

Core of knowledge for a licence to use radioactive materials for the purpose of veterinary therapy

This core of knowledge summarises the basic level of radiation safety knowledge an applicant must demonstrate to be granted a licence under the *Radiation Protection Act 1965* to use radioactive materials for the purpose of veterinary therapy.

Applicants can demonstrate that they have the required knowledge by:

1. completing an NRL-recognised training course (including an end-of-course assessment), or
2. providing documented evidence of other training addressing the core of knowledge together with a written or verbal assessment conducted by NRL.

Please contact the National Radiation Laboratory for further information regarding recognised training courses, and information on the assessment method.

Required knowledge

Applicants must display knowledge in all modules set out below.

The depth of knowledge required for each topic is indicated using the following scale:

(1) Introductory. Overview and familiarity only.

(2) Working. More detailed knowledge including the ability to apply in problem solving and practical situations.

Module Standard 1	Nature and sources of ionising radiation <ul style="list-style-type: none">• Radiation, radioactivity and half-life (1).• Types and characteristics of radiation (to include beta, X-ray and gamma) and its interaction with matter (1).• Quantities and units (activity, absorbed dose and effective dose) (2).• Sources of ionising radiation (natural and artificial) (1).
Module Standard 2	Biological effects of ionising radiation and radiation risks <ul style="list-style-type: none">• Damage mechanisms (1).• Whole body and extremity exposures (1).• Deterministic effects; skin erythema, cataracts, LD₅₀ etc (1).• Stochastic effects; cancer and hereditary effects (1).• International Commission on Radiological Protection's risk factors and radiation risks in perspective (1).• Public perception and communication of radiation risk (2).
Module Standard 3	International Commission on Radiological Protection's principles of radiation protection <ul style="list-style-type: none">• Justification (2).• Optimisation ('as low as reasonably achievable') (2).• Individual dose limits: occupational (extremities and pregnant women) and public (2).• Dose constraints (2).

- Module**
Standard 4 **Legal framework and regulatory authority**
- The *Radiation Protection Act 1965* and amendments and the *Radiation Protection Regulations 1982*. Particular emphasis should be placed on owner and licensee obligations (2).
 - Role of the National Radiation Laboratory (NRL) and compliance monitoring (2).
 - Reporting of radiation incidents to NRL (including NRL's incident report form) (2).
- Module**
Standard 5 **Transport of radioactive material**
- *Regulations for the Safe Transport of Radioactive Material. 1996 Edition (Revised). International Atomic Energy Agency (IAEA), Vienna, 2000. IAEA safety standards series no. TS-R-1 (ST-1, Revised)* (1).
- Module**
Standard 6 **Unsealed radioactive materials**
- Internal (including the behaviour of radionuclides in the human body) and external radiation hazards (1).
 - Committed effective dose (1).
 - Types, characteristics and hazards associated with commonly used unsealed radioactive material (1).
- Module**
Standard 8 **Practical issues associated with the security and disposal of unsealed sources**
- Secure receipt of unsealed sources delivered to laboratories etc. (2).
 - Storage of unsealed sources (2).
 - Options for disposal of unsealed radioactive material (2).
- Module**
Specific 1 **Incidents**
- Review of incidents reported worldwide (1).
 - Practical exercises based on plausible scenarios (including surface contamination) (2).
 - Recognition of a radiation incident, immediate actions, and how it should be investigated and reported (2).
- Module**
Specific 2 **Practical radiation protection**
- *Code of Safe Practice for the Use of Iodine-131 for the Treatment of Thyroid Disorders in Cats, NRL C11, 1997* (2).
 - Model radiation safety plan (2).
 - Practical experience with the use of a radiation contamination monitor (2).
 - Performance of radiation measurements (2).
 - The need for and the benefits of personal monitoring. To include: advantages and uses of different types (electronic and passive) of personal monitors and the meaning of doses reported in relation to dose limits and dose actions levels (2).