Code of Practice on Orphaned Radioactive Sources.

The University of Liverpool will endeavour, as far as reasonably practicable, to minimise the generation of ‘orphaned’ radioactive sources (see Appendix 1) on its main campus and satellite sites.

To this end it is the responsibility of individual Heads of Department (via their Radiation Protection Supervisors) to comply with this Code of Practice and ensure that:

1. All sources procured in relation to their department are notified to The Radiation Protection Office (RPO) in a manner appropriate to the source in question (i.e. closed sources individually, open sources included in departmental monthly returns). ‘Procurement’ does not simply include purchase of sources from a recognised supplier but may also include, for example, sources brought onto University premises by new or visiting academics. Be aware that some equipment may incorporate a sealed radioactive source (e.g. liquid scintillation counters) that will ultimately require disposal.

2. At the procurement stage, all reasonably practicable steps are taken to ensure resources are available for the ultimate disposal of the source(s). Such measures might include obtaining a written agreement from the source supplier specifying that they will take back the source at the end of its useful lifetime, or building into initial project budgets a financial provision for source disposal.

3. No ‘gifts’ of radioactive materials are accepted by members of staff without prior consultation with the RPO.

4. Records of all radiation sources are accurately maintained for the entire lifetime of the source on University premises. These records should include details of the radioisotope, activity on a reference date, chemical form, owner, how the source came to be on University premises, its current location, proposed disposal route, financial resources to fund the disposal etc. Such records must be periodically reviewed. These records should already be in place and being maintained. NOTE: the ‘owner’ is the person who originally procured the source, or the person to whom responsibility for the source has been formally transferred.

5. Owners must notify the RPO of any significant changes to their work practices using radioactive materials. This includes the owners intention to leave The University of Liverpool.

6. In the event of an owner relinquishing responsibility for sources, arrangements are made (and documented) for either the transfer of ownership or disposal.

7. Staff are strongly discouraged from bringing ‘interesting artefacts’ or ‘fascinating samples’ that are potentially radioactive back to University premises without prior consultation with the RPO. Once on The University of Liverpool’s site, the legal responsibility for the ultimate (and costly) disposal of the source rests with the University. Indeed, some materials may be outside the conditions of our Environment Agency Registration Certificate, and bringing this on site immediately places the University in a ‘breach of the law’ situation.

8. Procedures are established to minimise the ‘over-ordering’ of radioisotopes, and for dealing with situations where significantly more radioisotope is delivered than was actually ordered from suppliers.

9. The Head of Department and/or RPS should seek advice from The Radiation Protection Office (x 43465) if there are any concerns about source procurement, staff practices, or orphaned source discoveries.

References:

Appendix 1.

Orphaned Radioactive Sources at The University of Liverpool.

It is not uncommon for orphaned (or ‘disused”) radioactive sources to be discovered on premises that are the responsibility of The University of Liverpool. Such discoveries occur approximately twice a year (i.e. approximately 30 sources per year). Although this might appear to be an insignificant frequency, these sources still represent a serious situation. Orphaned sources can potentially lead to non-compliance with several sets of legislation, most notably The Ionising Radiations Regulations 1999 and The Radioactive Substances Act 1993. In addition to the possibility of legal action taken by regulators against The University of Liverpool, the ultimate disposal costs for orphaned sources (depending on exactly what they are) can be substantial e.g. many tens of thousands of pounds.

The significance of orphaned sources has been highlighted by The High Activity Sealed Radioactive Sources and Orphaned Sources Regulations 2005 (HASS came into force on 20th December 2005), which in turn are based on European Council Directive 2003/122/Euratom. The UK security services have also identified that there may be sources which, despite having activities below HASS limits, represent a similar security risk to HASS.

An orphaned source is one that has never been within, or has fallen out of, regulatory control. For the purposes of the Code of Practice, they are sources for which the ‘owner’ cannot be identified, and the ‘owner’ is the person who originally procured the source, or the person to whom responsibility for the source has been formally transferred. In fact many of these sources are not clearly marked to indicate the actual radioisotope and activity. More often than not there are insufficient or non-existent records relating to the sources. This, in itself, is a legislative shortfall, but it also creates many problems and significant workload in attempting to determine the sources exact nature, both physical and chemical, so that legally approved disposal can be carried out. Orphaned radioactive material can lie undiscovered (e.g. in a cupboard in a disused lab) for decades before it is happened upon, for example, during refurbishment works.

Orphaned sources mainly arise when their owners leave The University of Liverpool, either to take up posts in other organisations, or to retire. The historical legacy of orphaned sources will hopefully ‘dry up’ as they are gradually ‘unearthed’, however we must take steps to ensure that the potential generation of orphaned sources is minimised in the future. To this end it is the responsibility of the individual Head of Department (via their Radiation Protection Supervisors) to ensure compliance with The Code of Practice on Orphaned Radioactive Sources.

References: