18. WASTE MANAGEMENT

18.1.1 Contents:

18.2.1 Aim: To describe waste disposal arrangements for University buildings on the Edinburgh bioQuarter site, to properly and safely segregate waste streams according to their classification, to facilitate and promote recycling where appropriate, and to ensure compliance with all relevant regulations (and University guidance) governing waste disposal

18.2.2 The special implications of managing radioactive waste are dealt with in detail in Section 19 of this Manual.

18.3.1 Introduction: It is a statutory duty to ensure that laboratory waste is segregated from domestic refuse. The University may be penalised for failing to properly segregate waste, and waste management contractors *et al* may be put at significant risk if they are put in the position of handling waste materials that have been incorrectly bagged and/or labelled.

18.3.2 It may come as a surprise to some who generate waste, just how many steps there are between uplift of a waste bin or bag and the place where it is finally committed for processing or disposal.

18.3.2 AS A GENERAL RULE, IT IS CRITICALLY IMPORTANT THAT USERS UNFAMILIAR WITH ANY ASPECT OF WASTE DISPOSAL POLICIES SHOULD CONSULT WITH THE WASTE MANAGEMENT ADVISER FOR THEIR LABORATORY BEFORE COMMITTING ANY WASTE ITEM TO DISPOSAL. BASICALLY, IF IN DOUBT – DON'T GUESS – ASK!

18.4.1 Policy: All people generating and handling waste arising within University buildings on the Edinburgh bioQuarter site *must* conform to the segregation strategy described in this and the following section (Section 19: Disposal of Radioactive Waste) of this Manual.

18.5.1 Implementation: The following areas of University buildings on the Edinburgh bioQuarter site have been specially designated for receipt and temporary storage of waste:

- GU421 (Ground floor, Chancellor's Building) – General waste;
- GU420 (Ground floor, Chancellor's Building) – Clinical and radioactive waste;
- Flammable substances store (Chancellor's Building) - Chemical waste;
- E 0.18 (Queen's Medical Research Institute) – Clinical waste;
- E 0.29 (Queen's Medical Research Institute) – Radioactive waste
- Flammable substances store (Queen's Medical Research Institute) – Flammable chemical waste;
- G1.07 (IRR North) – Clinical, radioactive and flammable substances waste.
- IRR South – As guided by Stores staff.

18.5.2 Under the project agreement for the Chancellor's Building, it is the responsibility of EQUANS to empty, temporarily store and consign general waste deposited in appropriate waste bins within laboratory and office areas. It is, however, the responsibility of users to place all other categories of waste in one of the above designated rooms within an appropriate bag or container.

18.5.3 Laboratory workers must exercise a duty of care for the safety of non-laboratory personnel (*e.g.* cleaners and waste management contractors) working within their laboratories or handling waste as it is uplifted and subsequently handled, which includes the possibility of inappropriate contact with material committed incorrectly to general waste bins.

18.5.4 Details of all categories of waste arising within University buildings on the Edinburgh bioQuarter campus, the appropriate waste disposal container and uplift procedures, are listed in table at the end of this Section. Individual laboratories may make use of that table, or prepare more graphic flowcharts, and tailor these to their own individual circumstances, but steps must be taken to ensure that variations adapted from master templates remain accurate and correct.

18.6.1 Use and Disposal of Ethidium Bromide: As a general rule, the use of ethidium bromide for staining DNA in gels or solutions should be discouraged in favour of less toxic commercially available alternatives, except where none of the alternatives prove suitable (and that should be reflected in risk assessments prepared in connection with that work).

18.6.2 Waste disposal policy and disposal routes for ethidium bromide depend on whether it exists as a crystalline solid, as a solution in gel electrophoresis or staining buffers, or as a component of agarose gels, and the concentration at which it is present.

18.6.3 These points, and other related matters, are discussed at greater length in the University's Health & Safety department web site at:

https://www.ed.ac.uk/health-safety/guidance/hazardous-substances/ethidium-bromide

18.6.4 *Low-Level Ethidium Bromide Waste*: Agarose gels or other solids containing low levels (less than 0.1% w/v) of ethidium bromide, though remaining a health and safety concern, may be disposed of by the orange bag route (see Laboratory Waste Management Table annexed to this Section).

18.6.5 *Concentrated Ethidium Bromide 'Special Waste'*: Powder and crystals of ethidium bromide, activated carbon filters and "destaining bags" used to decontaminate gel buffers containing ethidium bromide, and gels and solutions containing concentrations in excess of 0.1% (w/v) ethidium bromide, must be disposed of as 'Special Waste'. Further information, if required, is available from the University's Waste & Furniture Manager (Telephone 651 4287 or email waste@ed.ac.uk).

18.7.1 Disposal of Other Special (Hazardous) Waste: Regulations and guidance regarding disposal of hazardous waste are complex and change frequently. Substances that are generally considered to be "hazardous" in this context include acids, alkaline solutions, batteries, industrial solvents, waste oils and oily sludges, pesticides, pharmaceutical compounds, photographic chemicals, televisions and computer monitors, paints, and fluorescent lighting tubes.

18.7.2 It would be difficult to provide simple but useful and definitive guidance in this Manual without creating the need for very frequent updates. Reference should be made therefore to well-maintained and frequently updated references available at:

https://estates.ed.ac.uk/what-we-do/waste

18.7.3 The information provided in the University's Waste Management web site summarises the methodology outlined by UK waste management regulators to determine whether waste is or is not hazardous, and the correct management strategies for specific substances and waste materials

18.8.1 Disposal of Other Chemical Waste: Laboratory managers must aim to ensure that chemicals do not accumulate unnecessarily within their laboratories, and surplus items are committed for disposal at the earliest opportunity. To that end, the conduct of regular area self-inspections and audits is strongly encouraged, and the preparation of an inventory of items for disposal should be an on-going activity. Items destined for disposal should be stored safely and securely, having in mind the compatibility or otherwise of different types of chemicals. There may be some scope for unwanted items to be shared with other laboratory groups to reduce purchasing costs, but care should be taken to do that only with items that are genuinely able to be used.

18.8.2 Certain types of liquid chemical waste are collected (as six different categories) in Flammable Substances Stores for the Chancellor's Building, QMRI and IRR:

1: Formaldehydes *e.g.* formalin, formaldehyde and paraformaldehyde solutions

2: Bouins *e.g.* formaldehyde, picric acid and acetic acid mix

3: Liquid DAB (3.3 diaminobenzidine tetra hydrochloride)

4: Chlorinated waste (in containers of volume no greater than 10l) *e.g.* chloroform, methacarn (chloroform, methanol, acetic acid mix), phenol and chloroform mixes, phenol waste oils (*e.g.* CCL_4 in olive oil)

5: Non-chlorinated waste *e.g.* acetone, ethanol, methanol, IMS, isopropanol, ether, non-halogenated waste, butan-1-ol, dimethylsulphoxide, *Histoclear*, xylene and xylene-alcohol mixes)

6. Waste oils

18.8.3 Liquid waste falling into one of the above categories (1-6) should be committed to the relevant container (as labelled) in the Flammable Substances Store for the building within which the waste was generated (containers of volume up to 25l capacity unless stated otherwise above).

18.8.4 Other waste chemicals (sealed in appropriate and correctly labelled containers) should be inventoried and placed in robust cardboard boxes, which should then also be sealed. Care should be taken to ensure that all substances collected together within any one box are safety compatible, and boxes should be appropriately separated to distance incompatible collections.

18.8.5 Boxes should be labelled 'Waste Chemicals for Disposal', and clearly marked to identify the relevant laboratory number and building address from which the waste is being consigned. An inventory of contents (names of chemicals, forms and quantities) should also be attached to the box. Copy of the inventory pro forma to be used is available upon application to the Stores Manager for University buildings on the Edinbugh bioQuarter campus.

18.8.6 Waste, other than those listed at 18.8.2 above, should be retained in a safe and secure location within the building where the waste has arisen pending agreement and notification of a time and location for uplift. Waste consignors should then inform the Health & Safety Manager, who will undertake to coordinate disposals from the Edinburgh bioQuarter campus to make best and most cost-effective use of uplift services on behalf of all users groups.

18.8.7 Periodically Stores personnel will inform the University's School of Chemistry of the need to uplift volumes of waste of those categories listed at 18.8.2.

18.8.8 When significant quantities of other items of chemical waste have been accumulated within University buildings on the Edinburgh bioQuarter campus, Waste Advisors at floor level in each of our buildings should inform the Health & Safety Manager who will, in turn, contact UofE's School of Chemistry and request a waste disposal uplift.

18.8.9 Information regarding safe disposal of chemical waste can be obtained from material safety data sheets, COSHH risk assessments, safe systems of work, Waste Advisers serving laboratory groups, and/or:

https://estates.ed.ac.uk/what-we-do/waste

18.9.1 Disposal of Confidential Waste: Collection and uplift of bags of confidential waste may be requested by University staff members. Follow the instructions and fill in the form on this website to arrange an uplift: Confidential waste (paper and data) | Estates | Estates.

18.9.2 Once the form has been received and sent to waste@ed.ac.uk, they will arrange the uplift for you. You will be journaled for the cost using your P&M codes.

18.9.3 For those who are not registered to use P&M system, requests may be made by emailing waste@ed.ac.uk, attaching the form (as above). A purchase order number must be issued.

18.9.4 Empty confidential waste bags for disposal of confidential waste may also be ordered by emailing waste@ed.ac.uk.

18.10.1 Further Information: Further information on disposal of waste appears on the University's Waste Management web site (and should also be consulted):

https://estates.ed.ac.uk/what-we-do/waste

18.10.3 BUT, TO REPEAT … AS A GENERAL RULE, IT IS CRITICALLY IMPORTANT THAT USERS UNFAMILIAR WITH ANY ASPECT OF WASTE DISPOSAL POLICIES SHOULD CONSULT WITH THE WASTE MANAGEMENT ADVISER FOR THEIR LABORATORY BEFORE COMMITTING ANY WASTE ITEM TO DISPOSAL. BASICALLY, IF IN DOUBT – DON'T GUESS – ASK!

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