.

Controlling Liquid N₂ Spillages

- Allowed to evaporate.
- The area should be well ventilated wherever this is possible. If the enclosure is small then the immediate area needs to be evacuated. Where liquid nitrogen is routinely handled in a small or confined space then an oxygen detector alarming at or below 16% oxygen needs to be fitted.

- Containment of spilt liquid nitrogen needs to be approached with care. The liquid should be allowed to evaporate, recovery is not a practical option.
- Liquid nitrogen may make materials brittle and cause floor covering to crack. Suitable gloves and goggles/visors should always be worn when handling liquid nitrogen. Cryogenic burns should only be treated with lukewarm water, never hot.

Dealing with a Suspicious Substance.

- On discovery of any suspicious material, individuals in the room should, if possible, shut doors and evacuate to an adjacent unoccupied room away from any potential hazard until an initial assessment has been made. If possible leave a warning sign saying do not enter on the door and always inform the laboratory manager.
- The laboratory manager and/or the person finding the suspicious substance need to remain available to answer questions and to give information or help.

Controlling Radioactive Spillages.

If the activity is restricted to a small area the RPS must be informed. An assessment must be made to determine the best way to dispose of the spill.

The RPS must also inform the University RPO (URPO) of the incident.

Pollution/Laboratory Response Training

New for 2016/17

- Practical training on how to respond to a spill in a laboratory/non-laboratory environment.
- Suitable for anyone working in laboratories or overseeing deliveries or storing / handling materials in external environment e.g. field work, stores, etc
- By the end of the course delegates will
 - have basic knowledge of pollution control and an overview of the different types of spill response equipment and spill kits.
 - be able to effectively respond and manage a minor spill.
- Book via Trent

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