

University of Dundee

RADIATION SAFETY SUB-COMMITTEE

A meeting of the Radiation Safety Sub-Committee was held at 10am on 8th December 2004 in River Room 3, Floor 9, Tower Building.

Present: Dr David Hewick (DH) [University Radiation Protection Adviser & Convener]
Miss Allison Bridges (AB)
Prof Brian Eddy (BE)
Miss Lisa Grayson (LG) [Minutes]
Dr Bob MacKintosh (BM)
Miss Aileen McLaren (AM)
Mr Martin Rollo (MR)
Ms Julie Smyth (JS)
Dr David Sutton (DS)

Apologies were received from Sandy Chudek (SC), Sheila Sharp (SS) and Pete Taylor (PT).

MINUTES

1. Minutes of the meeting on 19th May 2004/Matters Arising

The Minutes were approved.

Matters Arising:

All matters arising from the previous minutes are covered under today's agenda.

2. New Items for the Agenda

There were no new items for the agenda.

3. MRC Unit

RM reported that the MRC/DSTT radiation management system continues to operate satisfactorily and AB copes well with the day-to-day running of the system. Compliance amongst new recruits is particularly good. Although the quota of staff is rising, use of radioactive material is not increasing. RM said this is mainly due to increasing use of non-radioactive techniques. The shift from ³²P to ³³P is expected to continue.

4. Medical School

- a) DS had nothing to add to the written report prepared by JS [Appendix A].
- b) DH highlighted the item addressing the training of new users. New users in the Medical School no longer have to attend the Main Campus New Users course. An alternative course is now running at Ninewells. AM commented that some individuals felt it was too long. JS explained that it only runs for one morning. MR said this was relatively short compared to other health & safety training courses.
- c) DH asked about the person recruited to take on some of JS's duties. DS/JS informed the Committee that Alex Sandison takes up his position week commencing 13/12/04. He will undergo an induction period.

5. Main Campus

a) Single Site Licence

DH reported that bills for separate annual subsistence fees have been arriving, despite the fact that, in exchange for the timely submission of the single site licence application, SEPA agreed to charge only one single site fee this year. Prompted by this, and more so by the need to ensure arrangements are in place for the CIR building in advance of its completion in summer 2005, DH contacted SEPA to enquire about the status of the licence application. After discussions with Anne Anderson it was agreed that if the single site licence is not in place in time for the CIR opening, CIR will be treated as an extension of the WTB and will be covered by the current certificates of authorisation and registration. Anne Anderson wants to inspect the CIR premises as soon as is feasible. DH to arrange. DH warned that she could take this opportunity to carry out an unannounced inspection.

b) Antimony 124

DH has been informed that Prof Alan Fairlamb (WTB, Floor 1) wishes to use Antimony 124. This radioisotope is not covered by the current certificates; therefore, DH has had to submit a separate application. If the single site licence had come through this would not have been necessary. Fortunately, SEPA have agreed not to charge for this amendment and have assured DH it will be finalised by early 2005.

c) Lab Decommissioning

DH reminded SLS personnel that formal decommissioning may have to be carried out when existing research groups move to CIR. RM said that the MRC Unit will be moving to CIR and decommissioning will have to be carried out in the labs they vacate, especially in the current "Hot Room" which will no longer be required. DH pointed out that it is important for him to know which groups are moving where as soon as possible. SLS personnel to supply this information.

d) Waste Stores

DH informed the Committee that work is due to start soon on the new waste stores at the west end of MSI. The radioactive waste stores will move from WTB to this new facility, due for completion in April 2005. The current flammable scintillation waste store will close in January 2005 and this type of waste will be temporarily stored in the WTB flammable solvent store. MR is taking care of decommissioning. The existing solid radioactive waste store must close before completion of the MSI store to allow for the cupboards and shelving to be relocated. DH proposes to close the WTB stores on 31/3/05, at which point all waste will be quantitated then removed by a contractor. Decommissioning must then be carried out before cupboards/shelves can be dismantled and transferred. This plan of action will result in the absence of a solid radioactive waste store for a period of time. The duration will depend upon how quickly the MSI store can be completed. MR does not envisage this causing a problem, providing the MSI store opens before the end of April 2005. DH to keep RPSs fully informed.

6. Waste Disposal

Previous costs were as follows.

Campus:

2002 £20,508

2003 £12,684

2004 £12,122

Medical School:

2003 ~~£~~20,961

2004 ~~£~~22,547

DH explained that the high Main Campus bill in 2002 was due to disposal of LLW and several sealed sources in the same year. DH predicts that the Main Campus 2005 bill will be higher due to the relocation of the waste stores as described in item 5d. Medical School costs for 2003 and 2004 are significantly greater than those for the Main Campus. There is no figure for 2002.

7. RPS Matters

a) Medical School

JS reported that there were no major RPS issue at the Medical School.

b) Main Campus

MR said that some of the Main Campus RPSs may be overstretched and in need of some assistance. MR is happy to provide this assistance. LG stressed the importance of keeping SLS line management in the loop, especially when issues about workload are being discussed. LG also pointed out that if assistance is given to one RPS, other RPSs may want the same and that, once again, no changes should be implemented without consulting the relevant line managers.

c) RPS Questionnaire [Appendix B]

DH drew the Committee's attention to his summary of the RPS Questionnaire responses. All 25 RPSs finally completed and returned the questionnaire. In general, DH is satisfied that RPSs are coping with their duties. He did, however, stress the need for continued management support.

8. Additional Agenda Items

a) Personnel Security Checks [Appendix C]

This item relates to the ACPOS guidance brought to the attention of the Committee by DS at the last meeting. DH obtained further information and produced a summary for the Committee. Key issue: if sealed sources are to be included, both the Main Campus and Medical School will fall into the highest security category due to both sites housing a Cs-137 irradiator. The precise implications for the University are not clear, but it would appear that more stringent security checks on personnel may have to be made. DH has not received any official communication on this subject but suggested that the University should anticipate the stricter requirements.

b) Best Practical Means

DH produced a summary of the key principles of BPM [Appendix D] and the factors that contribute to compliance with BPM at the University. Justifying the use of radioactive materials is becoming an increasingly important part of the licence application process. RM experienced this first hand during the MRC Unit's latest application. DH pointed out that storing waste for decay is also becoming more acceptable under BPM. DH concluded that there does not appear to be any new or overly onerous requirements under BPM. However, SEPA have yet to issue full guidance.

9. Date of Next Meeting

The next meeting of this Committee will be held in the same venue (if possible) on Wednesday 18th May at 10am.

APPENDIX A

UNIVERSITY OF DUNDEE RADIATION SAFETY SUBCOMMITTEE DECEMBER 2004 UPDATE ON RADIATION PROTECTION OF MEDICAL SCHOOL

UNSEALED SOURCES

Staff Training

There have been significant changes to the training given to Medical School staff. All new RADPER holders are given an Induction Talk by Radiation Physics. This covers UK legislation, management of radiation protection in the medical school, systems in the medical school (such as registration, ordering & waste management) and responsibilities of individuals. The purpose of this is to give staff an overview of operational radiation protection in the Medical School so that they are more aware of what they need to do and why.

RADPER holders that do not have adequate training or experience are required to attend the university training course. For the past few years, the course has been held on the main campus by Safety Services for all university staff. An additional course is now available for Medical School staff and is held at Ninewells by Radiation Physics. The first course was in November 2004 with 11 attendees.

Risk Assessments & Registration for Work with Unsealed Sources

Risk assessments & RADNUC reviews have now been made for all groups & labs that are actively using unsealed sources. Retrospective risk assessment program is now complete.

Routine Duties

Includes monthly waste returns, RPS monthly meetings, contamination monitor calibrations and monitoring of staff.

Registration of Staff Using Unsealed Sources

There are currently 165 staff on Medical School RADPER database.

Staff Doses

There have been no dose investigations in the last 6 months. Summary of 2004 doses will be available at next meeting.

Pregnant Staff

Special consideration needs to be given for expectant & breastfeeding mothers. Radiation Physics have a procedure in place for pregnant staff to ensure that dose to the foetus or child is below the dose limit.

There have been 2 pregnant members of staff in the Medical School during 2004. Based on information from the RADPER form, restriction on radioisotope usage was required for one of these members of staff.

SEALED SOURCES

Source Disposal

A number of scintillation counter external standards were disposed of in October 2004. These sources were either liquid scintillant in vials or capsules, and were disposed of to Safeguard International as routine scintillation waste (vials) or solid waste (capsules). There was no additional charge for this disposal.

As the scintillation counter external standards fall under the Radioactive Substances (Testing Instruments) Exemption Order 1985, the inventory was updated and sent to SEPA.

NON-IONISING RADIATION

Risk Assessments for Non-Ionising Sources

Program ongoing. Medium hazard sources have been assessed in Biomedical Research Centre. High hazard source in Surgery & Molecular Oncology- Class IV diode laser system. Initial risk assessment showed that the lab was unsuitable as a laser controlled area. Improvements & control measures were recommended & have been implemented. Local Rules have been issued.

X-RAY SOURCES

X-ray Irradiator in Medical School Resource Centre

X-ray unit for irradiation of animal & cell samples was installed in MSRU in February 2004. This is the first x-ray unit in the Medical School and HSE were notified, in accordance with IRR99. Safety checks & risk assessment were performed by Radiation Physics in April 2004. Commissioning of the unit is being undertaken by Radiation & Radiotherapy Physics and is still ongoing.

Julie Smyth
Radiation Physicist
01/12/04

APPENDIX B

RPS Resources Questionnaire

All 25 RPSs questioned returned the questionnaire. Not all answered all the questions.

- 1. How much of your time do you spend in carrying out your RPS functions?.....[give a %age]**

Range: <1 to 25% Median: around 5%

- 2. If more time is required, how much?[give a %age]**

Eight required more time: 1, 10, 10, 20 &25% was specified. Two indicated needed more time but did not specify %. One wanted more time for all [not just RPS] duties. The '1%' response may indicate that the individual was referring to total work time rather than just RPS-related time. One RPS indicated only more time would be required if there was an emergency.

- 3. What is the minimum notice you would need, to feel confident that your laboratories could withstand a SEPA inspection?[in days]**

Mainly 1-3days, Median: around 2 days, four required 5, 7, 10 &30 days

- 4. Are your RPS duties more stressful/burdensome than other administration/work that you carry out?**

Yes/No,
.....
.....[any comments?]

Yes, 9; No, 15

- Yes: particularly waste disposal returns
- Yes: due to SEPA inspections. Mainly due to different inspectors having different 'pet hates'.
- Yes: huge responsibility due to threat of inspections
- Yes: conscious of legal implications for University
- Yes: Diverts from career
- Yes: No previous radiation background, under-confident, need more assistance

5. Other comments/suggestions about RPS resources.

7 RPSs on the main campus commented further:

Procedure for collection of orders on campus should be reviewed [1 RPS]

Need dedicated employee on campus to help with radioactive waste [1 RPS]

Need more standardisation of procedures around campus [1 RPS]

Would like more time to do RPS duties

Would like more feedback, monitoring on campus [1 RPS]

Would like more training on campus [3 RPSs]

Martin Rollo very helpful [2 RPSs]

Summary

Most RPSs spent about 5% [about 2h/week] of their total time on RPS duties, although a few spent up to 25% [more than a day a week].

One-third of RPSs would have liked 10-25% more time for RPS work.

Most felt that 1-3 days would provide adequate notice of a SEPA inspection. The return indicating that 30d were needed was found to be incorrect.

Just over half the RPSs found RPS duties more burdensome than their other duties mainly because of the threat of SEPA inspections.

Only 3 RPS [12%] felt the need for further training.

Discussion

The burden on an RPS obviously depends on the amount of radioactive work carried out in the unit involved. This burden is also influenced by the degree and quality of management support.

Most RPSs seemed reasonably confident in having the ability to perform their functions adequately. In the cases where there was some doubt, one-to-one training was implemented.

The particular legal responsibilities of an RPS's duties, linked with the possibility of visits from SEPA inspectors can induce stress in a significant minority of RPSs. Therefore, adequate support both from the RPA and other management is essential.

David Hewick [RPA] December 2004

APPENDIX C

Security Checks on Personnel

Introduction

I have been passed by a colleague, from the Scottish Crop Research Institute, information from a 'restricted' Home Office booklet which gives guidance for personnel checks on all permanent, temporary or visiting workers at sites working with radioactive materials.

It is possible that this guidance for radioactive materials could be added as an amendment to the Anti-terrorism Crime and Security Act in the same way as has been done for biological agents.

Guidance

This proposes four main categories for radioactive sources. They are as follows:

Source category	Activity Range
4	<1GBq
3	1GBq-<2TBq
2	2-50TBq
1	>50TBq

For each source category, a security category [with accompanying appropriate security measures] is suggested. These are as follows:

Security category	Security measure
Sources in cat 4	Comply with RSA 93 and IRR99
Sources in cat 3	As cat 4 plus site security plan, informed plan. Personnel background checks and one level of physical security [not main gate]
Sources in cat 2	As cat 3 plus, two levels of physical security, timely detection and local police response
Sources in cat 1	As cat 2 plus, timely detection by remote means

I must admit I am not clear what is meant by the various security plans or physical measures. However, as far as personnel checks are concerned, the following procedures are advised.

1. Confirm identity from reliable original documents
2. Cross-check information on application forms
3. Confirm referees' identities
4. Take up references in writing

Situation at the University of Dundee

Main campus

We are currently allowed to use some 0.3 TBq [300 GBq] of open sources on the main campus. However, in practice there is only likely to be fraction of this amount on site at any one time. For instance, in March 2003 there was only some 0.02 TBq [20 GBq] of registered sources on the premises. If waste radioactivity were included, the total from open sources would be unlikely to exceed 0.03 TBq [30 GBq].

The gamma irradiator located in the basement of the MSI Building is registered to contain a Cs-137 closed source of up to 72 TBq

Medical School at Ninewells Hospital

Extrapolating from the lower number of users, the activity of open sources is estimated to be two-thirds that on the main campus.

The gamma irradiator located in the resource unit at Ninewells Hospital is registered to contain a Cs-137 source of up to 98.2 TBq

Conclusions

On the basis of open sources [the more accessible form of radioactivity for unauthorised usage], the University premises would come under Security Category 3 and personnel background checks [indicated above] would be recommended.

If the closed Cs sources are included the University premises would come under Category 1 and the question of extra physical security measures is raised.

However, it should be noted that I received my information third-hand, and most people have been unable to obtain a sight of the original Home Office booklet providing the guidance. I have provided the radiological information at this stage so that if necessary measures are made clearer, the University can act appropriately.

David Hewick [RPA] December 2004

APPENDIX D

Best Practical Means [BPM]

The level of management and engineering control that minimises the release of radioactivity into the environment

Can take into account cost effectiveness, technological developments, operational safety, social and environmental factors.

Not expected to spend money, time or trouble that is disproportionate to the likely benefits.

BPM requires:

Justification of use of radioactive materials.

Minimisation of activity and volume of radioactive waste.

Minimisation of the impact on the environment and public of disposals.

Routine checks of procedures, systems and facilities.

Adequate maintenance of records.

Adequately-trained staff.

Factors contributing to compliance with BPM at the University of Dundee

Adequate training of RPA, RPSs, users and non-users of radioactivity.

A good degree of co-operation by users.

Properly designed facilities.

Provision of local codes of practice covering the usage and disposal of radioactive materials.

Periodic audits to check compliance with codes of practice.

Regular inspections by SEPA inspectors.

BPM and SEPA

SEPA has been indicating for over a year that it will provide guidance on BPM for small-users. So far we have received nothing. However, during more recent inspections, inspectors have been asking questions with a strong BPM-related slant.

David Hewick [RPA] December 2004