

Using a Regulatory Fee Structure to Promote the Disposal of Disused Radioactive Sealed Sources

There are millions of radioactive sealed sources licensed and in use in the United States. When the source is no longer useful or needed there are several options for dispositioning the source including transfer to another licensee, recycling, or disposal. Unfortunately, many licensees have chosen to put disused sources into long-term storage. Some of these sources in long-term storage present a public health and safety concern as well as a national security concern due to the amount and form of the radioactivity. These sources fall within the International Atomic Energy Agency (IAEA) designation of Category 1, 2 and 3 sources.¹ IAEA Category 4 and 5 sources, while a potential health hazard, don't necessarily constitute a national security concern. Long-term storage presents challenges regarding administrative control, source security and public health and safety.

In 2010, at the request of the National Nuclear Security Agency (NNSA), the LLW Forum created the Disused Sources Working Group (DSWG) to address the issues and propose solutions for the disposition of disused sources that pose a national security threat.² The DSWG published the report "Report of the Disused Sources Working Group: A Study of the Management and Disposition of Sealed Sources from a National Security Perspective".

In their 2014 report, the DSWG discussed the extended storage of sources. The specific text reads:³

Many source users are choosing to store their disused sources indefinitely rather than pay for the cost of disposal. This is a concern because sources in long-term storage are more likely to be subject to loss of control and accountability.⁴ The continued increase in the

¹ International Atomic Energy Agency (IAEA) *Code of Conduct* and IAEA *Safety Guide #RS-G-1.9, "Categorization of Radioactive Sources"* establishes sealed sources Categories 1 through 5, with Category 1 being the greatest risk and Category 5 being the lowest risk. Categories 1, 2, and 3 are all classified as "dangerous" sources.

² Low-Level Radioactive Waste Forum, Inc., *Report of the Disused Sources Working Group: A Study of the Management and Disposition of Sealed Sources from a National Security Perspective*, March 2014, pg. 6. Report available at: <http://www.disusedsources.org/wp-content/uploads/2014/12/DSWG-Report-March-2014.pdf>.

³ Ibid, pg. 18.

⁴ The DSWG recognizes, however, that storage for decay may be an appropriate waste management method for some sources with a short half-life.

number of disused sources being stored rather than safely reused, recycled, or disposed presents a national security concern.

The main reasons for disused sources not being reused, recycled, or disposed in a timely manner are the cost of disposition and a lack of regulatory drivers to encourage disposition. The current system provides no incentives to remove sources from storage for reuse, recycling or disposal, nor does it provide any disincentives to storage.

Since 2008, the State of Oregon has imposed an annual possession fee on each source that a licensee possesses.⁵ The annual fee is based on the license type, use, and the number of sources possessed. Such a fee can provide an economic incentive for users to dispose of sources in storage.

Recommendations:

9. To provide a financial incentive for disposal and increase awareness of sources in inventory and especially in storage, the NRC and Agreement States should require licensees to pay an annual fee for each source in its possession, similar to what Oregon now has in place.⁶ The fee should be sufficient to provide licensees with an incentive to promptly dispose of disused sources rather than store them.

The State of Oregon Radioactive Material Licensing Program implemented an annual possession fee in 2008. General and specific licensees are required to pay an annual fee for the radioactive sealed sources in their possession. This per source fee is in addition to any facility fee. For general licensees the rule is Oregon Administrative Rule (OAR) 333-103-0015. The applicable section reads:

Rule 333-103-0015

Annual Registration Fee for General Licenses and Devices

2. The general licenses appearing in the following fee schedule shall be registered on the appropriate Authority form and shall be validated annually by a general license registration fee:

Each radiation source in a generally licensed measuring, gauging or controlling device authorized pursuant to OAR 333-102-0115 (General Licenses — Radioactive Material Other than Source Material: Certain Measuring, Gauging and Controlling Devices) (1), \$200;

For specific licensees the rule is 333-103-0010. The applicable section reads:⁷

⁵ Despite concerns about the imposition of such a fee, the State of Oregon has not experienced a significant reduction in its number of licensees.

⁶ Oregon Health Authority, Public Health Division, 333-103-0001-0050, Fees.

⁷ Note: Only the fees for sealed sources have been listed. There are fees for facilities which can be found at: https://oregon.public.law/rules/oar_333-103-0010

Rule 333-103-0010
Annual Fee for Specific Licenses

Each specific license type appearing in the following fee schedule shall be licensed separately with a specific license fee as indicated:

- Fixed Gauge, \$345(S);
- High, medium and low dose rate brachytherapy, \$3,000(S);
- Instrument Calibration, \$1,035(S);
- Irradiator Self-Shielded, \$1,370(S);
- Other Measuring Device, \$200(S). Six sources or more, for attenuation purposes, may apply for a basic license;
- Portable Gauge:
 - X-ray Fluorescence, \$690(S);
 - All other portable gauges, \$920(S);
- Sealed Sources for Diagnosis, \$690(S);
- Special Nuclear Material (sealed), \$1,370(S);
- Teletherapy (external beam), \$3,000(S);
- Well Logging, \$2,065(S)

NOTE: (F) means facility; (S) means source.

Not shown above are the fees assessed facilities. The per source annual fees range from \$200 to \$3000. Discussion with Oregon radiation control program staff indicate that the fee has helped move sources out of storage or has resulted in licensees changing practices to those that don't involve radioactive material.

Assessing an annual financial fee on each source in the licensee's possession provides an incentive for the licensee to evaluate the cost-benefit of keeping the source in long-term storage. Annual possession fees cause the licensee to evaluate the merit of holding on to sources long-term. A fee structure that requires a licensee to pay an annual fee per sealed source provides a direct incentive to minimize the long-term storage of unused sources. Each year the licensee must determine whether continued storage of an unused source is warranted or if dispositioning the source is more cost effective.

The DSWG endorses the concept of an annual fee to possess radioactive sealed sources or devices that contained sealed source. Each year the licensee must evaluate whether the continued annual expenditure is more cost effective than properly dispositioning the source.