

**NUCLEAR REGULATORY COMMISSION**

**[NRC-2015-0182]**

**Financial Planning for Management of Radioactive Byproduct Material**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Financial scoping study; request for comment.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) will conduct a financial scoping study to determine if financial planning requirements for decommissioning and end-of-life management for some radioactive byproduct material are necessary. The NRC is seeking stakeholder input and perspective on this action. Respondents are asked to consider recommendations from recent studies addressing this topic, national and international activities, and specific questions posed by the NRC staff in this notice when preparing their responses.

**DATES:** Submit comments by October 19, 2015. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date.

**ADDRESSES:** You may submit comments by any of the following methods (unless this document describes a different method for submitted comments on a specific subject):

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2015-0182**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **Mail comments to:** Cindy Bladey, Office of Administration, Mail Stop: OWFN-12-H08, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

For additional direction on obtaining information and submitting comments see “Obtaining Information and Submitting Comments” in the SUPPLEMENTARY INFORMATION section of this document.

**FOR FURTHER INFORMATION CONTACT:** Ryan Whited, telephone: 301-415-1154; email: [Ryan.Whited@nrc.gov](mailto:Ryan.Whited@nrc.gov) or James Shaffner, telephone: 301-415-5496; e-mail: [James.Shaffner@nrc.gov](mailto:James.Shaffner@nrc.gov), both are staff of the Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

## **SUPPLEMENTARY INFORMATION:**

### **I. Obtaining Information and Submitting Comments.**

#### **A. Obtaining Information.**

Please refer to Docket ID **NRC-2015-0182** when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2015-0182**.

- **NRC’s Agencywide Documents Access and Management System (ADAMS):**  
You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select “ADAMS Public Documents” and then select “Begin Web-based ADAMS Search.” For problems with ADAMS

please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that a document is referenced.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

#### B. Submitting Comments.

Please include Docket ID **NRC-2015-0182** in the subject line of your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC posts all comment submissions at <http://www.regulations.gov> as well as enters the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment submissions into ADAMS.

## II. Background.

The issue of adequacy of financial mechanisms for end-of-life management of disused Category 1 and 2 sealed sources<sup>1</sup> was raised in the 2006 report by the Radiation Source Protection and Security Task Force (Task Force) (see <http://www.nrc.gov/security/byproduct/task-force.html>). The Task Force, comprised of 14 Federal agencies and the Organization of Agreement States, was created by the Energy Policy Act of 2005 to evaluate the status of various factors affecting the security of Category 1 and 2 sealed sources. This resulted in the 2006 Task Force report recommendation 9-2 that the NRC “evaluate the financial assurance required for possession of Category 1 and 2 radioactive sources to assure that funding is available for final disposition of the sources.”

Similarly, in the NRC staff’s 2007 “Strategic Assessment of the U.S. Nuclear Regulatory Commission’s Low-Level Radioactive Waste Regulatory Program” (ADAMS Accession No. ML071350291) (Strategic Assessment), financial assurance scoping for byproduct material was identified as one of seven high priorities. The Strategic Assessment identified the issue more broadly than the Task Force, whose charter was to focus on security related to Category 1 and 2 sources. In fact, the NRC staff proposed to also review the “adequacy of financial assurance requirements to anticipate the ultimate costs of disposal of or dispositioning *radioactive sources not addressed by the Task Force*” (emphasis added, Appendix C, p. C-21).

Two recent drivers that prompted the NRC staff to initiate this financial scoping study were specific recommendations related to financial planning in the 2014 Task Force report (ADAMS Accession No. ML14219A642) and recommendations related to financial assurance in a March 2014 report issued by the Low-Level Waste (LLW) Forum Disused Sources Working Group (ADAMS Accession No. ML14084A394) (2014 Disused Sources Working Group report). These recommendations are discussed in detail later in this *Federal Register* notice (FRN).

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<sup>1</sup> The International Atomic Energy Agency (IAEA) Code of Conduct on the Safety and Security of Radioactive Sources lists 26 radionuclides and identifies three threshold activity levels for each, referred to as Categories 1, 2, and 3. These levels are based upon the relative health hazards each radionuclide would present if not kept under adequate controls. The Category 1 and 2 quantities of radioactive sources are considered the most risk significant and have been the focus of Federal and State efforts to enact tighter security controls.

During a September 18, 2014, Commission briefing on management of low-level waste, high-level waste, and spent nuclear fuel, the Director of the Division of Waste Management and Environmental Protection (now the Division of Decommissioning, Uranium Recovery, and Waste Programs) stressed the timeliness of a scoping study related to financial requirements for end-of-life management of byproduct material, in particular disused radioactive sealed sources (transcript of “Briefing on Management of Low-Level Waste, High Level Waste and Spent Nuclear Fuel” is available at ADAMS Accession No. ML14265A396):

The 2007 programmatic assessment [i.e., the Strategic Assessment of the U.S. Nuclear Regulatory Commission’s Low-Level Radioactive Waste Regulatory Program] included an activity to perform a scoping study of the need to revise or expand byproduct material financial assurance. Resource constraints unfortunately delayed that initiative. However, it has become more important and timely based upon the recommendation of the 2014 Radiation Source Protection and Security Task Force report as well as a report prepared by the Low-Level Waste Forum Task Group on disused cell [sealed] sources. And the staff now intends to focus on this important and emerging issue.

In its September 24, 2014, Staff Requirements Memorandum (SRM) (ADAMS Accession No. ML14267A365) in response to the briefing, the Commission stated that “[t]he staff should provide the Commission with the results of the byproduct financial scoping study and provide recommendations on next steps.” The staff received subsequent administrative instructions to report the results of the scoping study and recommendations by April 13, 2015. In preparing a response to the Commission in compliance with the first directive in the SRM, the staff determined that the byproduct material financial scoping study would benefit from much broader stakeholder involvement than was originally envisioned. The four primary reasons for the expanded involvement are as follows:

1. Recent reports (the 2014 Task Force report and the 2014 Disused Sources Working Group report) addressing this topic have been generated by a limited group of Federal and State stakeholders. The views and perspectives of important external stakeholders such as industry, users groups, and current licensees are needed to fully inform the scoping study and any subsequent NRC staff's recommendations.

2. Currently, there are a number of ongoing national initiatives and activities that could add perspective to the staff's consideration of options and recommendations to address byproduct material financial planning.

3. Financial planning associated with end-of-life management of byproduct material has also garnered the attention of the international community. The financial scoping study would benefit from consideration of international experience and perspectives.

4. An NRC internal working group has identified a number of topical areas that are relevant to financial planning. Broader stakeholder input would assist the NRC staff in analyzing these topical areas and potentially identifying other financial planning issues.

Additional background discussion for items 1, 2 and 3 is provided below. The NRC staff is requesting that respondents consider this background information when developing and providing their comments. Item 4 is addressed in the "Request for Comments" section of this FRN.

#### **A. Recommendations Warranting Broader Review**

The NRC staff believes that the following recommendations warrant broader review in the scoping study and asks that respondents consider them when developing their comments.

#### **Summary recommendations from the report by the Interagency Working Group (IWG) on Financial Assurance for Disposition of Category 1, 2, and 3 Radioactive Sealed Sources**

**(ADAMS Accession No. ML100050105).** To address the financial assurance concerns raised in the 2006 Task Force Report, an Interagency Working Group (IWG) on Financial Assurance for Disposition of Category 1, 2, and 3 Radioactive Sealed Sources was established in December 2008. The IWG was tasked with proposing a comprehensive list of viable financial assurance solutions to increase the likelihood that Category 1, 2, and 3 radioactive sealed sources will be disposed of in a safe, appropriate and timely manner. The IWG identified three main areas of concern: (1) lack of disposal capacity for sources, (2) an inadequate supply of containers for transportation of these sources for final disposition/disposal, and (3) storage of these sources by licensees for extended periods of time.

The IWG recognized that certain financial assurance options may mitigate, but not resolve, these concerns. Possible options considered in the evaluation included:

1. Develop risk-based financial assurance requirements and lower financial assurance thresholds in § 30.35 of Title 10 of the *Code of Federal Regulations* to capture all Category 1, 2, and 3 radioactive sealed sources.
2. Assess a universal surcharge on all licensees to cover the cost of disposal.
3. Assess an up-front surcharge on all new Category 1, 2, and 3 sources to cover the entire anticipated cost of packaging and disposal.

The IWG report has recently been made publicly available. The recommendations from the IWG report were also articulated in the 2010 Radiation Source Protection and Security Task Force report (ADAMS Accession No. ML102230141).

**Recommendation 2 of the 2014 Task Force Report.** The 2014 Task Force report highlighted that significant progress has been made to address the commercial sealed source management and disposal challenges identified in the 2006 and 2010 Task Force reports. Disposal options for many commercial Class A, B, and C sealed sources are now available to Low-Level

Radioactive Waste (LLRW) generators in all 50 states, including the 36 states which had been without such an option when the 2010 Task Force report was published. The 2014 Task Force report further discussed that progress has also been made in addressing ongoing challenges regarding both the transportation and disposal of the highest activity sealed sources. The Task Force noted that although disposal options for many sealed sources are now available, there are currently few incentives for generators to dispose of their disused sealed sources in a timely fashion. In addition, commercial disposal options are still unavailable for many Category 1 and 2 sources, and challenges remain regarding the availability of certified Type B shipping containers required for transport of these sources. Consequently, the 2014 Task Force report contains a specific recommendation, recommendation 2, related to financial planning:

The Task Force recommends that the NRC evaluate the need for sealed source licensees to address the eventual disposition/disposal costs of Category 1 and 2 quantities of radioactive sources through source disposition/disposal financial planning or other mechanisms. Disposition costs should include the cost of packaging, transport, and disposal (when available) of these sources.

**Recommendations from the 2014 Disused Sources Working Group Report.** The 2014 Disused Sources Working Group report contained a recommendation that the NRC develop financial assurance requirements for sealed source radionuclides of concern for all categories. The report suggested that the requirement apply to general licensees as well as specific licensees. The vast majority of licensees possessing Category 1 and 2 sources are specific licensees. However, some sources in the lower categories (Category 3-5) are possessed under a general license. The Disused Sources Working Group offered several recommendations directly related to financial assurance:



1. To encourage timely disposal, the NRC should develop robust financial assurance requirements for all licensees with sources that pose a threat to national security (Categories 1 through 3). The financial assurance requirements should be adequate to cover the entire cost of packaging, transport, and disposal.

2. The existing NRC-Conference of Radiation Control Program Directors (CRCPD) program should be adequately funded to address orphaned and abandoned sources throughout the U.S. Individual states should retain the ability to operate their own orphaned and abandoned source programs, such as is currently done in Texas.

3. Federal research agencies should require applicants to budget for the full life-cycle cost of use and disposition in grant applications.

#### **B. Relevant National Activities Related to Byproduct Material Financial Planning**

In recent years, several important activities have ensued related to byproduct material financial assurance. The NRC invites public comment and perspective as to the impact that these activities, individually or in combination, may have on financial planning related to end-of-life management of radioactive sealed sources (or other byproduct material):

1. The NRC staff published a revised Concentration Averaging and Encapsulation Branch Technical Position (ADAMS Accession No. ML14169A380), which increased the recommended activity limit for Cs-137 disposal from 30 curies to 130 curies allowing disposal of more Cs-137 sources (February 2015).

2. The Waste Control Specialists disposal facility in Texas was authorized to collect and dispose of sealed sources on April 25, 2012.

3. The Department of Energy National Nuclear Security Administration's (DOE/NNSA) Office of Radiological Security (ORS), formerly Global Threat Reduction Initiative (<http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats>) continued to offer federally-

funded security upgrades based on best practices. When requested by a licensee, the ORS works to assess existing security conditions, provide recommendations on security enhancements, and, when warranted, fund the procurement and installation of jointly agreed-upon security best practices. These voluntary security enhancements complement and do not replace the NRC's current requirements. Also, some sealed sources are recovered through ORS' Offsite Source Recovery Project.

4. The Source Collection and Threat Reduction Program (SCATR) (<http://www.crcpd.org/StateServices/SCATR.aspx>), administered by the CRCPD, was created in early 2007 to provide sealed source licensees in States which do not have access to a LLW disposal facility an opportunity to dispose of certain unwanted radioactive sealed sources. SCATR is funded through a grant provided by the DOE/NNSA.

5. New Type B packages were available for use beginning in 2014. DOE/NNSA's ORS procured vendor services for the design, development, testing, and certification of two Type B packages to support the recovery and transportation of Category 1 and Category 2 sources commonly used in irradiators and cancer treatment devices. The new containers will enable shipment of nearly 100 percent of all commercially used devices containing Cs-137 and cobalt-60 (Co-60).

6. The CRCPD is currently convening a working group to consider revising Agreement State financial planning requirements, to include restructuring the criteria used to determine what radioactive material requires financial surety to ensure proper end-of-life management, particularly (but not exclusively) Category 1 and 2 sealed sources.

### **C. Recent International Activities Related to Byproduct Financial Planning**

The staff is also aware of recent activities in the international community related to byproduct material financial planning. In November 2014, IAEA Nuclear Energy Series No. NW-

T-1.3 was released, which summarizes the reviewed information distributed in previous IAEA publications. It also provides an up-to-date, overall picture of the management of disused sealed radioactive sources based upon the current status and trends in this field. Section 5.5 of the publication addresses aspects of financing including cost distribution, cost uncertainty, and financial implications of the lack of availability of an ownership transfer path.

Further, the Joint Convention on the Safety of Spent Nuclear Fuel and on the Safety of Radioactive Waste Management requires that contracting parties address aspects of end-of-life source management.

Respondents to this request with insight into relevant international initiatives are invited to provide their perspectives regarding international best practices or other experiences that the NRC staff should consider.

### **III. Request for Comments.**

The NRC is conducting this financial scoping study to determine if financial planning requirements for decommissioning and end-of-life management for some radioactive byproduct material are necessary. The NRC is seeking stakeholder input and perspective on this action. Respondents are asked to consider the background material discussed in Section II above when preparing their comments and insights. In addition, the NRC staff requests that respondents consider the following topical areas, and specifically the eight questions listed below, that an NRC staff internal working group has identified.

#### **Consideration of Feasible Disposition Paths Other Than Disposal**

Disposition pathways other than disposal may be available and appropriate for sources, including reuse and recycling. Factors important for financial planning for these disposition pathways may be significantly different from those associated with disposal.

Question 1: What disposition pathways are available to various licensee types beyond the traditional disposal pathway and should be considered in any potential new financial planning requirements?

#### Establishing Funding Requirements for Dispositioning

Establishing appropriate and equitable funding requirements sufficient for the disposition of certain individual sources is a challenge. Funding requirements must account for interim storage, conditioning, and packaging for transportation and disposal, as well as the transportation and disposal costs. In many cases it is difficult to establish accurate values for each of these elements even with current information. Further, there will be uncertainty regarding the adequacy of financial surety requirements in the future. Some sealed sources may have a service life of decades; therefore, a financial surety established today may not be adequate 20 to 30 years from now. At present, it may be easier to articulate an appropriate decommissioning funding plan or fixed dollar amount for Category 3 and 4 sources than for Category 1 and 2 sources at present. That is because disposal access is more readily available for smaller sources.

Question 2: What should be the primary considerations in establishing and imposing appropriate and equitable financial planning requirements on radioactive sealed sources?

#### Timeliness in Declaring Disused Sources

Currently there is no NRC requirement for licensees to declare licensed sources as disused (although they are encouraged to do so). Financial planning requirements may establish an appropriate time (for example two years) for applying requirements to sources considered disused by the licensee.

Question 3: Should licensees be required to specifically declare disused sources? If so, how long after a source is disused must a licensee declare it as disused?

#### Source Characteristics

Financial planning must also account for source characteristics such as type of radioactive material, half-life, physical form, and remaining useful life. For relatively short half-life byproduct material, there is a need to evaluate the equitable application (and removal) of financial planning requirements for sources that may decay below the quantities of concern.

Question 4: How should source characteristics be factored into establishing equitable financial planning requirements for end-of-life management?

#### Compatibility with Agreement State Requirements

Any NRC rulemaking must involve Agreement State regulators in determining the compatibility category assigned to a potential rule.

Question 5: If NRC rulemaking is initiated as a result of this scoping study, how should NRC engage with and consider the impact on Agreement States? What would be the primary considerations in establishing compatibility levels for rule requirements?

#### Applicability to General Licensees

The applicability of financial planning requirements to licensees possessing generally licensed sealed sources should be considered. According to the 2014 Disused Sources

Working Group report, there are at least a few licensees who possess generally licensed sources in quantities of concern.

Question 6: When necessary, what mechanism should be used to administer financial planning requirements on general licensees?

#### Characteristics and Qualifications of the Fund Custodian

Another consideration in establishing financial planning requirements is how to determine the proper custodian for the fund that is to be earmarked for disposition.

Question 7: What are the ideal characteristics and qualifications for an entity that will act as the custodian for any funds earmarked for long-term management of disused sealed sources? For instance, what characteristics and qualifications should be taken into consideration regarding the custodian's relationship to the licensee (e.g., the ability of the custodian to access the funds, or the custodian's independent financial viability)? In the event that there is a residual amount remaining in the fund following payment of disposition cost, what should be the fate of the residual funds?

#### Tracking

For licensees possessing Category 1 or 2 radioactive sealed sources, regulators can access the National Source Tracking System (NSTS) to determine the number and type of licensees that would be potentially impacted by end-of-life financial assurance requirements. For new sources, source manufacturers or suppliers could be contacted to determine how they would be impacted by any new requirements. However, it may be more difficult to implement requirements and ensure accountability regarding sources that are not tracked in the NSTS (e.g. Category 3 and lower).

Question 8: What are the key characteristics of a tracking system for byproduct material (sealed sources) subject to financial planning requirements? Which of these characteristics are not available as part of the NSTS?

The topical areas and questions that the NRC staff has identified above are consequential, but not exhaustive. Varied perspectives from a broad range of stakeholders will be beneficial. Further, NRC staff anticipates that stakeholders will identify and provide their perspectives on additional issues they identify that are relevant to financial planning for management of disused or unwanted radioactive byproduct material.

Based on the results of the expanded byproduct material financial scoping study, staff will compile a report with study results and recommendations for next steps to be provided to the Commission in spring 2016. Staff recommendations could include options such as limited rulemaking, broad scope rulemaking, advance notice of proposed rulemaking, development of guidance, issuance of a generic communication, or no action.

#### **IV. Topic-Specific Public Meeting.**

The NRC will convene a topic-specific public meeting in Rockville, MD, in early fall 2015. The public meeting will include a webinar and teleconference for the convenience of participants who find attendance inconvenient or prohibitive. A meeting notice will be posted to the NRC's public Web site at <http://meetings.nrc.gov/pmns/mtg> no fewer than 10 days prior to the meeting providing the date, time, and venue of the meeting, as well as remote participation instructions. A transcript of the public meeting will be made publicly available in ADAMS, as well as posted on the Federal Rulemaking Web site at <http://www.regulations.gov>, under Docket ID **NRC-2015-0182**. The Federal Rulemaking Web site allows you to receive alerts when changes or additions occur in a docket folder. To subscribe: (1) navigate to the docket folder (**NRC-2015-0182**); (2) click the "E-mail Alert" link; and (3) enter your e-mail address and select how frequently you would like to receive e-mails (daily, weekly, or monthly).

The NRC staff will use the information gathered from the public meeting to supplement information gathered in response to this FRN and other sources to prepare a report on byproduct material financial scoping study for the Commission, which will include the NRC staff's recommendations for next steps.

Dated at Rockville, MD this 24th day of July 2015.

For the Nuclear Regulatory Commission.

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