

Using a Possession Time Limit 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

NRC and Agreement State regulators also lack adequate authority to require licensees to dispose of sources that have been stored for an extended period of time. Currently, the NRC and Agreement State regulations limit storage for two years only for GLs⁴ and in

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 GL stands for general license or generally licensed sources or devices depending on usage.

the case of licensee inactivity,⁵ but enforcement of this requirement is less certain when licensees claim a potential future use of the source. Additionally, in the past it has been difficult to enforce license storage limits due to a lack of disposal access. This is no longer a constraint as disposal is now available for most sources throughout the U.S. However, the existing regulations do not provide adequate enforcement authority to prevent the indefinite storage of disused sources.

Recommendations:

10. Now that disposal access is available for most sources in the U.S., the NRC and the Agreement States should expand and make enforceable the GL storage limit regulation to address all Category 1 through 3 sources in storage for more than two years unless the licensee can make a clear demonstration of future use. There should be clear regulatory authority to direct the disposition (reuse, recycle, or disposal) of Category 1 through 3 sources after they have been stored for two years. *This was a 2006 Task Force Action Item.*⁶

In the past, disposal availability was used as a reason to justify extended long-term storage. However, disposal access currently exists for most radioactive sealed sources. As mentioned in recommendation number 10 above, there is a two-year possession time limit for certain generally licensed sealed sources. When the DSWG report was published in 2014 no state regulatory program had established a possession time limit for radioactive material or sources other than those specific GL sources.

In March 2016, the Texas Department of State Health Services put into effect a rule that limits the possession of radioactive waste, sources or devices containing sealed sources to two years. Licensees were allowed a two-year implementation grace period, so the rule started to be enforced in March 2018. The rule is contained in 25 Texas Administrative Code §289.252, Licensing of Radioactive Material, Texas Regulations for Control of Radiation, §289.252(x)(11), which reads:

(11) Licensees shall not hold radioactive waste, sources, or devices not authorized for disposal by decay in storage, and that are not in use for longer than 24 months following the last principal activity use. Sources and devices kept in standby for future use may be excluded from the 24-month time limit if the agency approves a plan for future use. A plan for an alternative disposal timeframe may be submitted by the licensee if the 24-month time limit cannot be met. Licensees shall submit plans to the agency at least 30 days prior to the end of the 24 months of nonuse.

⁵ “Any person who acquires, receives, possesses, uses or transfers byproduct material in a [GL] device ... [m]ay not hold devices that are not in use for longer than 2 years ... Devices kept in standby for future use are excluded from the two-year time limit if the general licensee performs quarterly physical inventories of these devices while they are in standby.” 10 CFR Part 31.5(c)(15). See also 10 CFR Part 30.36 regarding decommissioning requirements when “[n]o principal activities under the [specific] license have been conducted for a period of 24 months.”

⁶ Action 7-1, 2006 Task Force, 2006 Task Force Report, p. 37.

The rule establishes a reasonable two-year timeframe for retaining sources not currently in use. It also allows continued possession beyond two years if the licensee can demonstrate a future need for the source. The licensee must prepare a plan documenting the future use or the need for an alternative disposal timeframe. An alternative disposal timeframe may be granted for the licensee to accumulate the necessary funds to dispose of the source or to coordinate source disposal as part of a future facility maintenance or decommissioning activity. The plan for future use or alternative disposal timeframe is incorporated by reference into the licensee's radioactive material license. Discussion with Texas radiation control program staff indicate that the possession time limit has helped move sources out of storage.

The DSWG endorses the concept of a regulatory limit for possessing sealed sources. A regulatory limit provides a useful enforcement tool to prevent licensees from continued long-term storage of disused sources.