

**RSU INF 2021-03**

**AREA DESIGNATION, HAZARD WARNING SIGNS & SYMBOLS  
(SEPTEMBER 2021)**

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### LABORATORY DESIGNATION

- The intention behind designating radiation areas is to identify areas of 'measurable' risk where local rule, 'special procedures' and other control measures are put in place to restrict significant exposure to ionising radiation or prevent or limit the probability and magnitude of radiation accidents (**significant** exposure is defined in UoM Arrangements Chapter 25 'ionising radiation safety' - restriction of exposure and also dose limitation...)
- Where work is routine and special precautions are not necessary, or work is carried out with low levels of radionuclides of low toxicity and only routine precautions are expected such as the use of spillage / containment trays on laboratory benches, where only PPE such as disposable gloves, safety eyewear and lab coats are required, then areas do not need to be designated as restrictive **Controlled Areas**. In these cases designating **Supervised Areas** is appropriate.
- In most cases laboratories and specific radiation workshops must be designated as **Supervised Areas** on account of accessible dose rate and the potential for contamination arising and being spread.
- In the case of large multi-use laboratories where a small area in the lab is to be used as a **Supervised Area**, for example a fume cupboard and a short bench top, that area must be physically demarcated in such a way using physical boundaries such as walls and partitions around the work area that it is clear where radioactive materials should be used. Coloured tape may be affixed to the floor and signs must be used to mark the active benches to achieve the clear identification of the boundaries of the radiation work area.
- Equipment rooms such as might have liquid scintillation counters, centrifuge (rooms), gas chromatographs or teaching laboratories used for Griffin & George type 'schools sources, cabinet x-ray generators (e.g. Bruker, Fisher, Rigaku) or Faxitron (type) inspection cabinets should be designated as **Radiation Areas** so long as a person is unlikely to receive a dose in excess of 1 mSv a year.



Warning: radioactive materials  
Supervised Area  
Moderate risk



No unauthorised access  
Security Services and emergency  
staff may enter

Lab:

Room:

Access:

(0161 27)

Out of hours contact:

More room  
information



## SAFES, CUPBOARDS, REFRIGERATORS AND FREEZERS

- 6) Refrigerators and freezers used for the storage of radioactive sources, stock solutions and samples should be clearly identified and labelled.
- 7) Safes, cupboards, refrigerators and freezers should be lockable and kept locked unless they are under continual surveillance or held in locked laboratories.
- 8) Refrigerators and freezers should periodically be defrosted in order to prevent the contamination of ice from occurring.



Warning; radioactive materials  
Store cupboard  
Low risk

## GENERAL STORAGE

- 9) Adequate storage should be available to keep equipment and consumables thereby preventing the cluttering of work areas, and reduce the risk of contamination being spread.
- 10) Storage facilities should be constructed of non-absorbent materials and kept clean.

## WASTE STORAGE AND DISPOSAL

- 11) Waste disposal bins (used for storing radioactive wastes pending disposal) should be constructed of materials that are robust, must provide an acceptable level of shielding. If the waste contains hard beta emitters ( $>0.3$  MeV), the bins may need to be shielded by 1cm Perspex, or lead if the waste contains energetic gamma-emitting radionuclides. Bin lids should be closed when not in use and the contents in the bag sealed or secured before removing them from the bin.
- 12) Sharps, bottles, tubes, etc. should be placed in sharps containers to ensure safe handling.
- 13) Radioactive waste must be secure at all times, and must never be left unattended.
- 14) VLLW must be kept in appropriate waste bin and disposed of as soon as reasonably practicable. VLLW should be removed by a waste contractor having authorisation to dispose of such waste.
- 15) The bins used to hold radioactive waste must be appropriately signed.

## AQUEOUS WASTE DISPOSAL: DESIGNATED SINKS

- 16) Aqueous radioactive waste may only be disposed of via authorised designated sinks in radiation laboratories.
- 17) Sinks must be labelled appropriately.



Designated sink  
To be used for the disposal of  
radioactive waste

## HAZARD WARNING SIGNS AND SIGNALS

- 18) Clear and legible hazard warning signs, compliant with the requirements of the Health and safety (Safety Signs and Signals) Regulations 1996, must be posted on laboratory doors, cupboards working areas, equipment refrigerators, sinks, drainage pipes as appropriate.

