



Safety Note 65

Decommissioning and clearance of laboratories

This Safety Note provides guidance to Schools on the decommissioning and clearance of laboratories prior to handing back space to Estates and Facilities (E&F), refurbishment by E&F or external contractors, or where the space is to be occupied by another group.

Responsibilities

Heads of Schools are ultimately responsible for ensuring vacated space is free from hazards. In practice, responsibility for clearance generally rests with the group leaders or principal investigators involved with support, where available, from laboratory management or technical staff.

They must ensure arrangements are put in place, in good time and with sufficient resources to ensure all areas under their control are: free of biological, chemical and radiological hazards; are fit for others to work in; and that all hazardous materials have been removed or disposed of.

An area decontamination form must be completed by the person in charge of the space and copies given to E&F/contractors. This must include details of the action taken to remove all hazards and highlight any residual risk.

If residual hazards have been left following the transfer of space back to E&F, E&F, acting on Health & Safety Services advice if necessary, will employ contractors to fully decommission the space and dispose of all hazardous materials. The cost of such a project, together with E&F or H&SS time will be recharged back to the School.

Previous use of radioactive materials

H&S Services prior authorisation is required for all proposals for the decommissioning/refurbishment of radiation laboratories where unsealed or open sources have been used, and before sealed radioactive sources are relocated from their designated laboratory.

Chemical and biological laboratories

All unwanted, non-hazardous materials must be removed, recycled, or otherwise disposed of, and not simply left behind. Waste equipment or furniture must be disposed of via the E&F Clean and Green team. Equipment should be rendered safe by decontamination prior to disposal. Hazardous materials will either need to be disposed of by appropriate means or moved safely to new locations.

The guidance below applies to general chemical or biological laboratories. Additional steps must be taken when decommissioning areas where unsealed radioactive materials (including uranium compounds) have been used and in containment level 3 biological laboratories. Further information for radiation laboratories can be found in section 2 of this Note and in the Containment level 3 laboratory codes of practice.

Hazardous materials	All hazardous materials must be removed from the laboratory and associated storage space, checking that no containers or samples have been left in, beneath or behind cupboards, fridges or freezers.
Sharps and glass	All floors, benches, drawers, cupboards, sinks, fume cupboards etc must be cleared of sharps and broken glass.
Surfaces	Surfaces of benches, floors, drawers, shelves, cupboards, splash-backs, accessible window ledges, door handles etc. <i>Chemical labs:</i> Liberal wiping with soapy water. <i>Biological labs:</i> Disinfected with 1% virkon or 2% Biocleanse followed by soapy water. Contact surfaces where electrical power is present e.g. light switches, accessible cable trunking etc. Wipe down with damp towel.
Sinks and traps	Sinks and traps must be liberally flushed with water. <i>Chemical labs:</i> Flush with water <i>Biological labs:</i> Disinfect with 1L 2% virkon or 2% Biocleanse followed by water. Sink traps must then be removed by E&F and emptied of sharps, glass, mercury etc by the laboratory users.
Fume cupboards (inbuilt /ducted)	The accessible surfaces of fume cupboards should be cleaned by liberal wiping with soapy water. Fume cupboard sinks must be flushed as above.
Micro-biological safety cabinets*	Where microbiological safety cabinets have been used for hazardous biological agents the cabinet must be fumigated after its last use and a copy of the fumigation certificate must be attached to the lab decontamination & clearance form.
Other equipment*	All accessible surfaces of equipment staying in laboratory should be cleaned as below: <i>Chemical labs:</i> Liberal wiping with soapy water. <i>Biological labs:</i> Disinfected with 1% virkon or 2% Biocleanse followed by soapy water.
Chemical storage cabinets	Flammables cabinets, corrosive storage cabinets etc. should be emptied, wiped down with liberal amounts of water and the door left open.

Where residual hazards cannot be removed these should be clearly identified in the laboratory and on the laboratory decontamination & clearance form.

***For laboratories permanently vacated and handed back to E&F - equipment such as Microbiological safety cabinets, re-circulating fume cupboards or fridges/freezers must not be left in the space without the prior agreement of E&F.**

Where necessary (because of the type of work that has been carried out) specific tests for chemical contamination may be considered and carried out (e.g. for vapours arising from spilt mercury).

Once cleaning has been completed and provided no contamination has been found, all warning labels must be removed.

Radiation laboratories

No laboratory or building which has previously been used for working with or storing unsealed radioactive materials or waste shall be disassembled or refurbished until suitable contamination monitoring has been carried out and a clearance certificate issued.

A full decommissioning plan (below) must be completed by the School Radiation Protection Supervisor and submitted to H&S Services for assessment prior to starting work. Where necessary, approval of the plan by the University Radiation Protection Advisor will be sought by Health & Safety Services. The principles of Best Available Technology must be applied to all decommissioning work to reduce the amount of radioactive waste generated.

Where necessary the Environment Agency (EA) must be informed of decommissioning projects. This must occur at the earliest opportunity and the EA must be given regular progress updates. H&S Services are responsible for liaising with the University Radiation Protection Advisor and the Environment Agency.

In some cases full decommissioning may not be required e.g. where the laboratory will be used again for a similar purpose. If this is the case it is still necessary to monitor all exposed surfaces and issue a certificate.

Radiological Clearance/Decommissioning Proposal

Report from	
Position	
School	
Building and room number	
Description of area	
Date of report	
Purpose of clearance	

1. History of radiation use in laboratory & survey strategy

Radioisotopes known (or reasonably suspected) to have been used in this area	
Tritium <input type="checkbox"/>	Carbon 14 <input type="checkbox"/>
Phosphorus 32 or 33 <input type="checkbox"/>	Sulphur 35 <input type="checkbox"/>
Iodine 125 <input type="checkbox"/>	
Other <input type="checkbox"/> details	
Insert details of research groups/types of activities performed	
Map of laboratory indicating areas of radiation usage attached (Tick if yes)	<input type="checkbox"/>
Map of areas to be monitored for contamination attached (see guidance below) (Tick if yes)	<input type="checkbox"/>
Confirmation that:	
<ul style="list-style-type: none"> • all cupboards/drawers/fridges and freezers have been searched • all radioactive materials have been identified • all radioactive materials have been removed 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Comment if necessary:	
Method of contamination monitoring (surfaces)	
Tritium/Carbon 14	<i>Indirect contamination monitoring</i> using wipe tests and liquid scintillation counting
	Wipes taken using
	Details of liquid scintillation counter

	and programme to be used	
	Proposed action level	
Phosphorus 32 or 33	Direct contamination monitoring using	
	Proposed action level	
Sulphur 35	Direct contamination monitoring using	
	Proposed action level	
Iodine 125	Direct contamination monitoring using	
	Proposed action level	
Other	Direct contamination monitoring using	
	Proposed action level	

Guidance on monitoring of radiation laboratories	
Sinks and draining boards used for the disposal of aqueous radioactive waste	Sinks/drains will be flushed with copious amounts of water. The draining board, sink and plug hole will be monitored.
Sink traps from radiation sinks	Following flushing with water the sink traps will be disconnected and monitored internally using a wipe test.
Drainage	Open ends of connected pipework will be monitored. Depending on the type of isotopes used and the drainage plans further investigations may be required.
Fume hoods used for work with radioactivity	All internal work surfaces and aqueous waste disposal sinks will be monitored as above. Gaseous extract points will be monitored using wipes.
Equipment	All equipment in the room will be monitored (all external and internal surfaces) including fridges, freezers and cold rooms. Samples of freezer ice will be counted by liquid scintillation.
Benches and cupboards	A matrix of bench space will be monitored, including areas of known usage. Cupboard handles and under bench furniture will be monitored.
Floors	A matrix of the floor will be monitored.
Further points where radioactive contamination is reasonably foreseeable; e.g. handles, switches etc.	Monitored.

2. Proposed Remediation Strategy

Attempts will be made to remove all identified contamination using moist paper wipes initially and then subsequently using *[insert method e.g. Decon solution]* as appropriate.

Areas where contamination remains fixed in spite of efforts to decontaminate will be highlighted in the decommissioning report to H&S Services. H&S Services, the School RPS and where necessary the RPA will advise on further action to be taken.

Laboratory decontamination and area clearance form

School		Building	
Room number			
Please tick and complete the appropriate sections:			
1. This laboratory has not been used for any purposed involving hazardous substances			<input type="checkbox"/>
2. This laboratory has been used with the following hazardous substances and actions have been taken to decontaminate the area are detailed below			<input type="checkbox"/>
	Details	Action taken to decontaminate	
Biological material			
Hazardous Chemical			
Radiation	Please specify isotopes:	See separate decontamination plan for unsealed source laboratories	
3. All equipment has been cleared from the laboratory			<input type="checkbox"/>
4. It has been agreed with E&F that the equipment listed below can remain within the room.			
Microbiological safety cabinet	<input type="checkbox"/>	Has this been decontaminated by fumigation?	<input type="checkbox"/> YES <input type="checkbox"/> NO
If no please detail materials use in cabinet and action taken to decontaminate			
Fume cupboard		Action taken to decontaminate:	
Other equipment	Name	Action taken to decontaminate :	
Sinks – please confirm that all non-transparent sink traps have been removed and checked for foreign objects and objects removed			<input type="checkbox"/>
5. Complete decontamination of some aspects of the fabric, services or fixtures cannot be practicably achieved and some residual contamination may remain			<input type="checkbox"/>
Detail aspects and nature of residual contamination:			
Declaration			
I confirm the details are correct (person in charge of laboratory)			
Signed	Print name	Date	