Guidance for University Maintenance Staff and Contractors working in laboratories

It is recommended that a copy of this information is given to all maintenance staff and contractors whose job involves them entering and working in laboratory areas. This guidance is applicable for work in all types of laboratories, including biological containment and radiation designated laboratories, except low risk spaces designated as laboratories e.g. language and computer laboratories. It is important that everybody who carries out work in a laboratory is fully aware of and understands this information. Entry of maintenance staff and contractors into laboratory areas must be under a permit-to-work system unless in emergency situations where this is not practicable.

The only exception to the latter is for biological Containment Level 3 laboratories where entry must always be under a permit-to-work even in the event of an emergency, access to these areas is tightly controlled and unauthorised persons should not be able to gain entry except by specific arrangement with one of the authorised laboratory workers.

Introduction

The type of work that is undertaken in laboratory areas is extremely diverse as is the hazard potential of materials or equipment that is used. Work carried out in laboratories often includes the use of substances that are hazardous to health if inhaled, ingested, or touched, these generally being classed as toxic, harmful, irritant, or corrosive. Of course the level of risk to the health of persons exposed to these substances depends upon many factors, these factors being taken into account when undertaking a risk assessment for safe working with hazardous substances. Information on the additional risks when in biological containment laboratories is provided in Appendix 1, and for laboratories handling radioactive material in Appendix 2.

Clearly maintenance staff and contractors cannot, and indeed must not, be expected to make competent risk assessments as to the hazard potential of working in a specific area of a laboratory, or on an item of laboratory equipment. Such risk assessment can only be undertaken by persons with sufficient technical/academic knowledge of the activities being undertaken and substances/equipment being used. It is therefore imperative that maintenance staff and contractors work only to the permit-to-work system provided and that any safety requirement, including the wearing of specific personal protective equipment (such as gloves, overalls, goggles etc), is adhered to. It is also important that they do not extend work outwith the area covered by the permit-to-work without obtaining a new, or signed alteration, to the permit from an authorised and competent member of the laboratory staff.

General guidelines

Always read and adhere to the safety requirements of the permit-to-work. You must never put your own health or safety, or that of others, at risk by deviating from the prescribed requirements.

You should always work protected by coveralls when in laboratory areas and the permit-to-work will tell you if you require to wear disposable coveralls over your normal work wear.

If there has been the need for the wearing of disposable coveralls these should be left with someone in the laboratory for disposal and should not be removed from the laboratory area by the maintenance worker or contractor.

Where special gloves or eye/face protection is required to protect against a laboratory hazard this should be specified in the permit-to-work. The School responsible for the laboratory area should supply such specialist types of personal protective equipment.

Never extend work out with the area or time covered by the permit-to-work without first gaining a new permit.

If you accidentally knock over, spill, or break an item of equipment inform a responsible member of the laboratory staff immediately. Under no circumstances should you attempt to deal with a spillage of laboratory material, no matter how small that spillage is.

By using basic hygiene precautions, allied to common sense, and following the simple rules in the permit-to-work, maintenance staff and contractors can carry out their work in laboratory areas safely.

Emergency call-out situations

There may be exceptional (e.g. out of hours) emergency situations where laboratories have to be entered to conduct emergency repairs, or to make safe a part of a buildings structure, and when there is no competent laboratory staff immediately available to complete a permit-to-work. In such times of emergency certain general and common sense precautions should be observed:

If there is a strong odour in the area, or physical evidence that chemicals have been spilled, do not enter the area until a competent member of the laboratory staff arrives and indicates it is safe to enter. Never attempt to clean up chemical spills or spills of other laboratory materials that may be hazardous.

If there is a strong odour in the area, or physical evidence that chemicals have been spilled, contact the Security Department and check that a School contact has been alerted and is attending, do not enter the area until that competent member of School staff has arrived and indicated that it is safe to enter. In the above situation, should the Security Department operative advise

you that they are unable to confirm that a School contact is attending, the Security Department operative should be advised of a spill of an unknown laboratory substance and asked to summon the Fire Brigade.

Always wear coveralls and gloves. If you intend to use gloves made of an absorbent material such as leather/cotton to protect against a mechanical hazard such as broken glass, wear a pair of disposable gloves beneath them. These will normally be close fitting disposable gloves and may often be found in dispensing boxes on bench tops or in wall dispensers.

Do not touch or move anything that does not have to be moved to deal with the immediate emergency. If the emergency situation is such that you can wait for knowledgeable back up, always do so.

If you have no alternative but to move bottles or containers containing chemicals do so carefully and take special note of any hazard warning labels on the container denoting that the contents may be toxic, corrosive or flammable as this may have a bearing on where you should place the container once moved (e.g. if you are to undertake hot-work, or place ladders, etc.)

If the laboratory is designated as a Controlled or Supervised radiation area, you will need to be checked for contamination on leaving the laboratory. Do not leave the vicinity until a School contact has arrived, monitored you, and advised that you can do so.

Entry into Containment Level 3 laboratories must always be under a permit-to-work even in the event of an emergency. Such laboratories will display a Containment Level 3 sign at the entrance and will be kept locked when not in use. Only authorised laboratory personnel should have access to these types of laboratories and you must never enter unless such a person tells you it is safe to do so. Clearly in the event of an emergency the priority will not be to issue a written permit-to-work, and in such cases they should give you the verbal equivalent including instructions on what you should and shouldn't do and they should accompany and supervise you at all times whilst you are in the laboratory.

In all cases where there has been the need for emergency entry to a laboratory area without a written permit-to-work being issued, for record purposes, a written permit-to-work should be completed subsequently and it should be indicated what verbal instructions had been given.

If anyone has any doubts that it is safe to start or to continue to work then they should stop work until the problem is sorted out. In the event of any query that cannot be resolved locally the University Health and Safety Department can be contacted for advice. The Security Department are able to contact Health and Safety personnel out-of-hours.

Appendix 1 - Work in biological containment laboratories

The type of work researchers carry out in containment laboratories often involves the use of samples and materials that may have micro-organisms in them. Micro-organisms are more commonly referred to as germs or bugs and include all sorts of different types of bacteria and viruses. If people come into contact with these micro-organisms it is possible they will be infected and in some instances become ill.

Clearly the hazard in such laboratories is the potential for exposure to micro-organisms. Containment laboratories are designed and run in such a way as to ensure that staff and visitors are not at risk.

There are three different classes (or levels) of containment laboratories in the University. These are based on the type of micro-organisms being handled and can be summarised as follows:

- Containment Level 1 - the micro-organisms are unlikely to cause human disease.
- Containment Level 2 - the micro-organisms may cause illness in the person exposed but the infection is unlikely to be passed on to other people with whom they come into contact.
- Containment Level 3 - the micro-organisms may cause the person exposed to become very seriously ill and they may pass the infection on to other people with whom they come into contact.

As the containment level increases there are changes in the way staff in the laboratory work. Rules on working practices alter so that it is as safe to work and visit a level 3 laboratory as it is for any other laboratory. The rules are there for everybody's protection, including that of visitors.

Prior to issuing a permit-to-work, it is the responsibility of the laboratory staff to ensure areas are cleaned and disinfected as necessary in order that anyone entering the area will not come into contact with any infectious materials. That this has been done will be detailed on the permit-to-work along with any additional instructions or information they feel it is necessary for the maintenance staff or contractors to have. This, coupled with using basic hygiene precautions and following the simple rules in the permit-to-work, ensures maintenance and repair staff and contractors can carry out their work safely in containment laboratories and avoid any exposure to infectious materials.

Appendix 2 - Work in laboratories handling radioactive material

The type of work researchers carry out using radioactivity involves relatively small quantities. Radioactive material in the University laboratories presents a risk in two ways:

- Exposure to a radiation beam; and
- Becoming contaminated by some of the radioactive material

THE TYPE OF RADIATION USED IN UNIVERSITY LABORATORIES CANNOT MAKE ANYBODY RADIOACTIVE.

The risk from exposure to a radiation beam depends upon the amount of radioactivity, the distance from the beam, the time you are in a radiation beam and the presence of any shielding. Fortunately, the amounts used in the laboratories are quite small, and therefore the strength of the radiation beam is very low. Generally more importantly is the risk of persons in the laboratory becoming contaminated with radioactive material. Laboratories handling radioactivity are designed and run in such a way as to ensure that staff and visitors are not at risk from this.

There are three different classes (or levels) of laboratories handling radioactivity in the University. These are based on the particular type of radioactive substance, its chemical and physical form, and the amount. They can be summarised as follows:

- Non-designated - the amount and type of radioactivity cannot cause significant harm.
- Supervised - there is a small risk of exposure from contamination and/or radiation beams.
- Controlled - there is a risk of persons receiving a significant exposure from contamination and/or radiation beams.

As the designation level increases there are changes in the design of the laboratory and its facilities, and the way staff in the laboratory work. Rules on working practices alter so that it is as safe to work and visit a Controlled Area laboratory as it is for any other laboratory. The rules are there for everybody's protection, including that of visitors.

Prior to issuing a permit-to-work, it is the responsibility of the laboratory staff to ensure that work with radioactive material in the vicinity is stopped and the material is put away. This does not mean that all work in the laboratory is stopped, only that which could be a risk whilst carrying out your work. The laboratory staff must also clean and monitor the relevant area in order that anyone entering will not come into contact with any radioactive material or be exposed to its emissions. That this has been done will be detailed on the permit-to-work along with any additional instructions or information they feel it is necessary for the maintenance staff or contractors to have. In Controlled Area laboratories a member of staff will also remain with you during your work. At the end of the work, a member of staff must monitor you for contamination; usually checking the hands is sufficient. This, coupled with using basic hygiene precautions and following the simple rules in the permit-to-work, ensures maintenance and repair staff and contractors can carry out their work safely in laboratories handling radioactivity and avoid any exposure to it.