Environment Agency: Radiopharmacy design

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Overview

- Environment Agency’s role
- EA requirements for radiopharmacy construction
- Security
- Arrangements for delivery/collection of spent generators
Environment Agency

🎉 Regulate:
- keeping & use of radioactive material
- accumulation & disposal of radioactive waste

🎉 Enforce the Environmental Permitting Regulations which:
- Protect the public and the environment
- Keep waste production as low as is reasonably practical (using Best Available Techniques)
- Ensure no waste is created that does not have a disposal route
- Keep sources secure

🎉 Pre-permitting system
Radioactive Substances Act
Northern Ireland Environment Agency

Environmental Permitting Regulations
Natural Resources Wales

Radioactive Substances Act
Scottish Environmental Protection Agency

Environmental Permitting Regulations
Environment Agency
Permits

- Sealed sources (restricted)
- Open sources (publically available)
- Permits issued to organisation, apply to site
- Open sources permits
  - Maximum holdings of radioactive materials
  - Limit disposals to the environment via sewer/air etc
  - Limits for waste that can be accumulated
- Impose conditions on use
Open source permits require:

“The operator shall use the best available techniques: to ensure that all relevant parts of the premises are constructed, maintained and used in such a manner that:

(i) they do not readily become contaminated; and
(ii) any contamination which does occur can be easily removed”
Construction

Walls (&Ceilings)
Smooth, gloss or high quality vinyl emulsion

Floors:
• Thick, good quality, smooth Vinyl
• Coved to walls
• Welded joints

Preferably steel/vinyl
Benches

- Smooth, hard, non-absorbent
- Upstand to rear
- Gaps and joints sealed
- Curved front edge?
- Sockets/electrical trunking away from work
- Use of drip trays to contain spills
- Delineated areas for working with RAM
Fume cupboards/safety cabinets

- Used where risk of airborne contamination
- Surfaces – smooth, hard, resistant to contamination
Sinks for disposal of radioactive liquids

- Stainless steel
- Splash back
- Small sink trap
- Drains – labelled, short run to main drain.
Contamination monitoring

- Suitable instruments
- Action levels, record response
Gaseous emissions

- BAT to minimise releases
- Abated?

- Hot cells in PET radio pharmacy
  - Abatement via filters or delay lines/tanks
  - Calibrated stack monitor to show compliance with permitted limits
Source security

Large sealed sources specific - security requirements

Otherwise

“The operator shall use the best available techniques.. To prevent...

- the loss of any radioactive material or radioactive waste
- unauthorised access to any radioactive material or radioactive waste”
Open Source Security

- secure doors and windows
- safes, lockable fridges/freezers
- Alarms, swipes access, CCTV etc.
Deliveries to Nuclear Medicine

- Vulnerable – delivery and collection (of spent generators), especially outside office hours
- Need to consider store for out of hours deliveries that does not give access to the rest of department
- Useful guidance in NMC

Waste management

- Security condition also applies to waste.
- Systematic approach
- Bins –
  - Provide suitable containment
  - Labelled
  - Lidded
  - Foot operated
- Waste store
ANY QUESTIONS?