

STUDY CASE N° 1: INCIDENT IN A RESEARCH LABORATORY

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□ Description of the incident¹

A researcher working in a laboratory used for handling unsealed radioactive materials was manually dispensing, in a fume cupboard, a routine delivery of what he believed to be 74 MBq phosphorus-32. When the stock solution was removed from its shielding the portable radiation monitor placed in the fume cupboard by the researcher went off scale; he expected this because the monitor could only measure the much lower dose rates from diluted material. It was then switched off. The appropriate beta shielding was used for the activity concerned. The containers into which the material was dispensed were placed behind Perspex shielding and the monitor switched back on. The expected drop in dose rate was not observed and the RPS was contacted. Investigations revealed that the activity that was delivered was, in fact, 1000 times greater than was ordered, invoiced for, and that stated on the package. A packaging note did, however, state the correct activity but had not been noticed. Although a few spots of contamination, up to 480 Bq.cm⁻², were found on a laboratory coat, significant levels of contamination were limited to the fume cupboard. The researcher's film badge recorded a penetrating radiation dose of 0.04 mSv. An investigation and reconstruction concluded that any intake of activity had been negligible but that his fingers had received doses of around 120 mSv.

□ Lessons learned

- 1) A radiation dose rate monitor capable of measuring all expected dose rates should always be used.
- 2) Whenever any radioactive source is purchased and received on the premises all paperwork must be examined in order to ensure that the activity and nuclide delivered are as expected. If there is any doubt or conflicting information is given, further advice should be sought. A radiation monitor should be used in order to ensure that the associated dose rates are as expected for the quantity and type of material concerned.
- 3) Suppliers of radioactive materials must continually ensure that all quality assurance procedures are effective.

¹ Incident taken from IRID (Ionising Radiations Incident Database)