

KNOW YOUR RISKS

Cataloguing Sealed Sources and Devices



In a partially demolished hospital facility, a forgotten teletherapy unit, once used to provide cancer treatment, is left unguarded and is stolen. Trying to extract valuable scrap metal, scavengers inadvertently puncture the capsule in which a highly active radioactive source is sealed. The scrap handlers, the scrap dealers, and the neighbourhood surrounding the scrap yard are exposed to dangerous levels of radioactivity. Eventually, the incident leads to fatalities, injuries, and contamination of the area, illustrating the risks arising from so-called sealed radioactive sources (SRSs) that leave regulatory control. Any malicious use of such sources could have much more damaging consequences.

National regulatory authorities are tasked to establish the means to ensure that SRSs are kept under constant control by authorized users. When a suspected 'orphan source'—an SRS that was lost, forgotten, or stolen—is discovered, the authorities must be able to identify the type of sources within the device in order to respond and prevent any harm to people and the environment.

The IAEA's online International Catalogue of Sealed Radioactive Sources and Devices (ICSRS) provides a searchable database of these vital technical details about sealed sources and devices. "The ICSRS assists responsible authorities in acquiring the information that would enable them to manage these sources and devices safely once no longer in use," said Julia Whitworth, Source Management Expert in the IAEA Waste Technology Section.

An online reference tool, the ICSRS lists manufacturers and sources according to

the model designations, dimensions, shape, markings, photographs of sealed devices, and even the period in which a particular model was manufactured. The information for the ICSRS has been collected from numerous open source databases and manufacturers' catalogues, as well as from missions undertaken by the IAEA.

In addition to the online Catalogue, States can request assistance from the IAEA's Incident and Emergency Centre for emergencies involving sealed sources. The IAEA also provides States with advice on the proper life cycle management of radioactive sources, promoting safe work practices, and enhanced security during use, transport and storage under the programme on the management of disused sealed radioactive sources. The programme assists States in implementing safe and cost effective technologies for recovering, conditioning and storing disused sealed radioactive sources. The IAEA also provides assistance in repatriating and recycling high activity disused SRSs, as well as conditioning disused radium sources.

Access to the Catalogue is controlled and only responsible entities identified by the Member State's regulatory authority are authorized to use it. The information in the Catalogue is frequently updated based on information received from States and other recognized authorities. The ICSRS makes a valuable contribution to the IAEA's efforts to promote safe and secure management of disused SRSs.

Aabha Dixit, IAEA Division of Public Information.

(Left) A disused source in a storage bunker.
(Right) A rusted, disused source before conditioning.

(Photo: IAEA Department of Nuclear Energy/Waste Technology Section)