FINANCIAL PROVISION FOR END OF LIFE DISPOSAL OF HIGH ACTIVITY SEALED SOURCES IN THE UK

C Englefield, C Williams, D Balmer, T Shaw, L Bowen
Environment Agency
Richard Fairclough House, Knutsford Road, P.O. Box 12, Warrington, WA4 1HT. UK

1. Definition of a High Activity Sealed Source ("HASS")

From the European Council Directive European Council Directive 2003/122/Euratom("the Directive") on the control of high-activity sealed radioactive sources and orphan sources ("HASS")

"*a sealed source containing a radionuclide whose activity at the time of manufacture or, if this is not known, of the first placing on the market is equal to or exceeds the relevant activity level specified in Annex I to the Directive*".

In simplified terms, this means any sealed source in IAEA categories 1 to 4.

Examples of HASS thresholds:
Sources greater than these thresholds are defined as "HASS":

Co-60: 4GBq **Cs-137: 20GBq** **Ir-192: 10GBq**

2. Typical uses of HASS

Radiotherapy | Industrial Radiography | Industrial Gauges



3. Legal requirement?

Purpose of the Directive is to **prevent exposure of workers and the public** to ionising radiation arising from inadequate control of **high-activity sealed radioactive sources** and orphan sources
Implemented in the UK under the Environmental Permitting Regulations 2010. The enforcing body in England and Wales is the Environment Agency
The Directive requires Member States to ensure that, before authorisation:

- adequate arrangements are made for the **safe management of sources** when they become **disused**
- adequate provision, by way of a **financial security** or any **other equivalent means** appropriate to the source are made for the safe management of sources when they become disused, **including the case where the holder becomes insolvent or goes out of business**.

This is termed **"Financial Provision (FP)"**

4. Operational requirement?

Before the European Directive:

- Users tended to accumulate sources rather than dispose of them, arguing that they did not have the funds
- This created unnecessarily large numbers of disused sources
- Also created risk of loss or theft – a potential security risk
- Orphan sources could be an issue in the UK like anywhere else

5. The HASS Financial Provision Panel: An effective and successful multi-disciplinary team approach by a Regulatory Authority:

A support service to field regulators from a team comprising a senior regulator, an accountant and a lawyer

- Key regulatory issues - consult the local regulator; understand the business / industry; provide regulatory position to the applicant's senior managers
- Key accounting issues – briefly assess financial viability of the company or parent; appraise their ability to bear disposal costs; check financial law and jurisdiction of the bond etc Talk to applicant's Finance Team if required
- Key legal issues – verify the validity of legal documents; ensure application of due process by applicant; Talk to applicant's Legal Team if required

The panel reviews all applications for a HASS permit to ensure financial provision is made properly.

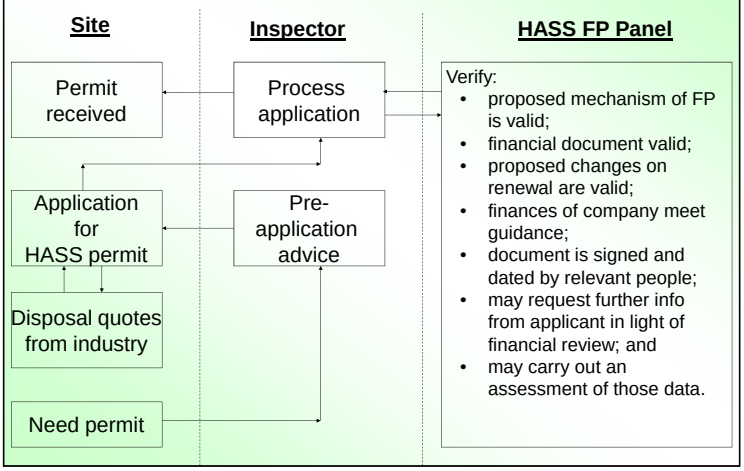
Amount of provision?

The operator is required to obtain quotes of current cost of disposal and submit them as part of their application for a permit. The panel collects business intelligence to enable assessment of changes in the market to test the amount is sufficient over time.

Key Lessons learned

1. A multi-disciplinary approach is essential
2. Bonds are valuable documents that need to be kept securely
3. Renewal of a bond is about its continuing validity as a legal means of setting aside funds (renewal normally required every 3 years)
4. Renewal of provision is about ensuring the amount of the bond meets the holder's inventory

6. Summary of regulatory process



7. Does it work? Yes!

Recently a company using HASS went out of business. The FP mechanism (a bank guarantee for £25k made payable to the Environment Agency, together with a supplier's take-back agreement for some of the sources) worked.

The guaranteed payment covered the costs of disposing of the HASS to which it related. This was the first time we had called in such a guarantee, and it demonstrated the success of our arrangements.

However, the additional cost of disposing of the operator's depleted uranium source containers - some £10k – was not covered by the bank guarantee. Since that cost was relatively small, the regulator funded it. **This was an important lesson learned: include all the costs of disposal.**