Waste Disposal

Guidance for University Departments and Functions

May 2009

Safety Services Office
# ARRANGEMENTS FOR THE DISPOSAL OF WASTE

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ARRANGEMENTS FOR THE DISPOSAL OF WASTE

This document has been issued with the approval of the Biological & Chemical Hazards Sub-Committee of the University Safety Committee. Links to/details of all documents referenced within this guidance can be found in appendix A.

1. WASTE - GENERAL

1.1 Status of arrangements

The following are 'arrangements' within the meaning of Section 1 of the Health & Safety at Work etc. Act 1974, which requires the University to prepare, and as often as may be appropriate revise, a statement of the arrangements for health and safety in respect of premises and work activities within its control. Employees have a reciprocal duty to co-operate with their employer so as to enable statutory duties under the Act to be fulfilled.

Most of the waste from the University is controlled waste, which places a duty of care on anyone who has responsibility for waste to ensure that it is managed and disposed of safely. This duty applies to those who produce the waste and extends to the final treatment or disposal. Since most materials will eventually become waste, the disposal is best considered prior to purchase (e.g. at the start of experiments).

No variation of these arrangements is permitted without the consent of the Biological & Chemical Hazards Sub-Committee or, in an emergency, the University's Site Services Officer. The Flow Diagram (Appendix F) summarises these arrangements.

1.2 Categories of waste

- **Clinical** waste (see Section 2)
- **Chemical** waste (see Section 3)
- **Radioactive** waste (see Section 4)
- **Biological** waste should be rendered safe before disposal. Further guidance can be found in the University of Leicester guidance documents ‘Hazardous Biological Agents’ and ‘Infectious and Potentially Infectious Waste’.
- **Asbestos** waste is controlled by the Estates Office. All removal and disposal should be controlled by Mr. S. Rees (Services Design Engineer).
Hazardous waste is defined by the Hazardous Waste Regulations 2005 as: any waste containing any of a number of listed chemicals or classes of chemicals including laboratory chemicals and which has any of the hazardous properties listed in Appendix B, with concentrations as in Appendix C, or, is a medicinal product.

Categories of waste such as chemical waste may also be special waste and require additional procedures to be undertaken. Further guidance can be obtained from the nominated staff within the University or the contractor used.

Aqueous waste (see Section 5.)

Domestic waste, e.g. waste from offices, catering activities, non-science teaching areas, non-hazardous waste from laboratories etc. is the responsibility of the Estates Office. Note, due to the large volumes of waste generated by the University, standards required for the disposal domestic waste are higher than for household waste. All enquiries or problems should be referred to the Waste Officer (Phil Ball)

Other waste not covered by these arrangements remains the responsibility of individual Departments.

1.3 Packing and Labelling

1.3.1 Packing

Where packing is defined by particular waste procedures or by the disposal contractor, then this must be followed. In all cases the packing should be appropriate for the type of waste, with due regard given to the hazard and form of the material (i.e. leak-proof for liquids, no plastic bags for sharps). It should be robust enough to ensure containment of the contents under all handling, transport and storage conditions, and any reasonably foreseeable accidents.

1.3.2 Labelling

Identification for some types of waste is covered in other procedures, for example, standard labels are used for radioactive waste, yellow bags/boxes for incineration, etc. All waste must be identified and marked with relevant hazard warnings and the source of the waste (laboratory and department) so that anyone further down the disposal chain can safely handle and dispose of the material and can contact the waste producer in the event of any uncertainty. Whenever possible, different types of waste must be segregated to aid identification of the hazards and the correct final disposal route. Some mixed wastes such as "Red List" chemicals contaminated with radioactivity may well be impossible to dispose of.
2. CLINICAL WASTE - GENERAL

2.1 Method of disposal

Clinical waste generated in the University is disposed of by means of off-site incineration and this is carried out under contract. These contractual arrangements cover clinical waste as defined in Section 2.2.

In general, except for waste from CMHT, the arrangements are co-ordinated by the Waste Officer, Estates Office, who should be notified of the waste to be disposed via the Clinical Waste Disposal Record Form. As with all aspects of health and safety, the responsibility for implementing these arrangements rests with Heads of Departments. In practice, however, the conduct of day-to-day operations may be delegated to nominated staff in accordance with the University’s ‘Statement on safety policy’ and ‘Statement on Safety in laboratories’. In such cases, the nature and extent of the duties assigned to nominated staff must be consistent with the knowledge, experience, training and authority of the staff concerned.

All potentially infected material should be made safe before disposal, as described in the University guidance documents ‘Hazardous Biological Agents’ and ‘Infectious and Potentially Infectious Waste’.

2.2 Arrangements for disposal

Departments must follow the detailed procedures for the disposal of clinical waste, which are set out in the University of Leicester document ‘Clinical waste tagging procedure’ which can be obtained from the Waste Officer (Estates Office) or on the Environment Team pages of University of Leicester website. In addition, Departments in which clinical waste of any quantity is generated should have access to the Department of Health guidance document ‘Safe Management of Healthcare Waste’.

3. CHEMICAL WASTE - GENERAL

The disposal of hazardous chemical waste (A) is organised on behalf of the Laboratory Management Group (B). As and when required, collection is arranged and a contract awarded to an authorised contractor, for off-site disposal by incineration and/or other appropriate methods. The frequency of...

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Notes:

(A) The term includes waste solvents.

(B) The Laboratory Management Group represents the technical and administrative interests of Managers, Superintendents and Chief Technicians in University Departments and Functions.
collection is dictated by collective Departmental needs and may vary according to demand. In the past, however, two-three collections each year have been found appropriate.

3.1 **Collection procedure**

3.1.1 Departments are notified of the intention to arrange a collection, and are sent blank and specimen forms. (Appendix E).

3.1.2 Departments then list the items for disposal, assigning each item a separate reference number. Completed forms are then sent to the collection organiser for collation and onward transmission to the contractor. The date for collection is arranged and Departments notified.

3.1.3 On the collection day, Departments deliver the items for disposal, to the most convenient of the collection points listed below.

- Chemistry Department Stores (rear entrance)
- Medical Sciences Building (undercroft - goods entrance)
- Clinical Sciences Building (solvent store)
- Adrian Building (goods entrance)

3.2 **Identification of items for disposal**

Each item for disposal must be clearly identified by labels bearing the name of the Department, the reference number, and the name of the substance. These details should correspond to the list provided by the Department. Items presented for disposal not adequately labelled will not be accepted.

3.3 **Packing and documentation**

3.3.1 The contractor normally provides competent staff to attend at each collection point, and to pack items appropriately for transport.

3.3.2 The contractor is responsible for the preparation of appropriate transit documents, and for notifying the authorities in whose area(s) the waste is to be finally disposed
of, and through whose area(s) the waste will pass en route to the place(s) of final disposal.

3.4 Responsibility and authority

3.4.1 University Departments in which hazardous chemical waste is generated are responsible under the provisions of the University’s ‘Statement on Safety Policy’ and ‘Statement on Safety in Laboratories’, for the safe disposal of such waste.

3.4.2 The arrangements outlined in this document are made on a co-operative basis by the Laboratory Management Group (see Note (B) to Section 3 above).

3.4.3 As Advisory Committees to the University, the Safety Committee and its Biological and Chemical Hazards Sub-Committee recognise the value of such co-operation, and have formally recorded their approval.

3.4.4 All Departments wishing to avail themselves of the disposal facilities must conform with the detailed requirements.

3.4.5 No variation is permitted without the specific authority of the collection organiser who should be contacted in case of difficulty.

3.5 Charges

Each collection is the subject of a separate contract, the cost of which is based on the nature and quantities of items sent for disposal. This, in turn, is based on the information provided by participating Departments under the requirements of Section 3.1 above.

The total cost of the collection is recharged to participating Departments pro rata to the number of items sent for disposal.

4. RADIOACTIVE WASTE

Complete rules regarding the disposal of Radioactive Waste are to be found in the University’s ‘Radiation Protection Rules’, Section L:16 on the Safety Services pages of the University website.

All disposals of Radioactive Waste are controlled and recorded so that the conditions of the University's and the Incinerator Contractor's "Certificates of
Authorisation for Accumulation and Disposal of Radioactive Waste" (issued by the Environment Agency) can be complied with.

There are four categories of radioactive waste that are sent for incineration off-site. All such waste is transferred, via Specialised Waste Services from our sites at LRI, LGH, and GGH to Main Site before being consigned to the outside incinerator contractors.

The basic principles regarding control of the four categories are as follows:

4.1 **Non 32P Solid Waste in labelled Burn-bins or Bags**

Bins/bags should be sealed by the end of the month (on a monthly basis), and stored in Departments until taken to the site Solid Waste "Transit Store"

4.2 **32P Solid Waste in labelled Burn-bins or Bags**

Bins/bags should be sealed by the end of the month (on a monthly basis) and taken to the site "Decay Store" as soon as convenient. After 5 months decay the waste will go either to the incinerator contractor direct or to the Solid Waste "Transit Store"

4.3 **Organic Liquid Waste (Scintillation Vials)**

Bins should be sealed, labelled on a monthly basis, and taken to the site Organic Liquid "Scintillation Vial Store".

4.4 **Bulk Organic Solvent**

This should by absorbed into inert material in "Medi-Bins" by Departments, labelled and then taken to the site Organic Liquid "Scintillation Vial Store" on a monthly basis.

All enquiries about Radiation Waste Disposal should be directed to the University Radiation Safety Officer (John Scott).

5. **AQUEOUS WASTE**

Material which enters the University drains goes via the public sewage system to the sewage works at Wanlip. Outflow from Wanlip is discharged into the river Soar. The waste must not affect the health and safety of workers on the system, damage the sewage system or harm the environment when discharged.
To achieve these aims, the waste:

(a) must not be harmful (see Appendix B) - for small amounts a judgement is required dependent on concentration, this should be covered by a risk assessment, such as COSHH.

(b) must not be flammable or explosive - residues of water miscible substances which do not pose a hazard are acceptable;

(c) must not be corrosive – and must have a pH between 6 and 10;

(d) must not kill or feed bacteria - usually achieved by limiting quantity of material;

(e) must not be on the 'Red' list of substances – (Appendix D).

The University aqueous waste is trade effluent and could be subjected to consent levels by Severn Trent Water to control our discharges. This is not currently in operation since our work is small scale laboratory experiments, but if any waste falls outside this description, or there is a question over its suitability to go into the drains, then the agreement of Severn Trent Water via the Sites Services Officer of the Estates Office must be obtained.
APPENDIX A

Legislation/Local guidance


- *Environmental Protection Act 1990* Chapter 43 HMSO ISBN 0 10 544390 5

- Department of Health: *Safe Management of Healthcare Waste*’


- University of Leicester ‘*Hazardous Biological Agents*’:

- University of Leicester ‘*Infectious and Potentially Infectious Waste*’:

- University of Leicester ‘*Radiation Protection Rules*’:

- University of Leicester Environment Team webpages (waste procedures):
  [http://www2.le.ac.uk/offices/estates/environment/wasteandrecycling/wasteguide/procedures](http://www2.le.ac.uk/offices/estates/environment/wasteandrecycling/wasteguide/procedures)
• APPENDIX B

HAZARDOUS PROPERTIES

H1 "Explosive": substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene.

H2 "Oxidising": substances and preparations, which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances.

H3-A "Highly flammable"
— liquid substances and preparations having a flash point below 21°C (including extremely flammable liquids), or
— substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or
— solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or
— gaseous substances and preparations which are flammable in air at normal pressure, or
— substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities.

H3-B "Flammable": liquid substances and preparations having a flash point equal to or greater than 21°C and less than or equal to 55°C.

H4 "Irritant": non-corrosive substances and preparations, which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.

H5 "Harmful": substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks.

H6 "Toxic": substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.

H7 "Carcinogenic": substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.

H8 "Corrosive": substances and preparations, which may destroy living tissue on contact.
"Infectious": substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms.

"Teratogenic": substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.

"Mutagenic": substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.

Substances and preparations, which release toxic or very toxic gases in contact with water, air or an acid.

Substances and preparations capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

"Ecotoxic": substances and preparations which present or may present immediate or delayed risks for one or more sectors of the environment.
APPENDIX C

THRESHOLDS FOR CERTAIN HAZARDOUS PROPERTIES

The following are thresholds for concentrations of chemical types (in appendix B) allowed in waste. If the properties of the waste are equal to or above any of these thresholds the waste must be classified as special waste.

(a) flash point ≤ 55 °C,
(b) one or more substances classified as very toxic at a total concentration ≥ 0.1 %,
(c) one or more substances classified as toxic at a total concentration ≥ 3 %,
(d) one or more substances classified as harmful at a total concentration ≥ 25 %,
(e) one or more corrosive substances classified as R35 at a total concentration ≥ 1 %,
(f) one or more corrosive substances classified as R34 at a total concentration ≥ 5 %,
(g) one or more irritant substances classified as R41 at a total concentration ≥ 10 %,
(h) one or more irritant substances classified as R36, R37, R38 at a total concentration ≥ 20%,
(i) one substance known to be carcinogenic of category 1 or 2 at a concentration ≥ 0.1 %,
(j) one substance known to be carcinogenic of category 3 at a concentration ≥ 1 %,
(k) one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration ≥ 0,5 %,
(l) one substance toxic for reproduction of category 3 classified as R62, R63 at a concentration ≥ 5 %,
(m) one mutagenic substance of category 1 or 2 classified as R46 at a concentration ≥ 0.1%,
(n) one mutagenic substance of category 3 classified as R68 at a concentration ≥ 1 %.
APPENDIX D

SUBSTANCES FOR WHICH ENVIRONMENTAL QUALITY STANDARDS HAVE BEEN SET: FIRST UK "RED LIST"

SUBSTANCE:

3-Chlorotoluene
Aldrin
Altrazine
Azinphos-methyl
Cadmium and its Compounds
Carbon Tetrachloride
Chloroprene
DDT
Dichloroethane 1.2
Dichlorvos
Dieldrin
Endosulfan
Endrin
Fenitrothion
Gamma-Hexachlorocyclohexane (Lindane)
Hexachlorobenzene (HCB)
Hexachlorobutadiene (HCBD)
Malathion
Mercury and its Compounds
Pentachlorophenol (PCP)
Polychlorinated biphenyls (PCBs)
Simazine
Tributyltin compounds
Trichlorobenzene
Trifluralin
Triphenyltin compounds
**APPENDIX E**

**UNIVERSITY OF LEICESTER - CHEMICALS FOR DISPOSAL**

DEPARTMENT: .................................................................  
CONTACT: ................................................................................

BUILDING: ..............................................................................  
TELEPHONE: .................... E-MAIL: ........................................

FOLLOWING COLLECTION YOU WILL BE CONTACTED BY E-MAIL WITH THE COST OF DISPOSAL FOR YOUR CHEMICALS.  
PLEASE JOURNAL THIS TO THE APPROPRIATE ACCOUNT

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>WASTE DESCRIPTION (CHEMICAL NAMES - IF ONLY TRADE NAME IS KNOWN, STATE MANUFACTURER)</th>
<th>PHYSICAL FORM</th>
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<th>CONTRACTOR'S COMMENTS</th>
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WASTE DISPOSAL FLOW DIAGRAM

Identify any hazardous properties of the waste

Pack and label correctly (section 1.3)

Is this hazardous waste? (section 1.2) If the waste is hazardous, additional rules apply. Chemical waste is often classed as hazardous waste

Dispose in appropriate category

Clinical See section 2

Chemical See section 3

Radioactive See section 4 & ‘Radiation Protection Rules’

Biological Render safe See ‘Hazardous Biological agents’ & ‘Infectious and potentially infectious waste’

Asbestos Contact Estates

Aqueous See section 5

Domestic See section 1.2

Other All waste in other categories or mixed category waste. Seek further guidance