Despite little evidence that requiring licensees to provide financial assurance to cover the cost of the disposition of certain Category 1 & 2 sources will promote public health and safety, the Nuclear Regulatory Commission (NRC) staff has recommended that the NRC undertake a rulemaking requiring them to do so. These revisions have the potential to be costly for affected licensees.

**Radioactive Material, Its Use and Regulation—A Historical Perspective**

Byproduct material—a type of radioactive material—in the form of sealed sources is commonly used in a variety of applications in science, technology, industry, and medicine. The radiation emitted from these radioactive sealed sources can be used by the oil and gas industry to perform well logging, by cancer treatment providers to detect and treat cancer, by irradiators to sterilize goods, and by radiographers to confirm the structural integrity of metal components and their welds. The use, storage, and transfer of
radioactive material are often managed by companies’ health, safety, and environment personnel.

The byproduct materials used in these applications are often produced in a nuclear reactor as fission products of Uranium-235 (e.g., Cesium-137) or by neutron activation of other radioisotopes (e.g., Cobalt-60), among other means. Depending on the application, these isotopes can be used in either an “unsealed” or a “sealed” form, and have a set useful life for a particular application. At some point, a source may become either disused (i.e., unused) or unwanted. Because disused or unwanted sources can nonetheless pose a risk to public health and safety, they must be dispositioned in a manner consistent with NRC and Agreement State regulations.

NRC and Agreement State regulation of byproduct material depends in part on the risk significance of the isotope at-issue—“Category 1” quantities are the most risk significant and “Category 5” quantities are the least risk significant. The cost of dispositioning and disposing of a sealed source depends in large part on the category of byproduct material that it contains. For example, the cost of disposing of a single Category 1 sealed source can exceed $100,000.

Dispositioning and Disposing of Sealed Sources

NRC regulations require the safe use and storage of sealed sources. These requirements are applicable to sources that are in use and to those which are either unwanted or disused. Where a source is unwanted or disused, NRC and Agreement State regulations allow licensees to either dispose of those sources or to store them in accordance with applicable regulations for an undefined period. Because dispositioning and disposal can be expensive—even for sealed sources containing smaller quantities of byproduct material—and because disposal costs decrease as the source decays, licensees often choose to store those sources indefinitely, thus deferring a cost which itself is decreasing.

Thus, despite the NRC’s policy that favors the disposal of unwanted or disused sources, the cost of their disposal often prevents licensees from doing so.

Current and Potentially Changing NRC Regulations

The NRC maintains regulations regarding the decommissioning of certain facilities in which byproduct material had been used or stored. In this regard, 10 C.F.R. Section 30.35 is intended to ensure adequate financing for the decommissioning of facilities which, during their operation, had contained byproduct material above prescribed activity thresholds. Those regulations require that licensees that possess certain sealed and/or unsealed sources with activity levels exceeding identified thresholds either show a certain amount of financial assurance at all times or maintain a Decommissioning Funding Plan describing the means by which the funding will be available when decommissioning begins.

The NRC staff perceives two weaknesses in the application of these requirements.
First, the NRC understands that, because the threshold activity above which a sealed source licensee is required to show financial assurance is one million times the threshold activity above which an unsealed source licensee is required to show financial assurance, sealed source licensees are often not required to show financial assurance to cover the decommissioning of the facility, even where that facility had contained large quantities of byproduct material.

Second, the NRC understands that, even when a licensee is required to show financial assurance to cover the decommissioning of that facility, those funds are designated for use in decommissioning the site, and not for the disposal of sources (sealed or unsealed) that have become unwanted or disused.

**The NRC’s Proposed Rulemaking**

The NRC staff has asserted that unwanted or disused Category 1 and 2 sealed sources that have not been disposed of present a potential risk to public health and safety. In support of this assertion, the staff references only certain U.S. government-generated reports which make the same generalized (and unsupported) claim. The extent to which the application of Section 30.35’s financial assurance requirements either result in a risk to public health and safety or cause the government to incur a significant cost is debatable.

Nonetheless, the NRC staff has recommended that the NRC undertake a rulemaking to address these perceived weaknesses. More specifically, the NRC staff recommended that the financial assurance requirements in Section 30.35 be expanded to additionally require Category 1 and 2 sealed source licensees to show financial assurance for the disposition of those sources, regardless of site decommissioning status. The NRC staff proposed that sufficient financial assurance would be required to cover costs associated with storage, conditioning, packaging, transportation, reuse, recycling, or disposal, as applicable.

In support of the perceived need to conduct the rulemaking, the NRC staff asserted that there is an increased potential for safety and security risks when unwanted or disused sources are not promptly dispositioned. The staff also asserted that requiring Category 1 and 2 sealed source licensees to show financial assurance for the disposal of those sources would promote the prompt disposal of unwanted or disused sources as the funds necessary to dispose of those sources would be available at the time that the source became unwanted or disused.

**Potential Impacts on Licensees**

Although the NRC staff has not yet drafted the proposed rule, it is likely that the rule would require Category 1 and 2 sealed source licensees to set aside funds during the useful lives of their sources so that they would be financially able to dispose of those sources when they became unwanted or disused. The setting aside of these funds could affect the revenue streams of some licensees and could be cost-
prohibitive for others. It is also likely that the NRC staff’s proposed rule would require a Category 1 and 2 sealed source licensee to periodically report to the NRC or Agreement State the status of the funding of the financial assurance vehicle and the dates on which the licensee expects that each Category 1 and 2 sealed source will become unwanted or disused. This periodic reporting would present an administrative burden to affected licensees.

The NRC has not yet approved the NRC staff’s request to initiate a rulemaking. Accordingly, the Commission might be persuaded to deny that request should stakeholders and other members of the public engage with the Commission in the near future.

Please contact us if you would like to discuss this issue in more detail or would like assistance in preparing comments.

1. The NRC has entered into a series of agreements with state governments that delegate certain authority regarding the regulation of radioactive material to state governments. States that have entered into such agreements are termed “Agreement States.” States that have not entered into such agreements are termed Non-Agreement States. The NRC retains the authority to regulate radioactive material in Non-Agreement States, in offshore waters and in other areas of exclusive NRC jurisdiction.

2. Dispositioning and disposal costs can include costs associated with interim storage, packaging and conditioning, and transportation, in addition to the costs associated with the ultimate disposal of the source, if applicable.

3. McCree, Victor M, Exec. Dir. for Operations. “Rulemaking Plan on Financial Assurance Disposition of Category 1 and 2 Byproduct Material Radioactive Sealed Sources.” Letter to The Commissioners. 7 Oct. 2016. ADAMS database. ML16200A185. Web. 28 Mar. 2017.. This rulemaking is not intended to apply to licensees under 10 C.F.R. Parts 50, 52, 70, 72 or 76 that are already required to demonstrate financial assurance for construction, operation, and decommissioning, including the disposition of any Category 1 and 2 byproduct material sealed sources possessed under their licenses.