



University
of
St Andrews



UNIVERSITY OF ST ANDREWS

SCHOOL OF BIOLOGY

HEALTH AND SAFETY MANUAL

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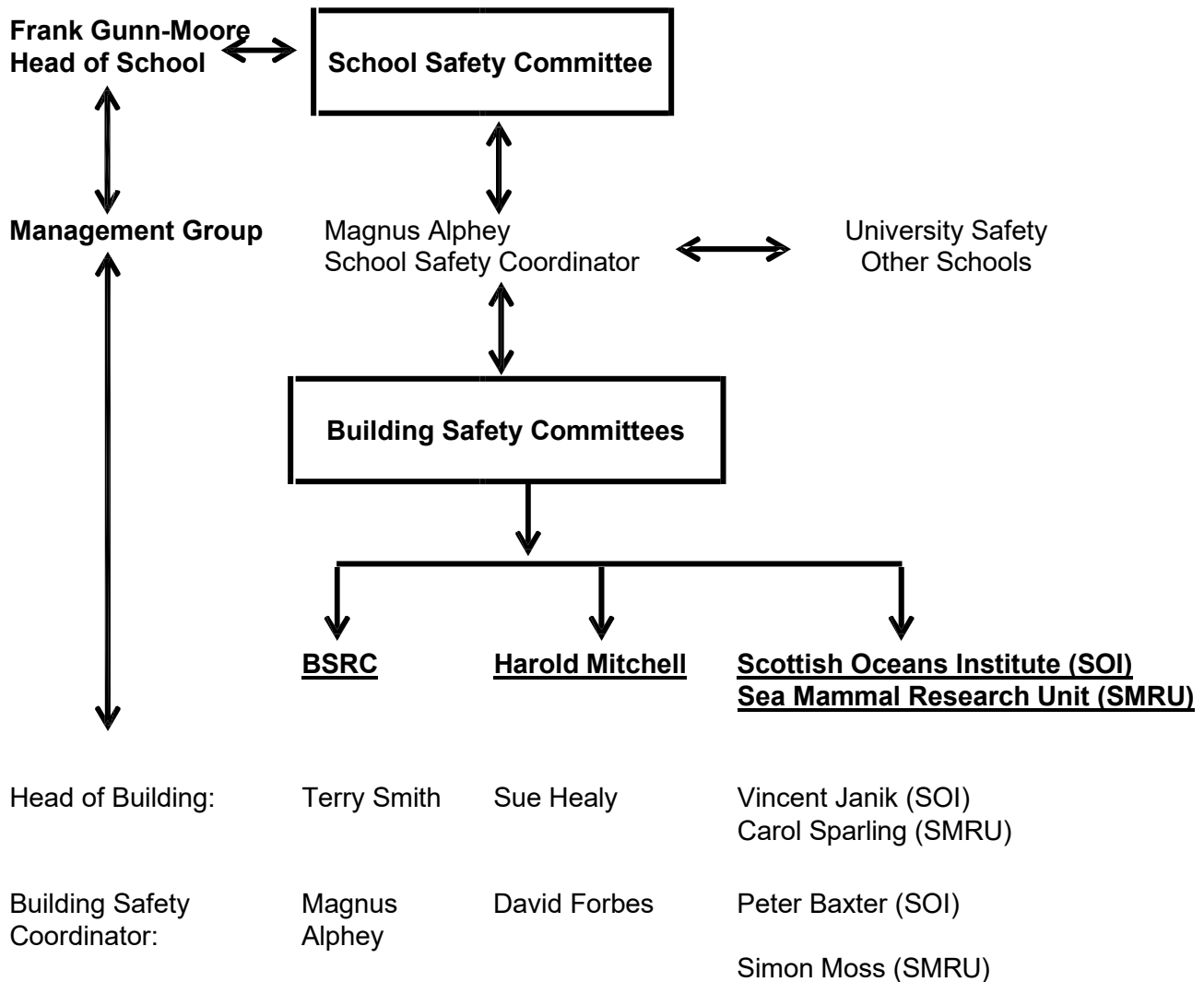
SCHOOL OF BIOLOGY HEALTH AND SAFETY POLICY STATEMENT

The Head of School is responsible for all matters of Health and Safety within the School:

- a) The health and safety of all school staff, while on duty.
- b) The safety of any person in school areas.
- c) Ensuring that staff who work in other departments adopt relevant local safety policies.

The Health and Safety management structure for the School is set out below.

Health and Safety Management Structure



SCHOOL OF BIOLOGY
HEALTH AND SAFETY POLICY STATEMENT (continued)

1. The School will appoint a Safety Committee to manage safety on behalf of the Head of School. The committee will meet as required, but at least annually.
2. The Head of School will oversee the School Safety Committee to ensure that these responsibilities are met. The membership of the Safety Committee includes the Head of School, the School Safety Coordinator, and the Building Safety Coordinators.
3. The School strives to minimize risks to visitors, employees, students, contract labour and service engineers by acting on appropriate legislation, providing training and adequate safety equipment, and encouraging safety consciousness in the workforce.
4. The School Safety Committee will produce appropriate safety policies as required.
5. The School Safety Committee will systematically review hazards, perform risk assessments, and keep appropriate records and risk assessments to comply with legislation.
6. The School Safety Committee will determine and co-ordinate the safety policy for the School, taking into consideration relevant governing legislation, recommendations of the relevant University health and safety policies and committees, guidance issued by the Environmental, Health and Safety Services and the needs of the individual School Buildings.
7. There will be a Building Safety Committee convened in each School building to deal with issues specific to that building; it should meet at least annually. Minutes of each Building Safety Committee will be forwarded to the School Council.
8. Heads of Buildings, appointed by the Head of School, will have delegated responsibility for health and safety matters within their particular building and lead the Building Health and Safety Committee. In each building there will be a Safety Coordinator and individuals delegated to deal with the day-to-day management of health and safety issues in the building.
9. The School Safety Coordinator will meet with Building Safety Coordinators as necessary. If problems cannot be resolved at the building level, they should be referred for advice to the School Safety Coordinator in the first instance.
10. The School will carry out safety inspections in each building once a year. The inspection teams will normally be recruited from the Building Safety Coordinators but may include other specialist members. Reports of these inspections will be signed by the Head of Building and made available to the University Health and Safety Adviser and the School Safety Committee, with recommendations for action.
11. When members of the School are located in a building controlled by another School, either permanently or temporarily, they will adopt the safety management structure of that School.
12. Accidents and incidents are to be reported to Environmental, Health and Safety Services and thoroughly investigated by School safety personnel or the University Health and Safety Adviser.
13. Specialist activities of the NERC-Funded Sea Mammal Research Unit are recognised and are subject to an additional Code of Practice that extends the Safety Policy Document of the School of Biology.

Professor Frank Gunn-Moore
(Head of School)

Date: August 2019



DUTIES OF ACADEMIC SUPERVISORS/PRINCIPAL INVESTIGATORS

It is the duty of Supervisors/Principal Investigators to ensure:

- a) That all new workers receive appropriate Health and Safety induction training and that existing workers are appropriately monitored and re-trained as necessary.
- b) The day-to-day Health and Safety of research staff and undergraduate students working with them.
- c) That all new staff/students are made aware of the location of hard-copy policy manuals in their building, and are also given the link information for the Policy manual on the School of Biology web site. New staff/students should be made aware that they are expected to comply with the contents of the School Health and Safety policy document.

It is essential that all new workers are appropriately registered to work with radioisotopes and genetically-modified organisms, and that they receive training in both biological and chemical safety.

DUTIES OF ALL SCHOOL PERSONNEL

The following brief guidelines are designed to provide an indication of the duties of individuals working within the School. Further detailed information may be found in the appendices at the end of this booklet.

Note that **named** individuals in the School have **specific** health and safety duties delegated to them (see: Fig. 1, School Health and Safety Management Structure) which are listed in Appendix 1.

SAFETY – GENERAL LABORATORY SAFETY

All Laboratories must have a **CODE OF PRACTICE SPECIFIC FOR THE WORKING AREA ON DISPLAY AT THE ENTRANCE** containing information about COSHH, waste disposal, microbiological containment, isotope usage, etc. **YOU MUST READ THIS DOCUMENT BEFORE STARTING WORK IN THE LABORATORY.** (See Appendix 2 for a model Code of Practice). An emergency telephone number for the person in charge of the laboratory should also be displayed on the door. The Building Safety Coordinator should be informed of any significant changes to any Laboratory Code of Practice.

1. Animal Handling

Legislation is in place that requires the registration and training of all personnel wishing to carry out animal experimentation. This is not in itself safety legislation but Home Office requirements to comply with animal welfare regulations. However, there is still a requirement that all personnel who handle animals should be aware of the hazards to which they may be exposed. These may include, for example, bites, scratches, allergens in fur or feathers, chemical hazards in the form of anesthetics, cleaning/disinfection reagents or preservatives or pathogens. All staff exposed to animal house hazards must be made aware of the hazards and appropriate risk assessments must be carried out and kept in the animal house for inspection. The Building Safety Coordinator should be made aware of the risk assessments and will arrange for appropriate health surveillance to be implemented e.g. periodic testing for allergic respiratory responses to dust and dander. Risk assessments for animal handling should be carried out before work commences and appropriate measures put in place to reduce the exposure of personnel to dust hazards. **All accidents and incidents involving animals must be reported.**

2. Biological Safety

The revised 'COSHH (2004) Regulations' also include biological agents and consequently appropriate risk assessments must be produced for any procedures in which microorganisms are involved.

<http://www.hse.gov.uk/coshh/index.htm>

An electronic COSHH Risk Assessment Management System (CHARM) has been set up by the University. This system, and its associated database, allows identification of the hazards of biological agents (mainly microorganisms) and produces a risk assessment form for workers to complete and this electronically signed by the worker and their supervisor.

For access:

<https://www.st-andrews.ac.uk/ehss/charm/home.htm>

For guidance:

[http://www.st-andrews.ac.uk/media/environmental-health-and-safety-services/health-and-safety/Guidance for CHARM programme.pdf](http://www.st-andrews.ac.uk/media/environmental-health-and-safety-services/health-and-safety/Guidance%20for%20CHARM%20programme.pdf)

It should be noted that the system of classification of biological hazards divides those hazards into four groups (1 > 4). Whilst these are superficially similar to the chemical hazard groupings they reflect very different levels of hazard. The School of Biology currently has two facilities for the handling of organisms requiring containment level 3, located in BSRC. The Director of this facility is Prof Terry Smith (tks1@st-andrews.ac.uk).

Each building within the School has a COSHH Adviser who will assist in the use of the electronic system (see: Fig 1, School Health and Safety Management Structure). Advice may also be obtained from the Building Biological Safety Coordinator. The University Safety Publication entitled 'Guidance on Chemical and Biological Safety: Part 2 - Biological and Genetic Modification Safety' is available for consultation from the Building Biological Safety Adviser and EHSS website (see: Appendix 9).

All workers handling live microorganisms must receive full instruction in microbiological safety and be trained in basic microbiological techniques either within the School or at an approved establishment before commencing work.

Animal Pathogens

Use of specific animal pathogens is restricted by the Specified Animal Pathogens order (2008). Workers must ensure that any organism that they wish to obtain comply with these regulations as well as those in place for human pathogens.

Clinical Samples

Clinical samples or samples of microorganisms isolated from patients may only be brought into a unit of the School after consultation with the unit Biological safety coordinator.

Further information on the safe handling and disposal of biological agents within the School will be found in Appendices 3 and 4.

Plant Health Licensing in Scotland

[The Plant Health Order GB \(1993\)](#) and the [Plant Health Scotland Order \(2005\)](#) prohibits the introduction or movement of certain named pests and diseases. It also bans the import of various plants and plant products from certain third world countries. These orders are monitored by SEERAD and licenses to import are arranged through SEERAD and SASA (<http://www.sasa.gov.uk/>). To guard against the spread of harmful organisms, official controls apply to the import, movement and retention of plants, plant pests and other material, e.g. soil. These controls include provision, subject to precautions, for trial and scientific investigations on plants, plant pests, soil and growing medium that would otherwise be prohibited.

Plant Health Publications available at the [GOV.UK](https://www.gov.uk) website:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs>

To contact SASA for information regarding licenses: Plant_health_licensing@sasa.gsi.gov.uk

Before importing any such materials into the School, you must discuss your plans with the Building Biological Safety Coordinator and they must also contact EHSS to ensure proper application for licenses etc.

3. Chemical Safety

The 'Control of Substances Hazardous to Health (COSHH) Regulations' which was enacted in 1988 requires a management system to assess and control the use of all hazardous substances at work. The revised 'COSHH (2004) Regulations' now additionally require the assessment of biological agents and have amendments to the definition and use of carcinogens. The key feature of the COSHH Regulations is the requirement formally to assess the risk of (hazardous) substances including biological agents to the health of employees and then to introduce appropriate protective control measures. These control measures must include suitable information, instruction and training. Where necessary, control measures should include monitoring of exposure to hazardous substances and also health surveillance.

The University has developed a Hazard Rating Code for chemicals that rates the hazard of a substance from 1 (no significant hazard) to 5 (highly hazardous), with a suffix denoting the type of hazard. The degree of hazard should be displayed on each chemical source container, and on each dispensed aliquot whether in solution or not, and, in some areas of the school, by a colour-coded label. Additional information concerning the chemical is by a letter code (e.g. A = corrosive or irritant, C = carcinogenic, F = flammable, O = oxidizing agent, T = toxic, X = explosive, M = mutagen).

An electronic COSHH Risk Assessment Management System (CHARM) has been set up by the University and is accessible online:

<https://www.st-andrews.ac.uk/ehss/charm/home.htm>

Access is via username and password (the same as e-mail). If an e-mail account does not allow access, contact Dr Paul Szawlowski, Deputy Director, Environmental Health & Safety Services, pwss@st-andrews.ac.uk

CHARM allows the search and identification of the hazards for substances and biological agents and produces an electronic risk assessment form for a particular procedure. The person who wishes to carry out the procedure should complete the risk assessment. Other workers who may wish to use the same procedure may have their names included, but they must confirm that they agree to the assessment by electronically accessing it and 'signing' it. Exceptionally the School Health and Safety Committee may wish to vary the criteria for a particular chemical but this must be done by agreement with the University Chemical or Biological Safety Advisors (Dr Alan Aitken or Dr Martin Ryan, respectively). Individuals may request a review of the rating of a chemical if they believe that the listing is too high or low.

The risk assessment produced by the CHARM system is approved by Principal Investigators (PIs) electronically for chemical hazards rated 1-4 and, additionally by the building safety coordinator if there is a hazard rated as 5. If the assessment is not satisfactory the PI or the safety coordinator must give reasons electronically to the assessor for their refusal. After approval or refusal, the assessor is notified by e-mail. The assessment becomes validated when it is finally approved.

Each building within the School has a COSHH Adviser who will assist in the use of the electronic system (see: Fig 1, School Health and Safety Management Structure).

All persons using substances that are potentially hazardous to health should read the University Safety Publication entitled 'Guidance on Chemical and Biological Safety: Part 1 - Chemical Safety (1998)' which is available for consultation from the Building Safety Coordinator and the Safety office web site.

Further details of ordering, safe handling and disposal of chemicals within the School and the criteria that the University uses for its hazard rating system will be found in Appendix 6.

4. Computer Workstations and Display Screen Equipment

The biggest cause of referrals of physical injury to Occupational Health is not chemicals spills, not radiation exposure or other lab accidents, it is ergonomic issues, which include Display Screen Equipment (DSE). [The Health and Safety \(Display Screen Equipment\) Regulations \(1992\)](#) were introduced to protect users from a number of health problems identified among individuals who work for long periods with visual display units.

Training in Display Screen Equipment (DSE) safety is a compulsory requirement under the Regulations:

All users (i.e. those working for 1 hour or more) must be given training in the use of DSE and also must undertake a risk assessment of their workstation.

The term 'Workstation' includes optional accessories, disc drives, telephones, modems, printers, document holders, work chairs, work desks or surfaces and other items peripheral to the display screen equipment, and the immediate work equipment around the display screen equipment. Aspects of the working environment such as lighting, heating, ventilation and humidity are also relevant.

It is therefore vital that school is able to monitor the risk assessment and undertake a review if there are any recommendations. The DSE training and risk assessment will soon be available on the University's new online Skills database (the link will be updated in due course). The module is approximately 30 minutes long, and will guide you through the information you need to set up your work area and run you through a risk assessment to ensure your work area is comfortable and properly set up for your environment.

5. Cryogenic Materials

Although liquid nitrogen and dry ice have the potential to cause serious burns, the layer of gas normally prevents heat transfer from the skin. To avoid burns, wear loose fitting gloves for rapid removal when handling liquid nitrogen and do not allow it to fall on clothing. Attempting to pick up dry ice with wet hands or handling dry ice wet with acetone or other liquids can produce severe burns. When removing sample vials from liquid nitrogen storage vessels, it is good practice to wear face visors as well as lab glasses to protect the face in case of the cryovial exploding due to the sudden temperature change.

All Dewar flasks used for carrying liquid nitrogen along corridors must be fitted with a carrying handle.

It is strictly forbidden to travel in any lift together with a large (>5 litre) container of liquefied gas. Those responsible for moving such containers between floors must place them in the lift, walk to the destination floor and then summon the lift. If you open the lift and find a large liquid gas container inside, close the door and allow it to continue to its original destination. It is highly advisable that you also make visitors aware of this, as it may not be a familiar practice.

Careful consideration must be given to the siting of large Dewars of liquid nitrogen, particularly with "pressurized Dewars" which are capable of delivering liquid simply by opening a valve. In general, these should be sited in a well-ventilated space such as a laboratory with functioning fume cupboards. Under no circumstances are they to be sited in an unprotected fire escape route (such as a main corridor).

Those contemplating purchase of a new large Dewar should first the School Safety Coordinator to agree upon a suitable location for it.

6. First-Aid Provision

First aid posts are distributed on each level and area of the School Buildings and you should familiarize yourself with their position. The names of staff holding current first aid certificates, and their location within the Building, are displayed at these first aid points. Staff are encouraged to undertake the first aid course run by the Occupational Health Service in order to maintain an appropriate pool of first aiders.

7. Genetic Modification

BEFORE any work on genetically modified (GM) organisms can be performed a suitable written risk, assessment must be prepared in consultation with the Building Biological Safety Coordinator. This risk assessment must be approved by the Building Health and Safety Committee and sent to the Secretary of the Chemical and Biological Hazards Sub-committee of the University Health and Safety Committee for ratification, before work commences. Copies of the ratified risk assessment must be kept in the laboratory where the GM work is carried out and a copy also kept by the Building Biological Safety Coordinator. All staff working on the project must sign the assessment to accept they are aware of the hazards involved. ***On no account should such work be started without prior consultation with the Building Biological Safety Coordinator.*** GM publications are available online (see: Appendices 4 and 6, Chemical and Biological sections).

8. Lasers

It is important to be aware that levels of exposure should not be exceeded. At the surface of the eye (i.e. the cornea) damage from visible radiation results from very low energy levels. It is obvious that nearly all lasers will give rise to energy or power densities in their direct beam that are greater than Maximum Permissible Exposure Levels recommended for the cornea. In many cases refracted, reflected or scattered radiation will also exceed these levels. It is therefore clear that appropriate precautions must be taken when any laser device is used.

New laser devices should only be purchased or constructed after consultation with the Building Safety Coordinator or Dr Cameron F. Rae, University Laser Safety Adviser.

All personnel working with lasers must read the '[University Local Rules for Work with Lasers](#)' (1992) and, in addition, be registered with the University Radiation Protection Service (EHSS).

Laser pointers are now used regularly in lectures and other teaching activities. It has been noted that some of the new pointers, which are readily available in the UK and include red and green devices, are more powerful than the older models and pose a serious risk of eye injury to anyone exposed to the beam. This apparent irregularity of devices being available that may be hazardous arises in part due to American (ANSI) standards being more relaxed than British/European Standards (BS EN). Laser pointers used in areas under the control of the University of St Andrews must comply with the following University policy based on BS EN standards and Universities UK recommendations:

Device Requirements

- Laser Pointers must not exceed Class 2 (1 mW output power);
- Laser Pointers must be purchased from reputable manufacturers and suppliers;
- Laser Pointers may only be modified under certain circumstances (e.g. output power reduction) and only with the approval of the University Laser Safety Adviser.

Conditions of Use

- Ambient lighting should be kept as high as practicable - blackout conditions should be avoided whenever practicable;
- Laser Pointers must not be directed towards eyes;
- Prior to use, checks should be made that there are no reflective surfaces that could foreseeably redirect the laser beam towards eyes (user and audience);
- Schools/Units are required to take steps to ensure that all relevant persons are made aware of this guidance, including visitors to the University of St Andrews.

Further Recommendations

- The use of green or 630nm red waveband laser pointers is recommended. These wavelengths afford greater visibility per unit power;
- If visiting another establishment and intending to use a laser pointer, you should first check the local regulations.

Emergency Action

In the event of an accidental exposure to the eye of any person, they should be taken to the Accident and Emergency Unit at Ninewells Hospital, Dundee and the University Safety Adviser notified via an Accident Report Form.

9. Office Safety

Within the School there are two types of Offices:

a) Administrative Offices

This type of office is used purely for the purposes for which it was designed. For safety purposes most of the requirements for this type of office are set out in the University safety publication entitled 'Health and Safety in Offices: Guidance for Staff (1995)' in the sections entitled 'Video Display Workstations' and 'Manual Handling'.

b) Laboratory Offices

These offices are often attached to laboratories and it is tempting to use the space for experimental purposes. This is not to be encouraged. Similarly, if an office is attached to a laboratory it must not be used for eating and drinking purposes, and should be subject to appropriate safety measures contained in the Code of Practice prepared for the laboratory to which it is attached.

10. Personal Protective Equipment (PPE)

During many every-day tasks, including research, teaching or maintenance, staff and students may be exposed to chemical, physical, biological or environmental hazards. The aim is to ensure that where persons are exposed to hazards they are provided with, and trained in the use of, personal protective equipment (PPE). PPE should only be used following an appropriate risk assessment and as a last means of controlling the hazard.

What is PPE?

PPE is defined as "all equipment (including, clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety". This does not include ordinary working clothes such as uniforms that do not specifically provide health or safety protection, nor does it apply to equipment used whilst playing

competitive sport. However, equipment required for the safety of a sports instructor does fall within the category of PPE, (e.g. a life jacket for a canoeing instructor).

Building Safety Coordinators should determine areas of work that may require PPE. In many cases this will include standard laboratory coats, gloves and, where necessary, safety goggles. In laboratories, appropriate closed-toed shoes should be worn and sandals, open-toed or bare feet **ARE NOT** acceptable.

However, Building Safety Coordinators should identify work activities that require more specialized PPE. Persons working in these areas should be provided with the appropriate equipment and should receive appropriate training in the use of that equipment. It is the responsibility of the individual user to ensure that such equipment is utilized. The booklet "The Selection, Use and Maintenance of Personal Protective Equipment (PPE)" is available by asking your building safety coordinator and from the [EHSS publications web page](#). (see also Appendix 9, Personal Protective Equipment (PPE) section).

11. Radiation Safety

a) Ionizing Radiation

ANY WORK WITH IONISING RADIATION IS SUBJECT TO THE COMPLETION OF FORM URPS2/RM 'APPLICATION FOR APPROVAL OF PROJECT INVOLVING THE USE OF IONISING RADIATION' (AVAILABLE FROM THE LOCAL DRPS) AND APPROVAL BEING GIVEN BY THE UNIVERSITY RADIATION PROTECTION ADVISOR (URPA) PRIOR TO THE COMMENCEMENT OF WORK

BEFORE UNDERTAKING WORK WITH RADIOISOTOPES ALL INDIVIDUALS ARE ADDITIONALLY REQUIRED TO:

§ Register as a user of Ionizing Radiations by completing a University Registration Form (available from the building RPS).

AND

§ Have attended a Radiation Protection Course either at this University or at another approved Establishment.

AND

§ Read the University Safety Publication entitled 'University Local Rules for Work with Ionizing Radiations' which is available for consultation from the building Radiation Protection Supervisor and at:

<http://www.st-andrews.ac.uk/staff/policy/healthandsafety/radiation/>

b) Non-Ionising Radiation (Ultraviolet Radiation)

The use of equipment which emits ultraviolet radiation, by design or as a by-product of a particular process, may expose University staff and other persons, whether at work themselves or not, to ultraviolet radiation at levels which may give rise to adverse health effects either short-lasting (acute) or long-lasting (chronic). It is therefore important to avoid unnecessary exposure by implementation of administrative controls, engineering controls and, under certain circumstances, by the use of personal protection.

Administrative control measures include limitation of access; hazard awareness; the use of hazard warning signs and lights; and distance as a safety factor and limitation of exposure.

Engineering controls include containment, the use of interlocks and elimination of reflected ultraviolet radiation.

Personal protection includes both protection of the skin and the eyes. Skin protection may be accomplished by the wearing of ordinary visually opaque materials such as laboratory coats. Hands may be protected by the use of disposable polyvinyl chloride gloves; gloves made of polythene afford considerably less protection. Protection of the eyes against ultraviolet radiation is given by glass, Perspex or polyvinyl chloride goggles, spectacles or face shields. **NOTE** that standard laboratory safety spectacles and goggles do not afford protection against UV-A or UV-B radiation. Spectacles, goggles and face shields suitable for ultraviolet radiation protection are clearly marked as such.

Further information on working safely with ultraviolet radiation may be found in the University Safety Publication entitled 'University Local Rules for Work with Non-Ionizing Radiations, Part 2: Ultraviolet Radiation' (see: Appendix 9, Radiation section).

SAFETY PROCEDURES

12. Suspected or Actual Gas Leak

Introduction: This procedure is intended to provide guidance in the event of a suspected or actual gas leak.

Reduce immediate risk of explosion

If there is a local gas knock-off button or shut-off valve (e.g. in a lab, a boiler room or a kitchen) then users should immediately shut off the gas supply to that area.

In all cases, users should prohibit switching on or off any electrical equipment or lights and ventilate the affected area(s) by opening windows or doors wide.

This guidance relates to internal gas leak - if the leak is suspected of being external to the building then please keep doors and windows shut to prevent ingress of gas into the building.

Building evacuation decision-making

A general building evacuation should be signaled unless the suspected leak can be traced to a small, localized source with limited potential for harm. (In the latter case, staff should simply leave that area and establish a cordon well out with the perimeter of the affected area to prevent other staff from entering until the situation is resolved by Estates.)

For avoidance of doubt, any suspicion of a mains supply leak, any significant leak from a compressed flammable gas cylinder, any widespread leak or odour, or an apparent worsening of the situation should trigger a general building evacuation.

Signaling an evacuation

To signal an evacuation, use hand-held air horns where available.

If there are no hand-held air horns, then you may signal an evacuation by using the fire alarm system only if the fire alarm panel is in a well-ventilated area and there is no gas odour, nor any reason to suppose the presence of any odourless flammable gas in that area.

If there is any doubt whatsoever as to whether it is safe to use the fire alarm panel, access as many occupied areas of the building as possible, shouting "GAS LEAK – LEAVE THE BUILDING NOW" before leaving the building yourself.

Stay a safe distance from the building

Once outside the building, staff should be instructed by Fire Wardens, Fire Marshalls, Building Officers and H&S co-ordinators to assemble at the Gas Assembly Point.

In the absence of a designated Gas Assembly Point, then congregate at least 200m from the building to protect from flying glass in the event of an explosion.

Please note that Fire Assembly Points will generally be too close to the building and should not be used in case of gas leaks.

Seek help from specialists

From well out with the area of the suspected leak, notify the Building Officer or other member of the management team and phone Estates Helpline on 01334 463999 if the event is between 0800 and 1700hrs Monday to Friday. Outwith those times, or during University closures, notify Out of Hours on 01334 476161. An Estates Gas Safe Registered Engineer will attend site within 1 hour (which is the same response time as Scottish Gas Networks).

The role of Estates

Estates will check the situation with gas detection equipment and they will shut local isolation valves within systems. Leaks traced by Estates as being 'external' to the building will be handled by SGN. Unless advised otherwise, it will be Estates' responsibility to contact SGN. Building users are expected to work in concert with Estates staff in order to resolve the problem and must comply with any instructions issued by Gas Safe Registered Engineers.

13. Accident and Near Miss/Dangerous Occurrence Reporting Procedures

All accidents and incidents must be reported to the Environmental, Health and Safety Office on the official Accident/Dangerous Occurrence/Near Miss Report Form and a copy lodged with the Head of School. [Accident/near miss/dangerous occurrence report forms](#) are available online, and **must** be completed for any but the most trivial of accidents, and then returned to the School Safety Coordinator. It is a duty of the School Safety Coordinator to investigate the cause of minor accidents and implement any necessary remedial actions. If further investigation is required then an Accident/Incident Investigation Report form should also be completed.

14. Safety in Fieldwork (including more specialist activities associated with the Sea Mammal Research Unit)

Fieldwork may be defined as any practical work carried out by staff or students for the purpose of teaching and/or research in places which are not under University control but where the University is responsible for the safety of staff and/or students and others exposed to hazards associated with their activities.

Staff and students undertaking fieldwork should be fully informed of the nature of the work and the associated hazards and be trained to deal with these hazards where they exist.

It is a legal requirement that an assessment of risk to the Health and Safety of staff and/or students be carried out prior to the commencement of the activity. A suitable and sufficient assessment will identify foreseeable significant risks, be appropriate for the level of risk, will enable the assessor to decide on action to be taken and priorities to be established, be compatible with the activity, remain valid for the period of the work, and reflect current knowledge of the activity.

Risk may be reduced by ensuring that a suitable number of supervisors are always present, that supervisors are competent under the circumstances likely to be encountered and have adequate first-aid training, that all fieldworkers are adequately prepared (clothing, footwear, training, etc.), that suitable lines of communication are available, that contingency planning for foreseeable emergencies have been made and that accidents are reported and investigated.

Fieldwork activities carried out by any student must be assessed by the Academic Supervisor. Fieldwork activities carried out as part of a teaching module must be assessed for risk by the Module Organizer. A risk assessment must also be performed by academic staff/Principal Investigators in connection with their own fieldwork activities. Risk assessments may be obtained from the university's Risk Assessment and Field Travel Information page:

<https://www.st-andrews.ac.uk/utrec/guidelinespolicies/riskassessment/>

as well as from the EHSS Moodle site:

<https://moody.st-andrews.ac.uk/moodle/course/view.php?id=2693>

A copy of the written risk assessment should be sent to the Head of School who is responsible for approval and keeps copies of completed risk assessment forms. If the Head of School is not satisfied that the foreseeable significant risks are adequately controlled and that appropriate insurance cover is in place, he will either reject the application or refer it to the University Fieldwork sub-committee for review. No project submitted to the sub-committee may start before written approval has been received from the Convener or nominated deputy.

Field course first aid kits are available from the teaching labs and should be taken on each field excursion and returned to the teaching lab afterwards together with a note of any contents that have been used.

It is imperative that fieldwork activity that will be carried out during placement elsewhere has been assessed for risk in consultation with the receiving institution. In the case of students participating in exchange programmes such as ERASMUS the written assessment would normally be carried out by the Student Placement Officer. In other cases, the written assessment would normally be carried out by the Academic Supervisor.

River, Coastal and Estuarine Fieldwork

River, coastal and estuarine fieldwork holds many Health and Safety challenges and all aspects should be considered well in advance of the field trip.

These are:

1. Access to sites and permissions
2. Inundation periods (Tidal conditions and timing)
3. Communications (on site and off site)
4. Adverse weather
5. Challenging Transport Conditions
6. Provisions (water, food, medical)
7. Consultation

These aspects are considered in more detail below:

1. ACCESS

Access to many sites is limited and may involve permission to cross land and there may also be a requirement for licenses to work on a site or remove materials. The use of any motorized sampling devices may require specific permission from the "Marine Management Organisation" or SNH. You will need to consider this well before you start fieldwork. Permission to work on a particular site or access to it may have to come from Land Owners; S.N.H.; The Environment Agency or other Statutory Bodies. There may also be prior use of the site (wild fowling, fishing) that needs to be investigated with local contacts.

Access may also be physically arduous and vehicular access must also be considered again time of year and suitability of routes.

2. INUNDATION

Your site may be inundated by tides twice a day this will play an important part in access and utilization especially to make the most of daylight hours. Factors such as emersion time, breadth of shore (intertidal area), speed of flooding and ease of movement must be taken into account to select a safe "working window". This must include consideration of a safe exit route; incoming tides will often cut off access.

3. COMMUNICATION

There are two major areas for communications: Within the team and between the team and an external organisation. Communication is often poor in coastal areas due to poor phone signals, you may need an alternative such as hand-held two-way radios or a rigorous time plan logged onshore with a responsible person. In addition, there must always be a way to contact emergency services and local coastguards if required. This may be through a two-way radio to shore based person or by an observer with oversight of the fieldwork and good communications links. Emergency numbers should be obtained in advance.

4. ADVERSE WEATHER

Adverse weather affects all coastal work. The winds are usually stronger than onshore and temperatures may be up to 5°C colder so conditions are often more severe than expected. There is usually no shelter from the weather so care must be taken with attire whether it is for cold or heat or UV radiation from the sun. Beware of exposure in the team members.

5. CHALLENGING TRANSPORT CONDITIONS

All river, coastal and estuarine environments are by their nature highly variable and greatly affected by local weather conditions and water supply. In addition, many sites are logistically difficult, with mud, rock and sand substrata. Rocky shores are uneven, steep and slippery. Sandy shores have areas of variable stability (quick sand and stable surfaces can be close together) and unpredictable flooding patterns, while muddy sites are difficult to walk on and are extremely energy sapping and also have unpredictable flooding patterns. In some sandy, but especially, muddy sites there is a danger from becoming trapped due to the depth and the sticky nature of the sediment. Workers should be aware of the dangers and have appropriate safety plans.

6. PROVISIONS

As fieldwork may be driven by tidal cycles and period of work can be extensive and remote, you will need to think about the provision of food and water as well as suitable clothing and how to transport them.

Minor accidents are also possible and so a safety kit must accompany all fieldwork and be available to workers.

7. CONSULTATION

All of the above are guidelines, for more detailed information you should consult the Building Health and Safety Representative, and Technical, Post-Doctoral, and Academic Staff in a research group with experience of river, estuarine and coastal fieldwork. Please also read example fieldwork assessments authored by experienced individuals or groups

Summary:

Aspects 1-3 must be completed in advance of any trip. Access information can often be found through websites from environment agencies, local councils, local rangers etc. Weather and tides can be assessed online and plans lodged with colleagues and/or superiors.

Aspects 4-6 should be considered together and plans made to avoid any possible problems. Aspect 7 is extremely important: make sure that you have consulted experienced members of the University and prepared a suitable risk assessment dealing with all aspects mentioned.

Sea Mammal Research Unit (SMRU)

The fieldwork activities of the Sea Mammal Research Unit (SMRU) have been recognised as being of a more hazardous and specialized nature. As a consequence, the field-work activities of staff and postgraduate students associated with SMRU are circumscribed by a separate and supplementary Code of Practice. Useful guidance on the handling of wild animals and going out in boats and other specialist

activities, is contained in the NERC [policies, procedures and guidance notes](http://www.nerc.ac.uk/about/work/policy/safety/procedures.asp) available from their website: <http://www.nerc.ac.uk/about/work/policy/safety/procedures.asp>

15. Fire Safety and Emergency Procedures

Emergencies that can be dealt with locally are classed as minor, whilst major emergencies require evacuation of the building and are signaled by the sounding of the fire alarm. The building must be evacuated whenever the alarm sounds continuously. The Local Disaster Recovery Team (see below) will then assume control.

Fire Alarms

All staff and postgraduate students must acquaint themselves with the sound of the building fire alarm, how to operate extinguishers correctly and the nature of the escape routes from the building. Fire alarm points are distributed on each level and area of the School Buildings and the associated **FIRE ACTION** notices give details of the evacuation procedure and fire assembly points outside the building - **you should familiarize yourself with this information**. A check of the alarm system must be carried out weekly by the named person responsible for fire safety and logged. The Building Safety Coordinator will hold one fire safety drill each semester.

When the alarm sounds continuously

Switch off all gas taps and electrical heating sources. If for any reason you have not been able to do this report the fact immediately to the leader of the Local Disaster Recovery Team (or equivalent) at the assembly point. Make other equipment safe if this can be done quickly and without risk. Leave the building immediately by the nearest safe exit.

DO

- ü check that your room is empty of personnel
- ü close doors behind you
- ü ensure emergency services are contacted
- ü (dial 9-999 even for automatic alarms)

DO NOT

- û run (except in a life-threatening situation)
- û stop to collect personal belongings
- û use lifts
- û enter a smoke-filled stairwell: use an alternative exit
- û re-enter the building unless authorized to do so

The importance of closing all doors on evacuation of the building is emphasized. All laboratory doors must be kept closed outside normal working hours.

Members of the Academic Staff conducting a class when the fire alarm sounds should ensure the immediate and safe evacuation of all persons in the class.

If the alarm sounds outside normal hours any person in the building should:

- ü Immediately leave the building and assemble at the designated FIRE ACTION assembly point.
- ü Despite the fact that some buildings have automatic fire alarms connected directly to the emergency services one of the assembled persons should **NEVERTHELESS** make a 999 call to the emergency services from either another University building (9-999 internal) or the nearest public telephone box (but **NOT** from the building where the emergency has taken place).

- ü Provide as much information as possible to the emergency services upon their arrival (e.g. nature and location of fire, persons still in the building, etc.).
- ü Only re-enter the building when informed by the Fire Service that it is safe to do so.

Major Disaster Recovery Plan

Each School building must have a Major Disaster Recovery Plan which goes into action in such circumstances.

It is the responsibility of the Head of Building of each building to ensure that such a plan has been established and approved by the local safety committee and is regularly (annually) reviewed. All staff in the building should be made aware of the plans and the personnel involved. A **Local Disaster Recovery Team** should be established in each building to deal with evacuation and subsequent communications with any emergency services that have been called to attend the incident. Those personnel who have specific duties in these plans must be given detailed written instructions of their duties. A copy of the Plan must be posted on an appropriate notice board in each building.

Anyone having detailed knowledge of the incident which has caused an alarm should exit the building as normal but then report to the leader of the Local Disaster Recovery Team which will normally be the Head of Unit/School (or his/her delegated deputy).

a) **Major Emergencies**

A major incident is defined as any significant fire, explosion, spillage, escape of toxic gas, etc., which requires evacuation of the building and the attendance of the Emergency Services. If a major emergency arises, sound the fire alarm using a break-glass button if it has not already gone off automatically.

b) **Minor Emergencies**

Small Fires

- § If the fire is small, **and it is safe to do so**, attack the fire immediately using a dry powder extinguisher or other suitable method. Do not take any personal risk.
- § If the fire, cannot be extinguished quickly using a maximum of two small extinguishers, immediately **sound the fire alarm**, evacuate the adjacent area immediately and follow instructions on the **FIRE NOTICE** to evacuate the building.
- § On no account return any fire extinguisher, which has been used, to its normal position. Contact the University Environmental, Health and Safety Office to obtain a full replacement.
- § Make a report of the fire as soon as possible to the Building Safety Coordinator.

Small Fires in a Fume Hood

- § If a fire occurs in a fume cupboard the draught may make the normal fire-extinguishing methods ineffective. If safe to do so, close the sash and immediately switch off the fume cupboard. Then tackle the fire as normal using CO₂, dry powder or sand.

Personal injury

- § Keep calm and get immediate First Aid.

- § Summon a qualified First Aid Worker or, if the injured person requires hospital treatment, first call for an ambulance (dial 9-999 from any telephone) and then summon a First Aid worker. Arrange for someone to receive the ambulance and repeat the emergency call if help does not arrive within 10 minutes.

Members of the Academic Staff conducting a class when the fire alarm sounds should organize the immediate and safe evacuation of all persons in the class.

16. Manual Handling

Manual handling may be defined as the transport or support of a load by one or more workers and includes lifting, lowering, pushing, pulling, carrying or moving the load, whether by hand or bodily force. [The Manual Handling Operations Regulations \(2001\)](#) are intended to reduce the risk of injury from manual handling.

To comply with the Regulations employers must follow five basic steps:

- a) Identify all manual handling operations undertaken by their employees.
- b) Make an initial appraisal of all operations to determine if there is a risk of injury to employees.
- c) Avoid manual handling where reasonably practicable, i.e. use barrows, trolley, forklift truck, etc.
- d) Make a full assessment of unavoidable risky operations taking into account the load, the task, the working environment, the individual capability of the handler(s).
- e) Remove or reduce the risk of injury by implementing measures designed to reduce the risk of injury to the lowest level, so far as is reasonably practicable.

[Written risk assessments](#) should be produced for routine handling of heavy/awkward objects (for example moving gas cylinders). 'One-off' lifts of heavy/awkward objects should be assessed by the person concerned to determine if they can lift the object without risk of injury. Manual handling operations risk assessment forms can be found on the [University Health and Safety forms page](#).

If a worker has to move a load, the following guidelines should be followed:

- a) Break the load into smaller loads; **if this is not possible then >**
- b) Get help from others; **if this is not possible then >**
- c) Only if (a) and (b) are not possible should a mechanical lifting device be used.

Note that no-one should attempt to move a load if they are in any doubt as to their ability to do so without risk to their safety.

17. Supervision of Undergraduate and Postgraduate Students

Undergraduate and postgraduate student supervisors have a duty of care for the Health and Safety of the students. Responsible staff must be able to demonstrate that they have exercised an effective supervisory role within the context of School Health and Safety procedures. Risk assessments should, in any case, have been made for most activities, such as use of chemicals and biological agents (COSHH), genetic modification of organisms (GM), manual handling, etc. Supervisors and undergraduate/postgraduate students are reminded that risk assessments must also be performed for other activities that may pose a risk to Health and Safety and that all such risk assessments should be made available to all relevant personnel.

18. Support staff

It should be borne in mind by all members of staff that the cleaners, glass washing staff and in addition any service staff working in the School may have no scientific training. It is essential that you pay special attention in ensuring that the procedures which you carry out do not compromise the safety of support staff.

19. Waste Disposal

The Environmental Protection Act specifies that waste disposal should be carried out in a controlled manner. The Local Authority can demand to know what is being disposed of through the normal waste collection service and it is important therefore to ensure that all waste is disposed of in a sensible and safe manner. It would create enormous difficulties for the School if the Local Authority declined to collect some of the waste generated. Separate special arrangements are in place for the disposal of radioactive waste and chemical (special) waste. This is not collected by the Local Authority but is disposed of through the Environmental, Health and Safety Office via specialist registered waste contractors. CHARM generated risk assessments for experimental procedures should specify how wastes are to be disposed of. Similarly, GM risk assessments should account for environmental hazards in the procedures and appropriate Estates have audited the School of Biology for its waste disposal arrangements and modifications to these are ongoing in the light of changing legislation. Individuals must familiarize themselves with appropriate disposal arrangements for all wastes in the area in which they are working.

The flow chart (page 34) and associated Code of Practice for Waste Disposal (Appendix 2) are designed as a guide to ensure that waste generated within the School is disposed of correctly and with due consideration for local authority employees who deal with it (bearing in mind that these employees are unlikely to be scientifically qualified and that for example; a hazard label on a clean bottle, may cause unnecessary concern).

SAFETY REGULATIONS

20. Consultation with Employees

By agreement with the three recognised campus [Trade Unions](#), Safety Representatives appointed by these unions will also represent, with respect to the requirements of The Health and Safety (Consultation with Employees) Regulations, non-union members within their employment group.

21. Disability

Staff with disabilities will have their needs assessed on a case by case basis within each of the School of Biology buildings and appropriate agreed codes of practice drawn up to address safety issues. The Director of Teaching, in consultation with the School Disabilities Coordinator, will address the needs of any students with disabilities studying in the School of Biology, again on a case by case basis.

22. Electrical Equipment

It is essential that electrical equipment is used properly and for the purpose for which it was designed. Further information about the safe use of electrical equipment and the inspection and testing of small portable equipment is contained within the [University Local Rules for Electrical Safety](#).

In particular your attention is drawn to the following points:

- a) Only appropriately qualified workers should attempt the repair or modification of electrical equipment.
- b) No equipment should be used that has exposed and live parts (in particular electrophoresis systems/power packs, and other similar equipment, should be of the 'interlocking' type in which current can flow only when the lid is in place and terminals are shielded).
- c) Use of equipment in wet areas should be avoided whenever possible. Only electrical equipment which is designed for the purpose should be used in cold-rooms and glass-houses. Use of electrical equipment within the Aquarium is discussed in the guidelines contained within the Aquarium Code of Practice.
- d) Small portable electrical equipment already within the School buildings is tested on a regular basis organised by Estates (approximately every 2 years). For any newly introduced equipment requiring testing in the intervening period, enquiries should be made of Estates via the local reporting officer.
- e) Estates maintain a list of hard-wired electrical equipment within each School Building and responsibility for its testing lies with them. It is the duty of the School/Unit to ensure that Estates are informed when new, hard wired electrical equipment is installed. This will normally be carried out by the local reporting officer in the unit.

23. Lone Working

BEFORE anyone may work alone an appropriate risk assessment must be performed.

The major hazard here is probably related to the operation of electrical equipment with the risk of electrocution. Other hazards relate to the use of dangerous chemicals. The medical history of the worker, e.g. epilepsy, also needs to be taken into account. A written risk assessment should be performed by the supervisor in consultation with the Building Safety Coordinator and a copy of the risk assessment sent to the Building Safety Coordinator.

24. New and Expectant Mothers at Work

The Management of Health and Safety at Work Regulations (1999) explicitly require that special attention is given to identifying and controlling risks that may affect women who are pregnant, who have given birth in the previous six months or who are breast-feeding. The objective is to avoid adverse effects being suffered either by the woman herself, by the foetus or by the new-born child.

Action to be taken by expectant mothers, new mothers, or mothers who are breast-feeding

Mothers in the above group should inform their Head of School/Building. Expectant mothers should also inform Human Resources of the pregnancy. Appropriate risk assessments must be carried out by the PI of the expectant mother using forms obtained from the [EHSS Health and Safety forms](#) web page.

Action to be taken by Human Resources and Head of School/Building

On being informed by a member of staff that she is a new or expectant mother, Human Resources will send her a copy of the Maternity, Paternity and Adoptive Leave Scheme and a Maternity Leave Application Form.

The Head of School, on being informed that a member of staff is an expectant mother, new mother, or breast-feeding mother, will ensure that: (a) an appropriate risk assessment is carried out; (b) a record is kept of the assessment, and (c) where necessary, measures implemented to reduce risks.

More detailed information is available in the University Safety Publication entitled 'Guidance on Health and Safety Aspects of New and Expectant Mothers at Work' (1996) available for consultation from the Building Safety Coordinator.

25. Safety in the Workshop

Access to workshops is restricted to authorized persons only and with the express permission of the Psychology Workshop Supervisor in the Psychology building workshop. Under no circumstances may undergraduate students or casual visitors enter workshops.

The Code of Practice that applies to all workshops within the University is that detailed in the University Safety Publication entitled '[Code of Practice for Workshops \(2000\)](#)'.

26. Smoking

Smoking is prohibited in all University Buildings.

27. Stress

Work-related stress is defined by the HSE as: 'The adverse reaction people have to excessive pressures or other types of demands placed upon them'. The University has produced a policy on stress entitled: '**Occupational Stress Policy**': <https://www.st-andrews.ac.uk/staff/policy/hr/stresspolicy/>

To reduce the risk of workplace stress, managers/supervisors in the School should be aware of six factors, which are often involved in causing stress. Where any of these factors may be the cause of excessive pressure that may lead to stress, an appropriate risk assessment of the work activity should be undertaken.

These six factors are:

- i. **Demands** – e.g. workload, work patterns, and the work environment
- ii. **Control** - How much say the person has in the way they do their work
- iii. **Lack of Support** - Includes the encouragement, sponsorship and resources provided by the School and colleagues
- iv. **Poor Relationships** - Includes promoting positive working relationships to avoid unacceptable behaviour
- v. **Uncertain Role** - Do people understand their role in the workplace and whether the School ensures that the person does not have conflicting roles
- vi. **Change** - How change is managed and communicated in the School.

Further guidance on stress recognition and how managers may deal with stress at work can be found in the University publication entitled: **Manager's Guide to Monitoring Stress**
<http://www.st-andrews.ac.uk/staff/policy/hr/managersguidetomonitoringstress/>

If employees believe they are suffering work related stress they should in the first instance raise the matter with their supervisor or, if they get no satisfaction with this, to raise the issue with the Head of School. Staff may also contact Human Resources with regard to stress issues at work.

NOTE: If an employee does not wish to raise the matter through management, they may directly self- refer to the [Occupational Health Adviser](#) (Tel: 2752).

Further guidance on stress can be obtained from the Health and Safety Executive at the following website: <http://www.hse.gov.uk/stress/>

Further advice can be obtained from the Environmental Health and Safety Services (tel: 2750) or from the Occupational Health Advisor (tel: 2752) or from Human Resources.

28. Student Placements in Other Institutions, Industry and Commerce

The University of St Andrews adheres to Universities UK guidance on this matter and accepts that:

- a) While the primary responsibility for meeting the statutory Health and Safety requirements within a placement remains with the employer/receiving Institution, the University has both a legal and a moral responsibility to ensure, so far as is reasonably practicable, the Health and Safety of students on placement.
- b) The University has put in place procedures for the placement of students and has set appropriate Health, Safety and Welfare standards.
- c) Written records will be kept of each stage of the placement procedure.

With respect to postgraduate students it is the duty of the academic supervisor to carry out the risk assessment. With respect to undergraduate students who might be carrying out their practical project away from St Andrews, individual project supervisors should consult the Director of Teaching in advance of the placement.

Detailed procedures for the placement of students are contained within the ['Health and Safety Guidance Policy for Student Placement'](#).

It is imperative that insurance cover is assured before commencement of the placement and information regarding this is available from the Student Placement Officer.

Overseas Placements

Certain student exchange programs provide institutions that have already been approved by the University. The currently approved programs/institutions are available from the School Teaching office.

For all other placements supervisors should carry out detailed risk assessments to consider the work involved, the institution and the locality. The [University Health and Safety publications](#) for the working overseas should be consulted before risk assessments are carried out.

Risk assessments should be forwarded to the Director of Teaching.

Overseas Undergraduate student placements require full approval by Faculty before the student can be placed.

Post Graduate Student risk assessments will be forwarded to the postgraduate office for inspection.

29. Use of the Aquarium (Scottish Oceans Institute)

No-one may gain access to the Aquarium, or carry out any procedure therein, without prior consultation and training. Training will be instigated in house and appropriate risk assessments must be performed before any work can commence workers must also read the guidelines contained in the Aquarium Code of Practice before starting work.

30. Use of Boats

SMRU boats may only be used with the express permission of the SMRU Boat Officer and then only after an appropriate risk assessment has been carried out and the guidelines contained within the SMRU Code of Practice read and understood.

31. Use of School Vehicles (other than minibuses)

The following guidelines take account of our obligations in terms of insurance cover and current legislation. Further information regarding insurance cover may be obtained through the Building secretary.

- a) Only employees of the University of St Andrews and postgraduate students registered for a higher degree within the School are entitled to drive School vehicles without the specific consent of the Head of School.
- b) All drivers must be aged 21 or over and hold an appropriate and full United Kingdom driving license (or equivalent in the case of foreign nationals).
- c) Drivers must have at least three years driving experience.
- d) All drivers are required to have completed an insurance form before driving School vehicles. Forms are available from the Building secretary.
- e) There will be no restrictions on vehicle use by qualified staff or postgraduates holding a clean driving license. The appropriateness of vehicle use by staff with penalty points on their license will be reviewed by the School Executive. Normally, minor offences will not be considered an impediment to use of School vehicles. Changes in circumstances (e.g. conviction for driving offences or acceptance of blame for road accidents not involving School vehicles) should be reported to the School executive so that permission to drive School vehicles can be reviewed.
- f) Vehicles may not be used for hire or reward. This includes field excursions. Payment by students towards the cost of field excursions may be made only to cover non-vehicular costs such as accommodation or subsistence. Vehicular costs of field excursions must be met out of the School's operational budget.
- g) Under no circumstances may any School vehicle be driven after the consumption of alcohol or drugs, or by any individual with a medical condition or disability that may impair their driving ability. Effects of alcohol consumption may significantly impair driving ability up to 24 hours afterwards.
- h) All damages to, or accidents involving, School vehicles must be reported immediately to the Building Chief Technician. Damage, accidents and reports of dangerous driving will be subject to investigation by the School Executive.
- i) All drivers must complete log sheets for journeys over 5 miles. Users should return the vehicle in a clean and roadworthy condition, and remove all rubbish and dirt. Faults should be reported on return to the technician in charge of the vehicle.
- j) The Motor Vehicles (Driving Licenses) Regulations (1996) introduces new requirements for drivers who pass, or have renewed their car driving test after 1 January 1997. A D1 Public Service Vehicle Permit is required for post 1997 licenses, to drive the following:
 - § cars and light vans with heavy trailers over 750 kg
 - § medium-sized vehicles between 3.5 - 7.5 tons
 - § minibuses with 9-16 passenger seats
 - § medium-sized vehicles or minibuses with trailers heavier than 750 kg.
 - § An additional DVLA license is required to comply with these regulations

See Appendix 9: University Guidance on the Safe Use of Minibuses.

32. Use of the Pool Facility (Sea Mammal Research Unit)

No-one may gain access to the Pool facility, or carry out any procedure therein, without prior consultation and training. Training will be instigated in house and appropriate risk assessments must be performed before any work can commence. Workers must also read the guidelines contained in the Seal Pool Code of Practice before starting work.

33. Young People at Work

The University has long taken account of any special needs which may arise from the employment of young persons. The Management of Health and Safety at Work Regulations (1999) require the implementation of formal arrangements. The intention of the Regulations is to ensure the health and safety of young persons at work. They apply whenever anyone under the age of 18 is at work. In this context the legal definition of "at work" includes:

- a) Work under a contract of employment (e.g., work as a University employee)
- b) Participation in a 'work experience' scheme (i.e. schoolchildren on work experience placements)
- c) Participation in a 'training for employment' scheme.

The Regulations require particular consideration to be given to the activities that young persons may carry out, with a view to identifying and controlling any risks to their health and safety that may exist as a result of their age. Guidance on the risk factors that particularly affect young persons and on how to record such an assessment is given in the EHSS website at the section, [Guidance on Health and Safety Aspects of Young People at Work](#).

The written Risk Assessment should be prepared by the supervisor of the young person and a copy forwarded to the School Safety Coordinator.

Where those who are under minimum school leaving age (taken here as age 16) are at work, the conclusions from such a risk assessment must be brought to the attention of the child's parent or guardian.

NOTE: The Regulations do not apply to the activities of individuals who are undertaking a formal course of study provided by the University.

SECURITY

34. After-Hours Entry

After-hours entry into the School is restricted to research, teaching, technical, cleaning and secretarial staff.

Undergraduates in the fourth year may be allowed access to school buildings after hours at the discretion of the Head of Building but only if supervision is also available. It is the responsibility of the supervisor to provide adequate supervision of both undergraduates and postgraduate research students outside the normal working period. Undergraduates particularly should not be expected to work at any time unsupervised and never outside normal working hours.

ALL PERSONS WORKING IN BUILDINGS OUTSIDE NORMAL HOURS SHOULD SIGN IN TO REGISTER THEIR PRESENCE IN THE BUILDING AT THE ENTRANCE AND INDICATE WHEN THEY HAVE DEPARTED.

35. Overnight Use of Services

Many items of equipment, such as fridges and freezers, are in use on a continuous basis. This equipment is labeled to indicate to all staff that it should not be switched off, especially janitorial staff who may be cleaning overnight. Other items of equipment, such as power packs, may not be in use on a continuous basis but may be required occasionally to operate overnight. Under these circumstances, best practice is for the equipment to be marked with an orange **OVERNIGHT PERMIT** that describes the services in use and the nature of the associated work. The permit must then be signed by the Laboratory Supervisor and dated. If this is a concern for your lab, please talk to the building H&S officer.

APPENDIX 1: DUTIES OF NAMED SAFETY PERSONNEL

The persons named in the School Health and Safety Management Structure (Fig. 1) have certain duties delegated to them. It is implicit that acceptance of these duties means acceptance of the delegated duty descriptions that are set out below:

1. Head of School

The Head of School will delegate, to appropriate staff, duties regarding Health and Safety management, whilst retaining ultimate responsibility for Health and Safety within the School of Biology.

2. Head of Building

Heads of Buildings are delegated to ensure that the School of Biology Safety Policy is implemented within their building. They will be members of the Building Safety Committee and will liaise with, and support the Building Safety Coordinator in the day to day management of safety issues. They will report any management problems regarding Health and Safety to the School Management Group.

Specifically, they will:

- § Arrange for an annual review of the Major Disaster Recovery Plan for the building.
- § Complete and sign the University document 'Annual Safety Report' for the building and return it, as required, to the Head of School.
- § Ensure that appropriate staff are appointed to carry out required safety duties and review such appointments on an annual basis.

3. The School Safety Coordinator

The School Safety Coordinator will be appointed by the Head of School. Their primary task will be to liaise between the School, the Heads of Buildings and the University Safety Adviser on safety matters. The School Safety Coordinator will normally be a senior member of staff devoting only part of their time to matters of safety.

- § They will be fully familiar with the University's Health and Safety Policy, and will take measures to ensure that they are applied at all levels within the School.
- § They will periodically review safety procedures within the School.
- § They will advise the Head of School on any revision of the School Health and Safety Policy.
- § They will ensure that any safety information is disseminated to appropriate personnel.
- § They will be a member of the University and School Safety Committees.
- § They will normally be appointed from one of the existing School Building Safety Coordinators.

4. Building Safety Coordinators

The Building Safety Coordinator will be responsible to the Head of Building for safety matters in each building.

- § They will endeavour to see that the School Health and Safety Policy is implemented within their particular Building.
- § They will bring to the attention of the Head of Building any areas where this is not being carried out.
- § As members of the Building Health and Safety Committee they will endeavour to see that decisions made by it are implemented.
- § They will bring to the attention of the Head of Building and/or the School Health and Safety Committee any difficulties that arise in implementing School or University Health and Safety policy at the local level.
- § They will be members of the School Health and Safety Committee.
- § They will be prepared to deal with safety matters brought to their attention by other members of the Building staff.
- § They will be able to contribute towards staff training within their Building.
- § They will be made aware of all scientific projects operating in their Building and provide information to all new project supervisors pertaining to the governing legislation controlling their particular field of interest.
- § They will be prepared to join teams to carry out safety inspections on other Buildings within the School.
- § They will put into place, within their building, a Major Incidents Plan approved by the Building Health and Safety Committee to deal with emergencies that require the evacuation of the building.
- § They will provide advice to staff on Health and Safety matters within their building

a) Biological Hazards

The Building Safety Coordinator will be aware of all the Biological hazards present in their building and inform the Building Health and Safety Committee of any new biological or GM projects.

- § They will provide advice to the Head of Building on matters relating to Biological Health and Safety.
- § They will provide advice on the completion of project forms for new genetic modification projects.
- § They will bring to the attention of the Building Safety Committee new genetic manipulation projects and existing projects where there have been major changes. The Committee should approve these projects before forwarding them to the secretary of the University Health and Safety Committee.
- § They will ensure that the University's local rules for work in biological laboratories are complied with.
- § They will liaise with the Building Safety Coordinator.

- § They will co-operate with the University Biological Safety Adviser and the University Health and Safety Adviser on biological health and safety matters.
- § They will co-operate with the University Occupational Health Service in the provision of occupational health surveillance and monitoring where necessary.
- § They will advise the Head of Building on:
 - Ø The preparation of schemes of work and local rules.
 - Ø CHARM/COSHH risk assessments of procedures involving the use of biological agents.
 - Ø Genetic Modification risk assessments.
- § They will co-ordinate the provision of biological health and safety training as and when required.
- § They will keep staff conscious of the problems of biological health and safety and their responsibilities for the health and safety of those who work or study under or with them.
- § They will undertake or assist with periodic inspections of the building premises where a biological health and safety input is required.
- § They will assist the University Biological Safety Adviser with any investigations of microbiological emergencies or accidents.
- § They will perform such other biological health and safety duties that may be assigned to them by the Head of School.

b) **COSHH**

The Building Safety Coordinator will endeavour to see that each laboratory has a list of chemical hazard assessments. It is the policy of the School that no chemicals are ordered without first undertaking a hazard assessment.

- § They will be able to obtain advice as to the nature of the hazard posed by a particular chemical and appropriate control procedure.
- § They will be able to assist in making risk assessments.
- § They will be prepared to assist in the training of staff within each School building on the use of the electronic University COSHH Risk Assessment Management System (CHARM).
- § Whoever is responsible for ordering chemicals will only do so if the appropriate hazard and/or risk assessment has been carried out in advance.

5. **Radiation**

The Radiation Protection Supervisor (RPS) must have been trained at the University or at an approved Institution in the handling of radioisotopes.

- § They must keep a record of all current stocks of isotopes in the building and these records must be available for inspection.
- § They must ensure that stocks of isotopes do not exceed the building registration.

- § They must ensure that all disposals via drains do not exceed the drain limit of the certificate of authorization.
- § They must be available to accompany radiological inspectors either local or from the Scottish Environment protection Agency (SEPA) around the building.
- § They will endeavour to implement any recommendations produced from such visits.
- § They must ensure that isotopes that are not included on the building license are not brought into the building.
- § They must be able to obtain advice on storage, handling and disposal of isotopes.
- § They must endeavour to see that all new personnel wishing to work with isotopes are registered with Environmental Health and Safety Services and have either completed a new project form and registration form or been added to an existing project.
- § They will provide a list of students and personnel requiring training to the University Safety Adviser for each training session and be prepared to assist in any such training.

6. **First Aid**

A named person in each building will endeavour to see that First Aid Boxes in the building are regularly checked for contents and are replenished as necessary.

7. **Fire Safety**

- § The named person will arrange for a fire drill to take place once per semester.
- § The named person will report to the University Safety Adviser after each fire drill.
- § The named person will ensure that fire alarms are tested regularly (usually on a weekly basis) and that any failures are reported to Estates.

8. **Manual Handling**

The named person must be trained as an assessor for Manual Handling operations by EHSS.

- § The named person will carry out appropriate risk assessments of manual handling operations in their Building as required.
- § If a handling procedure is considered hazardous a written risk assessment must be produced and appropriate recommendations made for action to correct any problem. Records must be kept for inspection purposes.
- § Copies of written assessments must be forwarded to the Building Safety Coordinator who will act upon the recommendations.

9. **Pressure Systems**

Pressure systems are inspected by the University's insurers on an annual basis.

- § The named person will provide a list of pressure systems in their Building to Estates.
- § A report from the insurer will detail any repairs or modification that must be carried out.

- § The named person will endeavour to see that recommendations in that report will be carried out.
- § The named person will endeavour to see that maintenance of pressure systems is carried out/organised by the School.

10. Display Screen Workstations

The named person must be trained as an assessor and will carry out appropriate assessments for DSE Workstations in their Building.

- § All 'Users' within the Building should be identified.
'Users' are defined in the University publication 'Guidance Notes for the Safe Use of Display Screen Equipment' as workers who use a display screen continuously for one hour or more every day.
- § A written risk assessment must be made for each display screen workstation used by a "User" with recommendations for action to correct the problem. These records must be kept for inspection purposes.
- § Copies of written assessments must be forwarded to the Building Safety Coordinator who will act upon the recommendations.

11. Electrical Testing

Electrical testing of equipment is carried out in all buildings by Estates.

12. Student Placement

The named person will endeavour to see that the Codes of Practice contained within the University Safety Publication 'Health and Safety Policy for Student Placement' is adhered to.

APPENDIX 2: CODE OF PRACTICE FOR WASTE DISPOSAL

It is the responsibility of all staff and postgraduate students to ensure the safe and correct disposal of all wastes produced in the course of their work. The system of separating laboratory wastes for disposal relies on the colour coding of the waste bags or containers (e.g. blue for biological waste, red for chemical waste and yellow for radioactive waste). The process of removal is simplified as appropriate personnel can be instructed which colour waste they should deal with.

N.B. WASTE STREAMS AND RECYCLING OF WASTE

In addition to considerations of separating laboratory wastes, current legislation requires separation of any wastes into appropriate streams for collection by either the local authority or specialist contractors. Some wastes (e.g. paper and plastics) are designated for recycling. The recycling systems introduced by Estates usually pose no problem for non-laboratory areas (e.g. offices, coffee rooms/meeting areas etc.). However, it is important when considering waste disposal from the laboratory to ensure that all waste is properly treated. Consideration of the safe disposal of laboratory (and any other) material must take precedence over recycling. If you are in any doubt consult the Building Safety Coordinator.

1. ANIMAL CARCASSES

Animal carcasses generated in the Scottish Oceans Institute must be placed into a labeled (name/date/nature of carcass) plastic bag and transferred to the bucket outside the external door to the Aquarium preparation room. Bags will be collected on a daily basis and stored frozen in a designated freezer until disposal via the Local Authority.

In other School buildings animal carcasses should be bagged, frozen for storage and periodically removed to the animal house for final disposal.

Infected animal carcasses should be treated as biological waste and autoclaved before disposal.

2. BIOLOGICALLY-CONTAMINATED WASTE

a) Non-Glass Solid Waste

This comprises tissue culture/microbiological plastic ware, agar, tips, etc.

This waste should be placed in Blue (or clear with blue labeling) autoclavable disposal bags that are held in appropriate containers not taped to benches or lying on the floor or bench. The bags must not be allowed to overflow and should be removed regularly; autoclaved and disposed of via the Local Authority skip adjacent to the building. These bags too may be susceptible to being pierced by disposable plastic pipette tips or plastic pipettes. In the BMS and BSRC Annex, the non-glass solid biologically contaminated waste goes into autoclavable clear bags (no writing/labeling) in the blue bins. The chosen disinfectant must be validated for the species being used (see Appendix 5).

b) Glassware/Plasticware

This comprises microbiological culture flasks, non-disposable centrifuge tubes, etc.

Glassware/plasticware should be treated with an appropriate disinfectant, e.g. VIRKON overnight. Disinfectant should then be washed down the sink with excess water and flasks/tubes washed out with water. Small items of contaminated glassware should be autoclaved using appropriate boxes before washup/recycling.

c) Spent Culture Medium

This should be treated with an equal volume of an appropriate disinfectant, e.g. VIRKON (in solution following manufacturers instruction), overnight before disposal down the sink with excess water.

N.B. DO NOT USE HYPOCHLORITES (e.g. CHLOROS). Hypochlorite, in the presence of protein, produces large volumes of chlorine gas which is almost certainly more toxic to you than any of the infective reagents you are trying to dispose of.

3. DOMESTIC WASTE

This comprises waste suitable for the Local Authority refuse collection such as office/meeting room waste (e.g. dirty paper, plastic, rubber and wood).

This waste may be placed into the appropriate recycling for uplift and disposal by cleaning staff and deposited in the Local Authority skip adjacent to each School building. **DISPOSABLE PLASTIC LABORATORY WARE MUST NOT BE PLACED IN THIS WASTE.**

4. LOW-LEVEL CHEMICALLY-CONTAMINATED WASTE

a) Liquid Waste

In general acids, alkalis, low risk soluble inorganic salts, and diluted water soluble organic material may be washed down drains with excess water. In the case of the Sir Harold Mitchell Building neither acids nor alkalis should be disposed of down drains on the ground floor of the building. The correct disposal method for almost all other organic compounds is incineration and they should therefore be collected into separate, labeled, waste solvent containers for collection by technical staff/ stores for final disposal via the University Chemical Safety Advisor.

In the BMS and BSRC Annex, low-level chemically-contaminated waste goes into **red bags in the red bins.**

b) Solid Waste

This comprises dirty sample tubes, gloves, weighing boats, tips, etc.

This waste should be placed in white plastic bags in red swing bin containers. The bags should be removed by technical staff and sent for disposal via a specialist contractor. The contractors will accept bags with low levels of contaminating chemicals but specify that they should not contain mercaptans or any **glassware**. These bags should never be allowed to overflow nor accumulate within the laboratory. **N.B. plastic disposable pipettes and tips are liable to pierce these bags.**

In the BMS and BSRC Annex, low-level chemically-contaminated waste goes into **red bags in the red bins.**

5. GLASS

a) Broken Laboratory Glassware and Glass Chemical Storage Bottles

Broken laboratory glassware should be carefully transferred to a '**Cardboard Broken Glass Box Fisher**' or equivalent located in each laboratory. Glass bottles in which chemicals have been contained should be washed, have their labels removed and be placed in the same bin. The boxes are removed to the Local Authority Skip for collection.

b) Winchester (2 Litre reagent) Bottles

After washing and removal of labels, Winchester bottles should be returned to the store. For re-collection by suppliers, or recycling or disposal.

c) Pasteur Pipettes

Pasteur pipettes should be disposed of into designated sharps bins (see 8. below).

6. RADIOACTIVE WASTE

Special arrangements are in place for disposal of radioactive waste (see Building RPS).

7. HIGH LEVEL CHEMICAL (SPECIAL) WASTE

a) Solid waste

Solid waste should be collected into an appropriate container. Separate, labeled containers should be used for each type of waste and a record kept of the amount. When each bin is full uplift should be arranged via the Building Chief Technician, or his delegate, who will record the amount of chemical present on a 'special' waste information form and, if necessary, store the material before disposal through the EHSS via a waste contractor. All disposal routes and methods should be recorded onto the COSHH/CHARM risk assessment.

b) Liquid waste

Liquid waste should be collected in appropriate containers (e.g. Winchester bottles). Separate, labeled containers should be used for each type of waste. Those containing waste organic solvents must be stored in solvent bins. Containers must not be stored in fume cupboards. When each container is full it should be uplifted by technical staff to the stores. The amount of chemical present must be recorded on a 'special' waste information form. Stores personnel will arrange for disposal of the material through the **EHSS** via a waste contractor. All disposal routes and methods should be recorded onto the COSHH/CHARM risk assessment.

8. SHARPS

These comprise syringes/needles, scalpel/razor blades, glass Pasteur pipettes, etc.

Sharps should be disposed of directly into approved yellow sharps bins or broken glass box, available as stores items or from your building health and safety officer. When each container is full it should be uplifted by technical staff for disposal via EHSS.

When disposable needles are used, then they must be disposed of after a single use. Disposable needles should also be stored in a safe place and only taken out when required for use. When they are removed from the packaging or sheath they must be used once, then immediately placed in an approved sharps container. Disposable needles must under no circumstances be left lying on work surfaces, in fume-cupboards, stuck into cork rings or rubber bungs for future re-use.

For all needles and sharps of any type, the correct and only allowed route of disposal is via an approved sharps container. Glass Pasteur pipettes, whether broken or intact are placed in the cardboard broken glass box. The technical staff or Health and Safety officer in the building where you are working will be able to tell you how to replace a full sharps or broken glass container.

The sharps container must be sited close to the work location. For fume cupboard work, the container should be located within the fume-cupboard in which the needles are being used. Containers must have the lid fitted while in use and are required to be changed before becoming full. The same as with the broken glass disposal box, never let a sharps container run over or have excess needles or other items

protruding from it.

Sharps and needles of any kind must never be left on lab surfaces or on the floor and must never be discarded into bins for domestic waste, metal recycling or plastic recycling or down a sink. These should be considered as dangerous items which can potentially hurt others, especially staff removing used items by waste disposal, and care should be taken to dispose of used sharps and needles using the above procedures.

APPENDIX 3: WASTE DISPOSAL FLOW DIAGRAM

DOMESTIC WASTE

**GLASS
Broken
laboratory
glassware and
storage bottles**

**LOW LEVEL CHEMICALLY
CONTAMINATED WASTE**

**SOLID
e.g. gloves,
tips,
weighing
boats,
sample tubes**

**LIQUID
e.g. water
miscible
acids alkalis
low hazard
<COSHH> 3
salts**

**BIOLOGICALLY
CONTAMINATED
WASTES**

**e.g. spent medium tissue
culture, fungal, bacterial
plasticware, agar etc.**

**RADIOACTIVE
WASTE**

**HIGH LEVEL
CHEMICALLY
CONTAMINATED
WASTE**

SHARPS

**Heavy white
plastic bag**

**Fisher
cardboard
broken glass
box**

**DISINFECTANT
OR
AUTOCLAVE**

LIQUID

SOLID

LIQUID

SOLID

LIQUID

SOLID

**APPROVED
SHARPS
CONTAINER**

**EXCESS
WATER**

**LABELLED
BOTTLES**

**CONTRACT
REMOVAL**

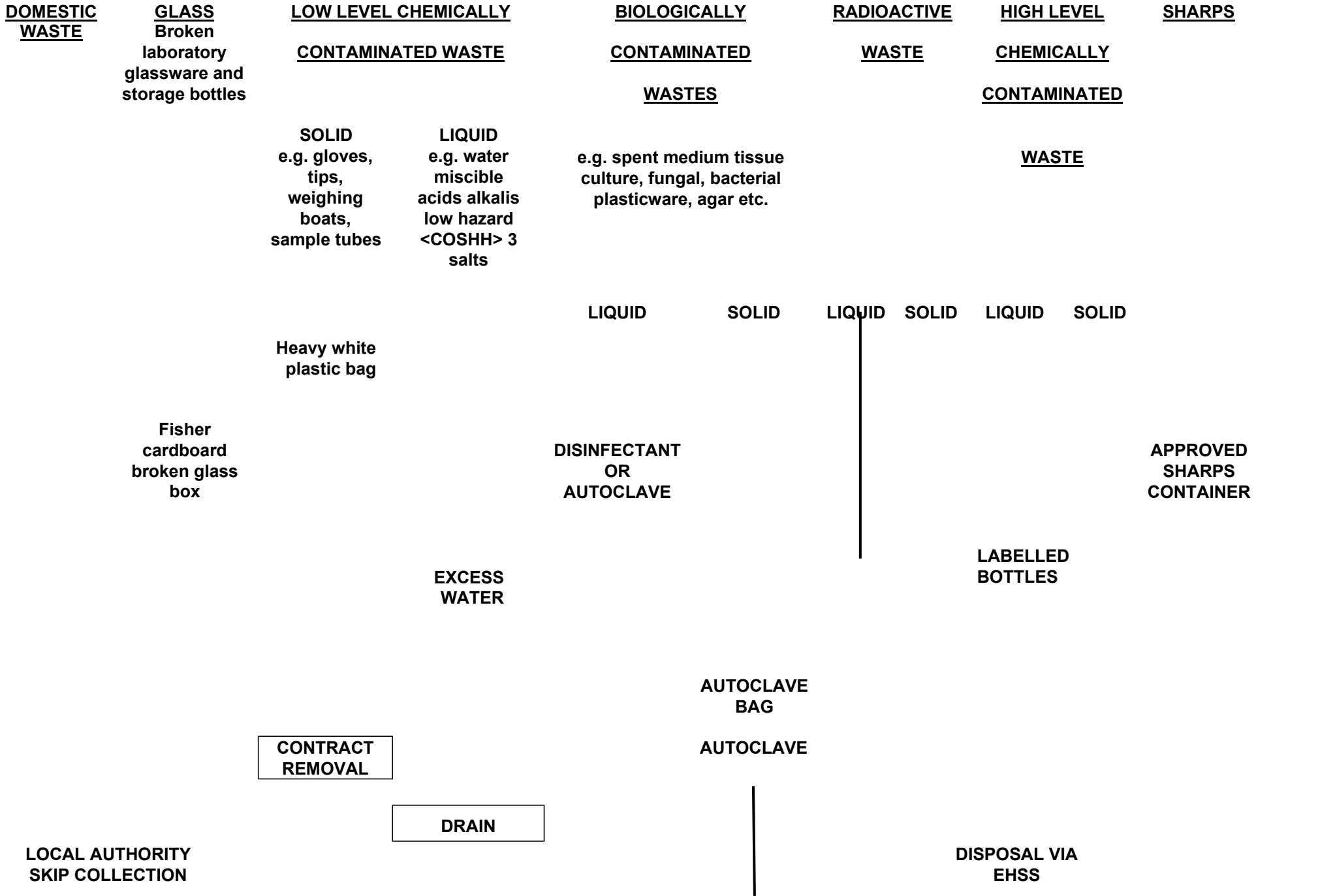
**AUTOCLAVE
BAG**

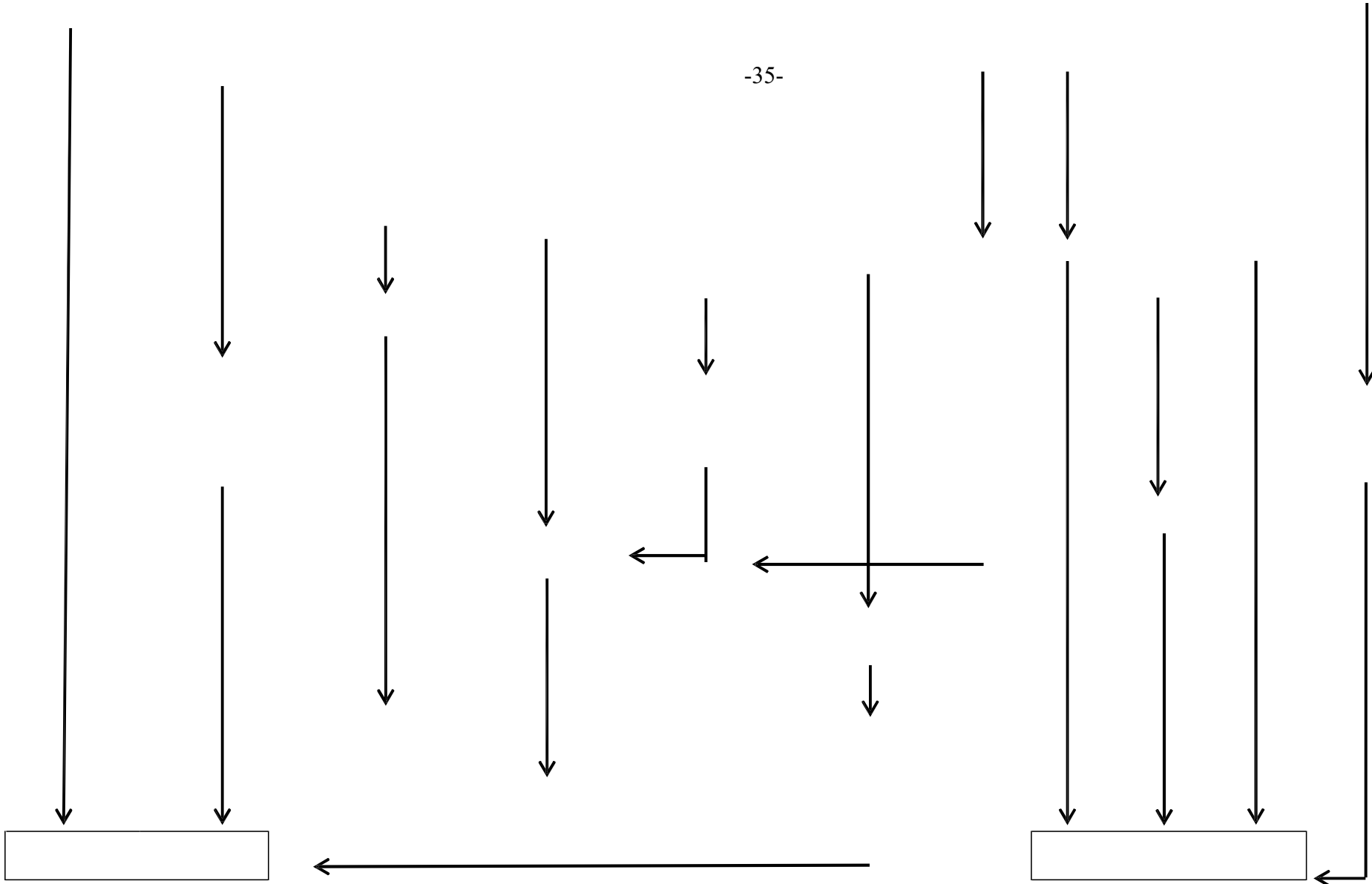
AUTOCLAVE

DRAIN

**LOCAL AUTHORITY
SKIP COLLECTION**

**DISPOSAL VIA
EHSS**





APPENDIX 4: BIOLOGICAL HAZARDS

1. Accidents and Dangerous Occurrences/Near Misses

All accidents and dangerous occurrences/near misses should be notified immediately to a project supervisor. Should the accident occur to an undergraduate student, during practical classes the lecturer, demonstrator or technician in charge must be informed. All cuts and scratches must be covered with Elastoplast or a similar dressing before working with micro-organisms. Accident report forms should be completed and returned as soon as possible.

2. Acquisition of Organisms

Organisms should only be brought into the School by project supervisors with the approval of the Head of School. If the organism is a member of a species new to the School then it should be introduced only **after** consultation with either the Building Biological Safety Supervisor or Building Safety Coordinator. A written risk assessment of any procedures using this organism should be brought to the attention of the Building Safety Committee for the approval of the hazard rating and forwarded to the Secretary of the Chemical and Biological Hazards Sub-Committee for ratification, **before** work commences.

3. Autoclaves

Autoclaves should only be operated by trained personnel. A written record of each operation will be kept at the relevant autoclave. Autoclaves, and pressure cookers, must be registered with Estates and Buildings who will organize inspection of the autoclaves at yearly intervals to comply with The Pressure Vessels and Transportable Gas Regulations.

4. Aerosols

Procedures involving the generation of significant aerosols (e.g. sonic disintegration) should be carried out in a Class 1 cabinet. Care should be taken when using other procedures where aerosols and splashes may occur.

5. Containment Facilities

The School currently has containment facilities up to Level P2 (Level P3 containment BSRC only) including Class 2 containment cabinets. No procedures involving organisms requiring a higher level of containment can be carried out. **If you are in any doubt consult the School Safety Coordinator. Work at level 3 containment requires specific training and authorizations. Contact the Cat 3 containment Director Prof Terry Smith (e-mail tks1) for more information.**

6. Disposal

All live micro-organisms and contaminated material must be sterilized or disinfected before disposal (see: Fig. 2, Code of Practice for Waste Disposal). Appropriate sharps containers, autoclavable bags and containers must be available in the Building before work commences. Consult the Building Biological Safety Adviser for advice. Fumigating kits should also be available to fumigate rooms. Only experienced personnel should carry out fumigation. Hydrogen peroxide fumigation is offered by some manufacturers of containment hoods. This is considered a less hazardous system of sterilization but consideration needs to be given to the validity of the process for local needs. Fumigation of Class I and Class II biological containment hoods is required before annual servicing.

Formaldehyde testing tubes are available from the School Safety Coordinator. Rooms should only be entered when measured levels of formaldehyde are below 2 ppm.

7. Genetic Modification

Any procedures requiring genetic manipulation techniques require a risk assessment to be carried out **before** starting work. These assessments have to demonstrate that the proposed procedure can be carried out in the facilities available. The Chemical and Biological Hazards Sub-Committee must ratify these procedures and they will also notify the Health and Safety Executive (HSE).

8. Laboratories

All laboratories handling micro-organisms must have the containment level displayed along with a Code of Practice relevant to the laboratory. Absorbent laboratory benches should be covered with 'Benchkote'. All categorized containment hoods must be serviced at least once a year.

9. School Records

The Building Biological Safety Adviser will maintain a list of the organisms currently held within each Building of the School, regardless of the pathogenicity. This will be updated on an annual basis and a copy filed with the School Safety Coordinator. It is the duty of all project supervisors to ensure that they make appropriate returns to the Biological Safety Adviser in their Building.

10. Splashes and Spills

If splashes or spills occur they should be wiped up immediately with an appropriate disinfectant. If there is a large spill the Building Safety Coordinator should be informed.

11. Ultraviolet Lamps

Some laboratories have UV lamps for room sterilization. All UV lamps for room sterilization should only be operated via an interlocking guard device controlled from outside the room. This interlock must automatically lock the door when the UV lamp is in use.

12. Transport

There are strict regulations on the transport of microorganisms both within the UK and overseas. Guidance on transportation is available from, in the first instance, the building safety coordinator. Transportation contractors may also wish to audit transportation practices.

APPENDIX 5: PROPERTIES OF DISINFECTANTS AND GENERAL GUIDANCE

The purpose of this note is to explain which disinfectant can be used for what purpose, the concentrations required and frequency of use. Disinfectants are regarded as being adequate if they reduce the load of organisms by 10^5 .

General Rules

There is no "universal disinfectant" and disinfection is a less reliable method of decontamination than steam sterilization. Caution is needed when mixing disinfectants with each other (or with detergents) as some mixtures are incompatible. Always read the container labels before mixing.

- ü Use VIRKON for minimal organic matter, small quantities of blood, E. coli cultures and viruses.
- ü Use aldehydes for special purposes only.
- ü Wear disposable gloves when swabbing with disinfectants.
- ü Make up fresh "at use" concentration batches of disinfectant at the beginning of each working day.

Aldehydes

E.g. formaldehyde (supplied as formalin, a 40% solution) and activated glutaraldehyde. Formaldehyde gas and formalin are too irritant for general use. Formaldehyde requires a high humidity to be active and is used in laboratories mainly for disinfecting Safety Cabinets. Activated glutaraldehyde does not readily penetrate organic matter and should only be used on clean surfaces. Glutaraldehyde is unpleasant but is less irritating than formalin. Glutaraldehyde denatures viruses including Hepatitis B and HIV and may also be used to disinfect centrifuges and cryostats. For use, it is activated by adding 2-3% activator. It is most efficient at pH 7.0 - 8.0. It must be discarded after two weeks as it slowly deteriorates once made alkaline.

Bacteria

Clear soluble phenolics e.g. "Clearsol", "Printol", "Stericol", "Sudol" and "Hycolin". These are not greatly inactivated by organic matter and do not attach metals. They have a wide antibacterial activity but are not suitable for viruses (except enveloped viruses). They should be used in general microbiology, for discard jars etc. and disinfecting benches. Use all phenolics at the manufacturers' recommended use-dilutions. Do not store diluted disinfectants.

N.B. CLEAR PHENOLIC DISINFECTANT PRODUCTION IS BEING DISCONTINUED. PRODUCTS WITH SIMILAR NAMES TO ABOVE e.g. 'HYCOLIN', 'NEW LYSOL', AND 'TERRALIN' ARE BASED ON COMPLETELY DIFFERENT FORMULATIONS AND ARE DISINFECTANTS DESIGNED FOR SURFACE CLEANING NOT FOR DISINFECTING SOLUTIONS.

ENSURE THAT YOU KNOW THE DISINFECTANT IN USE IS SUITABLE FOR PURPOSE.

VIRKON 'Rely+On' (see below) may be a suitable alternate choice.

Decon

The detergent Decon does possess disinfectant properties. Below is a table showing the effect of different concentrations on a suspension of 10^8 /ml bacteria.

Results of Incubation of E. coli B834 for 15 min at Room Temperature with Various Concentrations of Decon

| Concentration of Decon | Reduction in colonies on bacterial plate |
|------------------------|--|
| 10% | $>10^7$ |
| 5% | 10^{5-6} |

| | |
|------|------------------|
| 1% | 10 ³ |
| 0.5% | <10 ³ |

Hand Washing

Unless heavily contaminated, soap and water is adequate.

Properties of Disinfectants

| DISINFECTANT | ACTIVE AGAINST | NOT RECOMMENDED FOR | INACTIVE BY ORGANIC MATTER | INCOMPATIBLE REAGENTS |
|--|---|--|----------------------------|-----------------------|
| HYPOCHLORITES | Vegetative bacteria Spores (esp. at pH 7.6) Fungi viruses | Mycobacteria | Moderate to average | Cationic |
| CLEAR PHENOLICS | Vegetative bacteria (inc. Mycobacteria) fungi | Spores, Some viruses | Low | Cationic |
| IODINE and IODOPHORES | Vegetative bacteria. Fungi, viruses | Spores (long exposures required) | Low | Anionic (Iodophores) |
| GLUTERALDEHYDE | Bacteria (including mycobacterial) Fungi, viruses | Grossly contaminated surfaces. Slow action on spores | Low but penetrates slowly | - |
| ALCOHOL | Bacteria, fungi, many viruses, protozoa, parasites | Grossly contaminated surfaces, spores | Low but penetrates slowly | - |
| CHLOREXIDINE | Gram +ve bacteria fungi | Spores, some Gram -ve and mycobacteria, viruses | Severe | Anionic, soap |
| QUATERNARY AMMONIUM AND AMPHLOITIC COMPOUNDS | Gram +ve bacteria fungi some viruses | Spores, Gram -ve and microbacteria | Severe | Anionic, soap |
| HEXACHLOROPHANE | Gram +ve bacteria | Other microorganisms | Severe | Anionic, soap |

Hypochlorites, e.g. "Chloros", "Domestos"

These are largely inactivated by organic matter and attach metals to varying degrees. They are suitable for blood and viruses, but not for tuberculous material and must not be used for centrifuges, moving parts of machinery or metal surfaces. They may be used in virology for discard and pipette jars and surface disinfection. "Chloros" and "Domestos" contain nominally 1000,000 ppm of available chlorine but many types of bleach contain nominally 50,000 ppm and "Milton" fluid 10,000ppm/"Chloros" and "Domestos" should be used as follows:

| | |
|-------------------------|---|
| General use | 1% dilution (containing 1,000ppm available chlorine) |
| For pipette jars | 2.5% dilution (containing 2,500ppm available chlorine) |
| For blood spillage etc. | 10% dilution (containing 10,000 ppm available chlorine) |

Hypochlorites are compatible with anionic and nonionic but not cationic detergents such as quaternary ammonium compounds (Cetrimide).

Isocyanurate Granules

These are granules containing sodium dichlorisocyanuric acid ('Presept' disinfectant). These dissolve rapidly in water to give available chlorine and should be used according to manufacturer's instruction.

Prevention of Contamination of Tissue Cultures etc.

A permitted disinfectant is 70% ethanol (as methylated spirit). Commercial products such as **BioCidal ZF** or new formulations of '**Hycolin**' or '**New Lysol**' may also be suitable (see above). Work surfaces in laminar downflow cabinets and surgical gloves worn during experiments may be decontaminated by wiping with 70% ethanol or the other products mentioned. Care should be exercised as alcohols are flammable.

Transport of Biological Substances

The transport of biological substance is tightly controlled by regulations originating from the UN. Additionally, there are specific regulations set out by individual countries and transporters dependent on whether transport is by land air or sea. Couriers are increasingly asking to audit sites to ensure they are complying with the regulations and increasingly may refuse packages if they are not correctly made. Prosecutions have resulted if packages have been found to have been willfully mislabeled (e.g. a pathogen labeled as machinery).

There is a requirement for formal training for staff sending packages with certain types of biological material (normally known as human or animal pathogens with or without the addition of dry ice). A number of staff in the School of Biology (mainly in BSRC) have received approved certificated training on the correct procedures for packaging and sending such samples. Should you need to send human or animal pathogens from the School but are not sure what to do contact your Building Safety Coordinator for advice.

Viruses

The commercial product "VIRKON" (alkyl benzene sulphonate) is recommended; always follow the manufacturer's instructions.

APPENDIX 6: CHEMICAL HAZARDS

1. Chemical Disposal

Chemicals with hazard rating of greater than 2 and above must have specific details of disposal in the risk assessment. All chemicals however, should be assessed for any hazard they may pose either separately or as mixtures when they are disposed of (hazard data sheets provided by chemical companies and labels on chemical bottles are useful sources of information concerning disposal). For example, halogenated and non-halogenated solvents should be disposed of separately (e.g. in separate Winchester bottles). Do not put solvents down sinks as they may catch fire elsewhere. It is the responsibility of the person ordering the chemical to assess and arrange for its safe disposal (in conjunction with safety personnel responsible for COSHH/CHARM). It is not acceptable to leave chemical waste for other personnel to sort out. Contaminated glassware should be free of chemical waste before it is sent to wash-up.

2. Chemical Storage

Each relevant laboratory must have metal cupboards for the storage of flammable solvents. Acids and alkalis should be stored separately and away from solvents.

Each laboratory should have a lockfast cupboard for the storage of category 5 chemicals. Solvents should not be stored in domestic refrigerators.

3. Chemical Usage

Chemicals with hazard ratings of greater than 2 will have specific details of handling in the COSHH/CHARM risk assessment. **Risk assessments must be carried out and/or approved by PIs who must also ensure that all users in their group are aware of the risk assessment.**

All users of chemicals are expected to comply with the procedures stipulated in the risk assessment.

All chemicals should be handled with care and account should be taken of information available in either the Material Safety Data Sheet (MSDS available from the manufacturer/supplier) or any instructions on the manufacturer's label, which should be read carefully. Note risk phrases that may help determine the hazardous nature of the substance may be found on the MSDS available from the manufacturer.

- ü Use a balance in a fume hood if appropriate.
- ü Wear gloves, particle masks and safety glasses where appropriate.
- ü Do not mix concentrated acids and alkalis together.
- ü After weighing out a chemical clean the balance.
- ü If you are using cyanide or cyanogen bromide you must inform the School/Building.
- ü Health and Safety Coordinator for details of emergency procedures before commencing work.
- ü Ensure that any procedure that produces noxious gases is carried out in a fume hood.

4. Ordering Chemicals

No chemical will be ordered unless the hazard rating is placed on the order form. If the chemical is rated 3 or above then a risk assessment for the procedure that you wish to use involving that substance must be prepared using the electronic COSHH Risk Assessment Management System before the chemical is ordered. The Building COSHH Adviser will assist in this process. If a hazard rating for the chemical is

not listed on the electronic database then a provisional hazard rating, based on relevant information, e.g. the Hazard Data Safety Sheet for the substance, should be entered into the electronic management system by the supervisor or the Building COSHH Adviser (see: Fig. 1, School Health and Safety Management Structure).

COSHH Hazard Assessment

The University CHARM risk management system is the method by which risk assessments for Chemical and non-GM biological hazards should be written. The system contains a database of chemicals known to have been held in the University along with a 5-point hazard rating of that chemical. Below is a guide as to how the hazard ratings have been derived. For more information please consult: 'Guidance on Chemical and Biological Safety Part 1 (see Appendix 9).

Toxic substances -T

- 5T Substances with a WEL of less than 1 ppm or mg/m³ or EC risk phrase 'very toxic' and all 'Controlled' substances as defined in the Misuse of Drugs Act 1971 (and subsequent amendments);
- 4T Substances with a WEL of between 1 and 10 ppm or mg/m³ or EC risk phrase 'toxic';
- 3T Substances with a WEL of between 10 and 100 ppm or mg/m³;
- 2T Substances with a WEL of between 100 and 1000 ppm or mg/m³;

Note WEL = Workplace Exposure Limits

Carcinogenic and mutagenic substances- C

- 5T,C Substances defined as carcinogens in the current EH40 or other proven human carcinogens;
- 4T,C Substances not listed in the current EH40 but which may result in the development of cancer in humans;
- M Substances which have clearly demonstrated mutagenic properties likely to be a significant hazard to humans.

It should be noted that the Chemical (Hazard Information and Packaging for Supply) Regulations 2002 as amended define three categories of carcinogens for the purposes of classification and labeling:

- a) **Category 1 Carcinogen:** Substances known to cause cancer in humans (University Hazard rating of 5 C,T);
- b) **Category 2 Carcinogen:** Substances which should be regarded as if they are carcinogenic to humans. There should be sufficient evidence to provide a strong presumption that human exposure to the substance may result in the development of a cancer, generally on the basis of
 - i) appropriate long-term animal studies
 - ii) other relevant information (University Hazard Rating of 4 C,T);
- c) **Category 3 Carcinogen:** Substances which cause concern for humans owing to possible carcinogenic effects but that the evidence that these substances will cause cancer in humans is inconclusive.

These categories can be used to help in assessing the carcinogenic properties of substances not listed in the EH40 as a human carcinogen.

Flammability - F

- 4F Extremely flammable substances;
- 3F Highly flammable substances.

Explosive properties - X

- 5X Dangerously explosive substances;
- 4X Explosive substances.

Corrosive or Irritant properties - A

- 5A Very severely corrosive or irritant;
- 4A Severely corrosive or irritant;
- 3A Moderately corrosive or irritant;
- 2A Mildly corrosive or irritant

Oxidizing Properties - O

- 4O Powerful oxidant;
- 3O Moderate oxidant;
- 2O Mild oxidant;

5. Transport of Chemicals

Chemicals must be transported safely within buildings (e.g. Winchester bottles of solvent must be transported in a suitable carrier, and not held by the neck or under the arm). Prevent glass bottles from banging together when being transported in trolleys or baskets. Do not carry chemicals in a passenger lift unless appropriate steps are taken to ensure that, during transport procedures, no passengers can enter the lift. Ensure that hazardous cannot spill during transport and that there is no escape of toxic gases or vapours. Transport of chemicals outside of building must be by arrangement with the building safety coordinator.

APPENDIX 7: GENERAL LABORATORY CODES OF PRACTICE

The following notes are a guideline towards good laboratory practice. Each member of the School has to take some responsibility not only for their own safety but also to ensure that their working practices do not endanger others. **UNACCOMPANIED, UNAUTHORISED PERSONS AND CHILDREN ARE NOT ALLOWED IN LABORATORIES.**

1. Eating, drinking, smoking and the application of cosmetics is **forbidden** in all laboratories.
2. Mouth pipetting is **forbidden** in all laboratories.
3. Laboratory coats must be worn in the laboratory. If the laboratory is for microbiological purposes this must be of the Howie type.
4. Do not use any piece of equipment that you are unfamiliar with - **ask for help**. Use and maintain all pieces of equipment according to the manufacturers' instructions.
5. Do not use cracked or broken glassware (particularly pipettes).
6. Do not re-sheath syringe needles; discard them directly into a yellow sharps bin. If there is no alternative to the use of glass, disposable Pasteur Pipettes discard them into an appropriate container (i.e. sharps bin).
7. Discard broken glassware into a 'broken glass bin' **not** the general waste bins.
8. All new electrical equipment brought into laboratories and offices must be tested and logged before use. Each Building has a person who is delegated to notify Estates that equipment needs to be tested. Electrical equipment to be used in cold rooms must be fitted with an approved plug.
9. Be aware of the hazard rating of chemicals that you are using. No procedure involving a chemical with a hazard rating of greater than 3 may be commenced until a COSHH/CHARM risk assessment has been prepared.
10. If you are using inflammable volatile solvents ensure that no one in the laboratory is using a naked flame. Solvents should not be stored in domestic refrigerators.
11. No procedure involving the use of biological agents may be commenced until a COSHH/CHARM risk assessment has been prepared. This assessment should include all necessary control measures to stop infection of humans or escape to the environment. All procedures from growth to disposal of biological agents should be carried out using the control measures stated in the risk assessment (see: Appendix 4, Biological Hazards).
12. If you are using microbiological containment cabinets ensure that you are aware of the type of cabinet and its suitability for the procedure you wish to employ (e.g. class II cabinets are less suitable than Class I for procedures which generate aerosols such as ultrasonic disruption).
13. If you are using a fume hood or containment cabinet, ensure that they are clean and free of contamination after you have completed your task.
14. Autoclaves must be maintained and tested in accordance with 'The Pressure Systems and Transportable Gas Containers Regulations' and are only to be used by trained personnel.
15. Radioisotopes may only be ordered and used by persons registered with the University who have completed a radiation course either here or at an approved establishment (see: Appendix 8, Radiation Hazards).

16. Keep working surfaces as tidy as possible. **Do not** leave bottles and sharps where they may be knocked over at night. Remember the cleaning staff are not scientifically trained and must not be exposed to risks.
17. If you are weighing hazardous materials ensure that balances are cleaned after you have finished.
18. If you are using ultraviolet light, even for a short period, you should use appropriate face visors (i.e. specified as UV absorbing).
19. If you wish to remove samples from liquid nitrogen deep freezers you should wear an appropriate face visor and protective gloves.
20. Ancillary staff (i.e. cleaners, janitors and wash-up staff) and service engineers etc. should not be exposed to any laboratory hazards whilst carrying out their duties. In practice this means that they should not come into contact with any radioactive, chemical or biological hazard. Therefore, all equipment and glassware should be decontaminated before being sent for wash-up, discard or repair. Sharps should **NOT** be placed into the normal rubbish and waste plastic ware, gloves etc. contaminated with high level chemical waste should be discarded into designated bins (see: Appendix 2, Code of Practice for Waste Disposal).

THE ABILITY TO WORK SAFELY IN A LABORATORY DEPENDS ON AN UNDERSTANDING OF THE HAZARDS PRESENT AND TAKING APPROPRIATE ACTIONS TO PREVENT OR REDUCE (AS MUCH AS PRACTICABLE) EXPOSURE BOTH TO YOU AND TO OTHER WORKERS. IF YOU DO NOT KNOW WHAT TO DO, ASK SOMEONE WHO DOES. THIS MAY EITHER BE AN EXPERIENCED PERSON IN YOUR GROUP, (e.g. the PI) OR THE BUILDING SAFETY COORDINATOR.

APPENDIX 8: RADIATION HAZARDS

NO WORK WITH RADIOISOTOPES MAY BE COMMENCED UNTIL BOTH THE WORKER AND THE PROJECT HAVE BEEN REGISTERED.

1. Work may be carried out in the following areas:

General Laboratories

Low levels of isotopes may be used in teaching and general research laboratories (see [University Local Rules for Work with Ionizing Radiations, Appendix 20](#)) for the permitted levels of different isotopes) as long as the area in use is clearly marked with radioactive tape and the work is carried out in suitable trays.

Supervised Areas

The bulk of the radioactive work within the School is carried out in supervised areas usually found in research laboratories. Each area is supervised by a 'Local Radiation Protection Advisor' (LRPA) or Building Radiation Protection Supervisor (RPS), the names of whom are to be found on the completed project form. Levels of isotopes that may be used and stored is shown in [University Local Rules for Work with Ionizing Radiations \(Appendix 20\)](#). In addition, liquid waste may be disposed of via an approved designated sink up to a limit set out on a local Drain Record Sheet.

All working and storage areas must have appropriate hazard signs displayed at the entrance.

2. Ordering Isotopes

- a) **The Building RPS will approve ALL orders before they are made.** Isotopes may be ordered by all registered radiation workers on a standard School requisition form. The amount of any isotope that may be ordered is subject to the total amount each Building within the School may hold in stock and the limits designated on the appropriate URPS2 /RM form. A stock record sheet will be issued for each isotope ordered. This must be completed by the user including waste disposal levels and returned to the RPS when the isotope is finished. The completed sheet will be kept with the stock isotope vial until disposal. If an individual or group has more than two sheets for the same labeled material **no further orders will be placed until at least one sheet is returned.**

3. Handling Isotopes

- a) **Local area monitoring.** Suitable monitoring devices (e.g. mini monitors) must be available before you start work and you must be familiar with their operation and suitability for the detection of the particular radionuclide. You should monitor the working area before you start work and after you have finished. Local area monitoring sheets must be provided and you must complete the appropriate sections. Radiation hazard tape should be used to define the working area.
- b) Use protective screens, boxes and shielding where appropriate. If you do not know what is available **ask the Radiation Protection Supervisor (RPS).**
- c) Laboratory coats or special gowns must be worn.
- d) Appropriate hand protection should be worn (N.B. vinyl gloves tear easily and appear to be porous to ¹²⁵I).

- e) Radiation badges must be worn if issued.
- f) Operations should be carried out in a spillage tray lined with 'Benchkote'.
- g) If you are using ^{125}I for protein labelling you must have your thyroid monitored 24 hours after the experiment (see Radiation Protection Supervisor). A written record must be kept of the monitored result.
- h) All volatile isotopes should be handled in an appropriate fume hood. Monitor the area where you have been working. If it is contaminated remove the contamination, replace the 'Benchkote' and check again. **Never leave spills for someone else to clean up.** Inform the RPS if there is a spill.
- i) Use disposable plasticware wherever possible to carry out radioactive experiments. If you must use glassware keep it as much as possible in the radioactive area. Decontaminate glassware by soaking in Virkon 'Rely+On' solution, monitoring regularly until the level of cps approach background (if in doubt consult the RPS). If you use glassware that has been contaminated and must be recycled into general use a written record of the decontamination procedure and final counts per second must be provided to the building RPS before sending the glassware to washup.
- j) Wash and monitor your hands after your experiment. If they are contaminated wash again. If they are still contaminated see the building RPS.

4. Disposal

- a) Liquid waste that is miscible with water must be disposed of down one of the radioactive sinks in either the supervised or controlled areas up to the limit of the sink. All wastes must be recorded on the appropriate 'Drain Record'.
- b) Liquid waste that is immiscible with water should be stored in labeled 2 litre bottles. Full bottles should be stored to await removal. An estimate of the amount of isotope should be kept on each bottle. Scintillation vials are collected in special plastic drums and the contents of each should be described in terms of the radionuclide(s) present, the total activity in it and the date.
- c) Solid waste with an estimated activity of $<370\text{KBq}/0.1\text{m}^3$ where no single item has an activity $>37\text{KBq}$ can be regarded as **LOW-LEVEL** waste. In supervised areas this may be stored in an appropriately labeled pedal bin with a suitable black bag as a liner. Sharps should be stored in labeled yellow Sharps containers labeled with appropriate radioactive tape. Full bags and yellow bins should be removed to a storage area with an estimate of the total activity on the outside along with the worker's name and room number. All other solid waste must be regarded as **HIGH LEVEL** and must be stored in suitably shielded containers in the supervised areas. Full bags should be disposed of into high level waste bins after completing the forms on the outside of the bin.
- d) If any projects require the disposal of radioactive carcasses the project supervisor must consult the building Radiation Protection Supervisor (RPS) before completing a project form.

5. Isotope Registrations

Currently all buildings within the School of Biology that use radionuclides have separate registrations and certificates of authorization issued by the Scottish Environment Protection Agency (SEPA) that

define the radionuclides, the activity of each that may be held on the premises (registration) and the amount that may be disposed of via the drain (certificate of authorization).

On no account can the limits and definitions set by these documents be exceeded.

This licensing system is likely to change in the near future and a single site registration and authorization held by the University will be issued by SEPA. A computer program to improve record keeping of radioisotope usage will also be introduced by EHSS.

Please consult the building RPS concerning the use, storage and disposal of specific isotopes in specific areas within your building.

The building Radiation Protection Supervisor (RPSs) are:

Dr Neil Hazon, Scottish Oceans Institute: 01334 463451, nh1@st-andrews.ac.uk

Dr Terry Smith, Biomedical Sciences Research Centre: 01334 463412, tks1@st-andrews.ac.uk

N.B. As some practical classes using radionuclides have taken place in the School of Chemistry Purdie Building in the past please consult Prof Terry Smith if you plan to carry out such student practicals.

APPENDIX 9: UNIVERSITY SAFETY PUBLICATIONS

Publications listed below are all available online by following the links. Further information can also be obtained from the Environmental Health and Safety Services:

University of St Andrews
Bute Building Queens Terrace
St Andrews
Fife
KY16 9TS
Scotland, United Kingdom
Tel: +44 (0)1334 462750
Fax:44 (0)1334 462747
Email: ehss@st-andrews.ac.uk
Web site: <https://www.st-andrews.ac.uk/ehss/>

University Health and Safety Publications

<http://www.st-andrews.ac.uk/staff/policy/healthandsafety/publications/>

University Health and Safety Forms

<https://www.st-andrews.ac.uk/staff/policy/healthandsafety/forms/>

The University of St Andrews has formulated and published a health and safety policy in compliance with good working practice and the requirements of legislation governing work activities.

This document is published in pursuance of the aims and objectives of the Health and Safety Policy Statement of the University Court and forms part of the University of St Andrews Health and Safety Policy.

It is the duty of Heads of Schools/Units to implement the University Health and Safety Policy and to ensure compliance within the area(s) which are under their control.

It is the duty of all members of staff, students and visitors, where appropriate, to be familiar with all relevant aspects of the health and safety policy and to comply with the requirements.

The University of St Andrews Health and Safety Policy is available in the form of booklets and at the University web site, under "Environmental, Health and Safety Services". The Health and Safety Policy comprises the following:

[HEALTH AND SAFETY PUBLICATION INDEX](#)

Accidents and Incidents

- [Accident/Incident Investigation Report](#) (RTF, 4 KB)
- [Accident / Near Miss Report Form](#) (Word, 21 KB)
- [Reporting, Investigations, Records and Follow-up including guidance on RIDDOR](#)
- [HSE Guidance on Accident Investigation](#) (PDF, 1,609 KB) (2018)

Asbestos

- [Asbestos Safety Code](#)
- [Asbestos Hazard Guidance \(GUIDANCE\)](#)

Boats

- [Boats - Use of Small Workboats](#)

Chemical and biological

- [ACDP Categorisation of Pathogens-HSE Document](#) (PDF, 530 KB) (HSE Document) 2016
- [Biosafety Training Course](#) - Moodle Training Course (2018).
- [Chemical Hazard Risk Management System for COSHH \(CHARM\)](#)
- [CHARM Guidance](#) (PDF, 988 KB)
- [Chemical safety](#) - University Guidance
- [HSE Guidance on Chemical Classification, Labelling and Packaging Regulations 2009 \(CLP\) and the Globally Harmonised System for Symbols \(GHS\) labelling chemicals](#)
- [Guidance on Biological and Genetic Modification Safety](#) (PDF, 984 KB)
- [Guidance on work with arthropods](#) (PDF, 149 KB)
- [Plant Health \(Great Britain\) Order 1993](#)
- [Pathogens Regulated under the Specified Animal Pathogens Order \(Scotland\) 2009](#) (PDF, 658 KB)

Confined space

- [Confined Spaces - Work in Confined Spaces](#)
- [Confined Spaces \(GUIDANCE\)](#)

Contactors

- [Contractors code of safety practice](#)

Cryogenics

- [Policy and Guidance on the Safe Storage and Handling of Cryogenic Materials](#) (PDF, 904 KB) (2018)

Display screen

- [Display screen equipment computerised training programme](#)
- [Policy and Guidance on the Safe Use of Display Screen Equipment](#) (PDF, 976 KB)
- [Workstation and Display Screen Equipment - University Moodle Training package](#) (2018)

Diving

- [Diving](#)

Driving

- [Driving for Work](#)

Electrical

- [Electrical safety](#)

External links

- [Scottish Environment Protection Agency \(for Scotland\)](#)
- [NHS 24](#)
- [Health and Safety Executive](#)

Fieldwork

- [Guidance on Health and Safety in Fieldwork](#) (PDF, 534 KB) (2018) - Guidance produced by the Universities Safety and Health Association (USHA)
- [Guidance on Travel Abroad and Fieldwork](#) Moodle Site (2018)
- [Travel Abroad Form 2018](#) (Word, 595 KB)

Fire

see [Fire safety](#)

First aid

- First-Aid - Arrangements for Students Who Become Unwell
- [First-Aid at Work Policy](#)

Gas see Pressure systems

Hazard alert sheets

- [Arc Welding](#)
- [Hydrofluoric Acid \(HF\)](#)
- [Interactive Whiteboards](#)
- [Laser Pointers](#)
- [Latex sensitisation - powdered latex rubber gloves](#)
- [Low Temperature Liquified Gases - Cryogenics](#)
- [LPG - Small Scale Use of Liquified Petroleum Gas \(LPG\) Cylinders](#)
- [Metalworking Fluids](#)
- [Metalworking Fluids - Health Surveillance Programme](#)
- [Metalworking Fluids - Questionnaire for detection of Skin Abnormalities](#)
- [Metalworking Fluids - Questionnaire for Detection of Lung Problems](#)
- [Oxygen](#)
- [Phenol - First Aid Guidance](#)
- [Solder Fumes](#)
- [Sun Protection for Outdoor Workers](#)
- [Whiteboards \(Computer Interactive\)](#)

Health and Safety Policy of the University

- [University Health and Safety Policy \(2017\)](#) (PDF, 519 KB)

Health and Safety Training

- Health and Safety Training programmes can be found on the [Environmental, Health and Safety Services Moodle site](#)

Inspections

- [Self-Inspection and checklist](#)
- [Guidance on workplace health and safety inspections](#) (PDF, 207 KB)

Ladders

- [Ladder Safety](#)
- [Ladders - Use, Storage and Maintenance \(GUIDANCE\)](#)

Lasers see [Radiation](#)

Legionnaires

- [Legionnaires Disease](#)

Lifting

- [Lifting Equipment \(see Height work\)](#)

Local Exhaust Ventilation

- Guidance on Local Exhaust Ventilation (LEV) can be obtained from the Health and Safety Executive (HSE) website at the following URL: <http://www.hse.gov.uk/lev/index.htm>

Lone work

- [Lone Work - Control Measures for Lone Working](#)
- [Lone Work \(GUIDANCE\)](#)

Machinery

- [Machinery - New Machinery](#)
- [Machinery - Buying New Machinery \(GUIDANCE\)](#)
- [Machinery - Dangerous Parts \(GUIDANCE\)](#)
- [Machinery Safety Checklist](#) (Word, 31 KB)

Manual handling operations

- [University Policy and Guidance for Safe Manual Handling Operations](#) (PDF, 497 KB) (2018)

Meningitis

- [Meningitis Protocol](#)

Mental health and well-being

- See Occupational Health Website at URL: <http://www.st-andrews.ac.uk/ehss/occupationalhealth/>
- [Mental Health and Wellbeing](#) (Site hosted by Student Services)

Minibuses

- [Safe use of minibuses](#)

Mobile telephones

- [Mobile Telephones - Use of Hand-Held Mobile Telephones while Driving](#)

New or Expectant Mothers

- [Guidance on Health and Safety Aspects for New and Expectant Mothers](#)

Noise

- [Noise](#)

Occupational Health

- [Health Surveillance Code of Practice](#) (Word, 50 KB)
- [Occupational Health](#)

Personal Protective Equipment (PPE)

- [The Selection, Use and Maintenance of PPE](#) (PDF, 423 KB)

Pressure systems

see also Gas

- [Major Release of Toxic Gas or Major Spillage of Hazardous Substances](#)
- [Gas Cylinders - Safe Use of Gas Cylinders \(GUIDANCE\)](#)
- [Pressure Systems](#)
- [Pressure Systems - Pressure Systems Safety Regulations 2000 \(GUIDANCE\)](#)
- [Pressure Systems - Safe Use of Gas Cylinders](#)
- [Pressure systems - safe use of gas cylinders \(GUIDANCE\)](#) (PDF, 596 KB)
- [Pressure Systems - Pressure Regulators \(GUIDANCE\)](#)

Radiation (See [Radiation Website](#))

- [University Work with Ionizing Radiation Policy and Guidance](#) (PDF, 1,362 KB)
- [Radiation Protection Training Course](#) - Moodle Training Course
- [Access to the RadProt Radiation Management Computer Programme](#)
- [Policy and Guidance on Work with Lasers and Artificial Optical Radiation](#) (PDF, 1,154 KB) (2018)
- [Radiation use and disposal computer programme](#)

Risk assessment

- [General Risk Assessment Form](#) (Word, 68 KB) (2018)

Safety signs

- [Safety Signs and Signals](#)

School/Unit Health and Safety Induction Training Programmes - Moodle Training Programmes

- [School of Biology Health and Safety Induction Programme](#) - Moodle Training Programme
- [School of Chemistry Health and Safety Induction Programme](#) - Moodle Training Programme
- [School of Physics and Astronomy Office Staff Health and Safety Induction Programme](#) - Moodle Training Programme
- [School of Physics and Astronomy Laboratory/Workshop Health and Safety Induction Programme](#) - Moodle Training Programme

School/Unit health and safety organisation and arrangements

- [Access to University Buildings](#)
- [Drafting Departmental or Unit safety policy](#)
- [Induction - New Workers](#)
- [Management of Health and Safety at Work](#)
- [Responsibilities of Heads](#)
- [Safety Co-ordinators - Delegated Duties](#)
- [Safety Committees](#)
- [School Unit health and safety policy](#)
- [Working Time Regulations](#)

Slips, trips and falls

- [Preventing Slips and Trips in the Education Sector](#) (PDF, 55 KB)
- [Slips, Trips and Falls](#)

Stress

- [Stress](#)

Students

- [Disabled Workers/Students](#)
- [Fieldwork](#)
- [Placement of students](#)

- [Student Supervision](#)
- [Work Experience](#)
- [Working Overseas](#)
- [Young people at work](#)

Training - Health and Safety Training Moodle Courses

- Health and safety training courses can be found on the [Environmental, Health and Safety Services Moodle programme site](#)

Transport

- [Transport of Hazardous Substances \(GUIDANCE\)](#)

Travel Abroad

- [Guidance on Travel Abroad and Fieldwork \(Moodle Site\)](#) 2018
- [Travel Abroad Form 2018](#) (Word, 595 KB)

University Health and Safety Policy

- [University Health and Safety Policy \(2017\)](#) (PDF, 519 KB)

Vibration

- [Vibration - Guidance on the Control of Vibration at Work Regulations 2005](#)

Visitors

- [Visitors Working in the University](#)

Waste

- [University Guidance on Disposal of Hazardous Waste or Recycling Waste](#) (PDF, 591 KB) (2016)
- [Waste Disposal](#)
- [Waste Disposal - Flow Diagram of Disposal Routes](#)
- [SEPA Hazardous Waste Guidance](#) (PDF, 5,459 KB)

Work at Height

- [High Work - Work at Height](#)
- [High Work - A Brief Guide to the Work at Height Regulations 2005 \(GUIDANCE\)](#)
- [Work Equipment/Lifting Equipment](#)
- [Work Equipment \(GUIDANCE\)](#)
- [Lifting Equipment \(GUIDANCE\)](#)

Workshops

- [Workshops](#)

APPENDIX 10: UNIVERSITY SAFETY FORMS

HEALTH AND SAFETY FORMS

Accident/near miss/dangerous occurrences

[Accident/Dangerous Occurrence/Near Miss Report Form](#) (Word, 42 KB)

Chemical

- [CHARM website \(only accessible from within St Andrews University\)](#)

Contractors

- [Contractors working on University premises - health and safety \(Form EHSS-1\)](#) (RTF, 92 KB)

Cryogenics

- [Guidance for Assessment of Ventilation Requirements](#) (RTF, 7 KB)
- [Method of Calculating the Potential Oxygen Depletion to Liquid Nitrogen](#) (RTF, 11 KB)
- [Oxygen Depletion Example](#) (RTF, 30 KB)
- [Cryogenic Storage Checklist](#) (RTF, 90 KB)
- [Small Volume Users Checklist](#) (RTF, 90 KB)
- [Transport Emergency Card](#) (RTF, 93 KB)
- [Emergency Action Plan - Major Release of Toxic Gases and Substances](#) (RTF, 93 KB)

Display Screen Equipment (DSE)

- [Display Screen Equipment \(DSE\) Assessment Checklist](#) (RTF, 18 KB)
- [Display Screen Equipment Training Programme](#)

Diving operations

- [Application Form For Registration as a University Diver](#) (RTF, 147 KB)
- [Appointment of Diving Supervisor Form](#) (RTF, 140 KB)

Drug Precursor Application

- The Web Link to make a licence application to purchase and hold Schedule 1 Drug Precursors can be found [HERE](#)

Equipment Decontamination Certificate

- [Equipment Decontamination Certificate](#) (Word, 163 KB)

Fire safety

- [Fire Action Notice](#) (PDF, 7 KB)
- [Fire Evacuation Notice](#) (PDF, 6 KB)

- [Fire Incident Report Form](#) (Word, 56 KB)
- [Fire Safety - The Safe Evacuation of Persons Who May Need Assistance](#) (PDF, 729 KB)
- [Fire Safety Self Inspection Record](#) (RTF, 29 KB)

First Aid

- [First Aid Notice](#) (PDF, 7 KB)
- [First Aid Requirement Form](#) (RTF, 90 KB)
- [First Aid Precautions Against Infection](#) (RTF, 27 KB)

Genetic modification form

- [Notification of a Genetic Modification Project Form - GM1](#) (RTF, 48 KB)

Inspection

- [School / Unit Self-Inspection Forms](#) (RTF, 67 KB)
- [Residence Self-Inspection Form](#) (RTF, 23 KB)

Ladders

- [Example Ladder Inspection Checklist](#) (RTF, 109 KB)
- [Example Step Ladder Inspection Checklist](#) (RTF, 111 KB)

Lasers

- [Laser Equipment Registration](#) (PDF, 637 KB)
- [Laser Risk Assessment](#) (PDF, 738 KB)
- [Laser Worker Registration](#) (PDF, 636 KB)

Manual handling operations

- [Manual handling operations - risk assessment form](#) (RTF, 64 KB)

Minibuses

- [Minibus Checklist](#) (RTF, 15 KB)
- [Minibus Permit Requirements](#) (RTF, 14 KB)

New or expectant mothers

- [New or Expectant Mothers Risk Assessment Form](#) (Word, 36 KB)

Personal Emergency Evacuation Form

- [Personal Emergency Evacuation Form](#) (Word, 62 KB)

Personal protective equipment (PPE)

- [Checklist for the Selection of PPE](#) (RTF, 136 KB)
- [Personal Protective Equipment \(PPE\) Individual Training and Issue Record](#) (RTF, 109 KB)
- [Personal Protective Equipment \(PPE\) Inspection Record](#) (RTF, 111 KB)
- [Personal Protective Equipment \(PPE\) Maintenance Record](#) (RTF, 107 KB)

Placements (see Student placements)

Planning

- [Pro Forma School Unit Action Plan](#) (Word, 84 KB)

Radiation (ionising)

- [Project registration for unsealed radiation sources](#) (RTF, 192 KB)
- [Unsealed radionuclide source record](#) (RTF, 133 KB)

Risk assessments

- [Conference Risk Assessment Form](#) (RTF, 187 KB)
- [Display Screen Equipment \(DSE\) Assessment Checklist](#) (RTF, 18 KB)
- [Fieldwork Moodle Site](#)
- [Fieldwork Risk Assessment Form](#) (RTF, 237 KB)
- [General Risk Assessment Form](#) (Word, 68 KB) (2018)
- [General Risk Assessment Form - Example of Completed Form](#) (Word, 346 KB)
- [Guidance for Assessment of Placements \(Health and Safety\)](#) (RTF, 13 KB)
- [Manual handling operations - risk assessment form](#) (RTF, 64 KB)
- [New or Expectant Mothers Risk Assessment Form](#) (Word, 36 KB)
- [Young Persons - Work Placement Risk Assessment Form](#) (RTF, 6 KB)

Student placements

- [Initial Letter to Employer](#) (RTF, 5 KB)
- [Renewal Letter to Employer](#) (RTF, 3 KB)
- [Placement Health and Safety Checklist](#) (RTF, 17 KB)
- [Letter to Student](#) (RTF, 5 KB)
- [Guidance Notes For Students on Placements \(Health and Safety\)](#) (RTF, 27 KB)
- [Student Induction Checklist](#) (RTF, 10 KB)
- [Young Persons - Work Placement Risk Assessment Form](#) (RTF, 6 KB)

Transport

- [TREM CARD](#) (RTF, 10 KB)

Waste

- [Special Waste Excel Form](#) (Excel, 290 KB) (Excel Spreadsheet)
- [Hazardous Properties of Waste - Codes](#) (PDF, 98 KB)

Workplace inspections

- [Residence Self-Inspection Form](#) (RTF, 23 KB)
- [Workplace inspection form](#) (RTF, 106 KB)