

Hot topics



Hot topics

- *Update – Safety Office*
- *Accidents and incidents*
- *X ray equipment issues*
- *Older/redundant sources*
- *Area decommissioning*
- *Eye dose assessments*
- *School representation at University Radiations Sub-Committee*

Safety Office update

Radiation Protection Team:

Welcome to Tim McNulty, Scientific Support Assistant

Emma Clarke provides admin and secretarial support

Brian Sullivan is the QA Technician

Simon Hoer, Assistant RPO

Lisabeth Yates (Libby), Head of RP

Safety Office – recent appointments

- Sara Green, Digital Content Developer
- Rory Feilen, Safety Adviser (Safety Auditing)

<https://www.safety.admin.cam.ac.uk/contact-us>

Accidents and incidents (local, recent)

- Security procedures not followed – security measures, response times and follow-up (refresher training!)

Several incidents involving small amounts of skin contamination (positron emitters)...

- A small amount of contamination on handle of monitor resulted in spread of contamination (two individuals' hands and another's shoe)
- Not possible to establish exactly how the initial contamination had arisen
- Issues with follow up monitoring – contingency plans – expect the unexpected!
- Review effectiveness of contingency plans and rehearse at least annually
- Note contamination control and monitoring issues re shared areas

A needle-stick injury due to re-capping of needle

No recapping of needles! Various devices available or change in procedure may be possible



X ray incidents

- X ray veterinary fluoroscopy and radiography – staff responding to medical issue or animal moving
- Beam alignment of (old) diffractometer – monitoring at end of work showed some leakage from the tube tower while the shutter was closed
 - Monitoring procedures and dose estimates
 - Risk assessment and procedures – adequate detail?
- Emergency advice? Out of hours via Security

X ray issues

XRF user changed procedures ... without consulting RPS or RPA





X ray and sealed source equipment issues

Where failure of the safety feature could lead to a significant dose, systems must be designed to be “fail-safe” i.e. fail to a safe situation under single fault conditions for interlocks and warning lights

HSE's current approach

- Warning lights should be automatic and fail to safety “if reasonably practicable”
- If not, should have 2 bulb system (redundancy)
- Final resort – daily check that light is working and record kept

Older/redundant sources

- Unsealed sources
 - Dispose of redundant stocks
 - If reason to keep older stocks, justify in writing
 - Review justification annually
- Sealed sources
 - Recommended working life (RWL)
 - If age > 2xRWL, hard to justify keeping!
 - Justify in writing and increase frequency of leak tests
 - *NOTE Importance of management of sealed sources – accountancy checks, records and leak tests*
 - *Consult RWA re disposal!*

Management of sealed sources

https://en.wikipedia.org/wiki/Western_Australian_radioactive_capsule_incident

- Source used for ore mining lost during transport (gamma detection indicates density and voids)
- 19GBq Cs-137 – *“the capsule was potentially deadly and could cause burns and radiation sickness”*
- “The package arrived in Perth on 16 January... unpacked for inspection on 25 January... one of four mounting bolts and all screws on the gauge missing, and the capsule itself also missing”
- “Authorities surmised that the bolt had worked loose because of vibrations during the 1,400-kilometre (870 mi) journey, and then the capsule had fallen through the bolt hole.”
- The capsule was found on 1 February... by a search crew in a vehicle travelling at 70 kilometres per hour (43 mph)... when the detection equipment picked up radiation emitted by the capsule”
- “Maximum penalty for failing to safely store, pack and transport radioactive materials is a \$1,000 fine”

Management of sealed sources

<https://www.yorkpress.co.uk/news/1224110.radioactive-alert-at-york-campus/>

28th February 2007

“THE University of York was today investigating how it came to lose a radioactive chemical, sparking a major wide-scale search”

“... a contained source of 370 kilobecquerels of radium-226, which was detected at a scrap metal recycling plant in February 2007”

“RADIUM is highly radioactive - more than one million times more radioactive than the same mass of uranium.”

Area decommissioning

- If no work in a radiation area for several years, there should be written evidence of decommissioning – we will assist as needed
- The work area can be reinstated if needed
- Please retain records!
- RPS etc handover of information and clear labelling of boxes of records

Eye dose assessments

For eye dose assessments, the dose equivalent at a depth of 3mm (lens) is used (for skin, it is 0.07mm)

Add the eye dose estimate to your risk assessments using the data provided:
HSD010R Apx 3 “Eye dose at 30 cm unshielded”

If eye dose estimate $>2\text{mSv}$ (annual) contact us for advice

(RA and RA guidance to be amended to add calculation to section D, alongside extremity and skin dose estimates)

School representation at University Radiations Sub-Committee

School

Representative

Veterinary Medicine

Dr Barbara Blacklaws

Biological Sciences

Dr Ian Henderson

Technology

Dr S Stranks

Physical Sciences

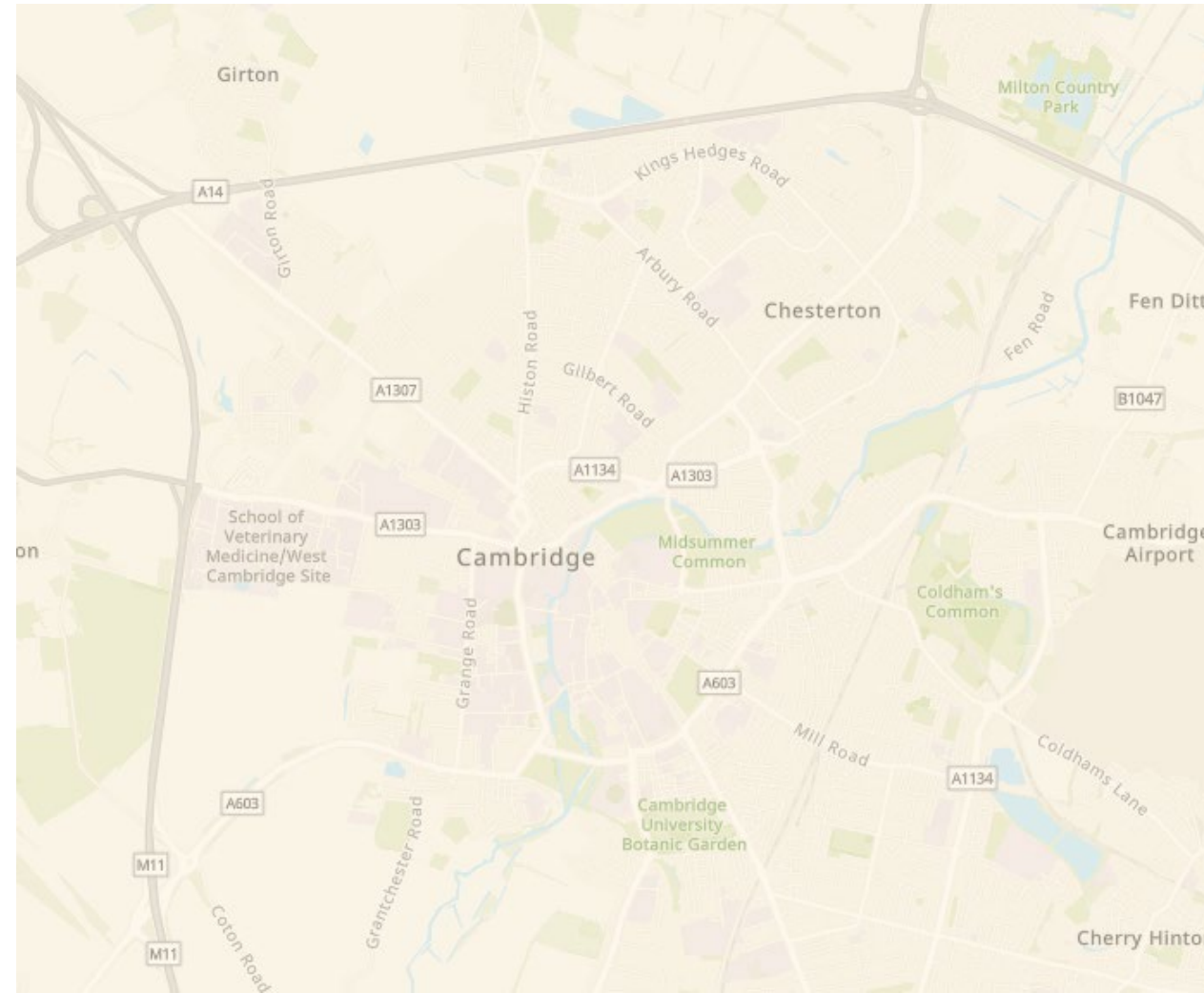
Dr Xavier Moya

Clinical Medicine

Dr Tim Fryer

New radon map

<https://www.ukradon.org/information/ukmaps>





Questions?