Information about the Requirements to Continue Using Sources Past their Recommended Working Life

The ‘recommended working life’ is the recommendation by a sealed radioactive substance manufacturer for the period within which the sealed source may be used in the knowledge that its design specifications will continue to be guaranteed. The manufacturer determines this period based on many parameters, such as the toxicity of the source, the nominal activity, source construction, half-life, the environment in which it is used, operational experience, etc.

Sealed radioactive substances should be disposed of once they have reached the end of their recommended working life. However, for certain applications, it may be safe to continue using sealed radioactive substances beyond their recommended working life provided certain testing requirements are satisfied.

Where a recommended working life has not been assigned by the sealed source manufacturer, a recommended working life of:

- 15 years should be assigned to Co60 sources (metallic form) and Cs137, Am241, Am241/Be, Ra226 sources if they are doubly encapsulated and in a stable physical and chemical form (e.g. ceramic)
- 10 years should be assigned to Ni63 sources, provided that leakage test results are satisfactory
- 5 years should be assigned to all other sources, unless the user can demonstrate to the satisfaction of the department that it should be extended.

This Information Sheet details the criteria which must be satisfied if certain sealed radioactive substances are to be used beyond their recommended working life.

Cs137 and Co60 sources used for industrial gauging, Co60 sources used for industrial radiography, and Cs137 and Am241/Be sources used for geotechnical measurements

The possession licensee must dispose of, re-encapsulate, or re-certify the radioactive substances at the end of their recommended working life.

Existing equipment which is still being used and which incorporates sealed radioactive substances which have reached the end of their recommended working life may continue to be used provided the results of source leakage tests conducted every 6 months remain satisfactory. That is, the sources may remain in use, provided this criterion continues to be satisfied, until arrangements for their re-encapsulation, re-certification or relocation are made. This additional period should not exceed two years.

Leakage tests of the sources, or the part of the equipment closest to the source if the source is not able to be withdrawn, must be undertaken in accordance with ISO9978 Radiation protection - Sealed radioactive sources - Leakage test methods. The results of the leakage tests and the name of the organisation which performed the tests are to be kept and must be produced if requested by an inspector under the Radiation Safety Act 1999. Continued use of the sources may only proceed if the results of source leakage tests conducted every 6 months remain satisfactory.
Sealed radioactive sources used for educational or experimental purposes

Radioactive substances, other than Ra226, used for educational or experimental purposes may continue to be used beyond their recommended working life provided that the results of yearly leakage tests are satisfactory.

The leakage tests of the sources, or the nearest accessible part to the source if the source is not able to be withdrawn, must be undertaken in accordance with ISO9978 *Radiation protection - Sealed radioactive sources - Leakage test methods*. The results of the leakage tests and the name of the organisation which performed the tests are to be kept and must be produced if requested by an inspector under the *Radiation Safety Act 1999*. Continued use of the sources may only proceed if the results of the source leakage tests conducted every 12 months remain satisfactory.

Sources in borehole logging equipment

The possession licensee must not permit the use of sources which have exceeded their recommended working life for borehole logging.

Lightly encapsulated sources

The use of lightly encapsulated sources (e.g. those used in gas chromatography equipment or in-stream analysers) beyond their recommended working life is not allowed.

Enquiries

For further information, please contact the Radiation Health, Health Protection Unit of the Department of Health. The contact details for Radiation Health are:

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