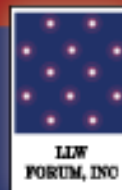


DISUSED SOURCES

The Need for Proper Management and Disposition

Overview of the LLW Forum's Disused Sources Working Group

**Michael Klebe
March 22, 2023**



DSWG Current Membership

- Members:

Joseph Klinger, CMCC – Chair

Rich Janati, PA

Kevin Siebert, WA

Larry Kellum, UT

Earl Fordham, WA

John Williamson, FL

Michael Kurth, US Army

- Organizational Liaisons

Denny Galloway, CRCPD

Augustinus Ong, OAS

Craig Little, HPS

- Staff

Dan Shrum

Michael Klebe

Cecilia Snyder

Disused Sources Working Group Origin

- DSWG formed in 2011 at the request of the NNSA/GTRI to address the problem of disused radioactive sealed sources
 - Approximately 2 million sealed sources in use
 - Tens of thousands disused sources with no exact knowledge of number, activity, and storage security

Disused Source Problem Contributing Factors

- Life-cycle costs for managing and disposing of sources not internalized
- Inconsistent view of which sources pose a security threat
- Regulatory system inadequacies for a post-9/11 threat environment
- No financial incentive for reuse, recycle, or disposal
- Opportunities for recycling and reusing sources are underutilized
- Type B shipping container availability and cost

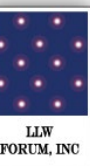
DSWG Report

- Report published – March 2014
- 24 recommendations for improving the security of sealed sources
- Several recommendations have been completed
- Currently revising the priority of the remaining recommendations



REPORT OF THE DISUSED SOURCES WORKING GROUP

*A Study of the Management and Disposition of Sealed Sources
from a National Security Perspective*



New Informational Documents

- Creating an Incentive for the Disposal of Disused Radioactive Sealed Sources – Oregon
 - Annual possession fee
- Creating an Incentive for the Disposal of Disused Radioactive Sealed Sources – Texas
 - Two-year storage limit
- Addressing Sealed Source Concerns Through the License Inspection Process
 - Management awareness
- Available at: www.disusedsources.org/resources

NRC General Licensing Program

- Evaluation of the U.S. Nuclear Regulatory Commission's General License Program for Devices Containing Radioactive Materials in Response to SRM-SECY-17-0083 [SECY-22-0065]
 - Continued provision of reasonable assurance of adequate protection of public health and safety in the current environment
 - To provide the Commission with options to improve accountability of GL devices

Staff Evaluation of the GL Program

- Established two joint NRC/Agreement State working groups
 - GL program Re-Evaluation Working Group (GLWG)
 - GL Program Modernization Working Group (GLMWG)

GLWG Charter Activities

1. Program Basis and Historical Review
 2. Effectiveness of NRC Registration Program and Alternative Programs Implemented by States
 3. Stakeholder Feedback
- Work conducted in 2018
 - Charter document - ML18039A443
 - Summary document - ML21085A735

GLMWG Charter Activities

1. Should the NMP continue to the GL program, or should GLs be separated into specifically licensed and exempt devices?
 2. If the GL program should continue, evaluate potential changes based on a risk-informed, transformative approach.
 3. Identify implementation steps for recommended option.
 4. Prepare memorandum or Commission paper
- Work conducted in 2020
 - Charter document – ML20002C258
 - Summary document – ML21085A736

GL Program Re-Evaluation Options

1. Maintain regulatory status quo
2. Modifying annual registration requirements
3. Requiring a simplified specific license
4. Combination of options 2 and 3
5. Increase communication

Concern with Regulatory Status Quo

- DSWG supports specific licensing (SL) of devices containing Category 3 sources.
- Category 3 sources are defined as dangerous by the IAEA
- There is no competency standard or verification required for GL.
- SL requires application, facility inspection, license conditions, radiation safety training, and periodic inspections and renewals.
- DSWG will approve comment letter to NRC this week.

Proposed NRC Rulemaking



RULEMAKING ISSUE (Notation Vote)

December 19, 2022

SECY-22-0112

FOR: The Commissioners

FROM: Daniel H. Dorman
Executive Director for Operations

SUBJECT: PROPOSED RULE: RADIOACTIVE SOURCE SECURITY AND
ACCOUNTABILITY (3150-AK83; NRC-2022-0103)

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~~SENSITIVE INTERNAL INFORMATION~~
~~LIMITED TO THE NRC UNLESS THE~~
~~COMMISSION DETERMINES OTHERWISE~~

SECY-22-0112

- Proposed rule waiting for Commission approval to publish in the Federal Register
- Focus:
 - Address findings of GAO
 - Validity of license applicants
 - License verification for transfer of Category 3 quantities of rad material
 - Continued possession of existing Cat 3 material as GL

SECY-22-0112 – Action 1

- “The NRC is proposing to amend 10 CFR parts 30, 40, and 70 to require that applicants demonstrate that they will use the requested material for the purposes stated in their license application.”

SECY-22-0112 – Action 2

- Amend parts 30, 40, and 70 to require licensees transferring Category 3 quantities of radioactive material verify that the recipient is authorized under its license to receive the material.
- Verification made through the License Verification System (LVS) or through contact with the recipient's license issuing authority.

SECY-22-0112 – Action 3

- Revise parts 30, 40, and 70 to require that the oral certification license verification for emergency shipments must be confirmed either through the LVS or by contacting the license-issuing authority by the end of next business day.

SECY-22-0112 – Action 4

- Revise Part 32 to require that transfers of category 3 quantities of byproduct material can only be transferred to licensees possessing a specific NRC or Agreement State licenses.

30.4 Definitions

- *Category 3 quantity of radioactive material* means a quantity of radioactive material meeting or exceeding the category 3 threshold in table 1 of appendix F to this part but less than the category 2 threshold in table 1 of appendix A to part 37 of this chapter. This is determined by calculating the ratio of the total activity of each radionuclide to the category 3 threshold for that radionuclide and adding the ratios together. If the sum is equal to or exceeds 1, the quantity would be considered a category 3 quantity. Category 3 quantities of radioactive material do not include the radioactive material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet.

Appendix F to Part 30 – Category 3 Radioactive Materials

Table 1 – Category 3 Thresholds

Radioactive Material	Category 3 Threshold	
	TBq	Ci
Americium-241	0.06	1.6
Americium-241 /Be	0.06	1.6
Californium-252	0.02	0.5
Cobalt-60	0.03	0.8
Curium-244	0.05	1.4
Cesium-137	0.1	2.7
Gadolinium-153	1	27

Iridium-192	0.08	2.2
Plutonium-238	0.06	1.6
Plutonium-239 /Be	0.06	1.6
Promethium-147	40	1,080
Radium-226	0.04	1.1
Selenium-75	0.20	5.4
Strontium-90	1	27
Thulium-170	20	540
Ytterbium-169	0.30	8.1

Existing Category 3 Devices Remain GLs

- Current general licensees with devices containing category 3 quantities of radioactive material would continue to be authorized to possess and use these devices under their general licenses after the effective date of the rule,

Specific Request for Comments

- Timing of license verification – within 7 days of transfer?
- Is there a subset of routine transactions to which enhanced license verification should not apply or alternative frequency?
- Impact on industry for Category 3 quantities requiring an SL?
- Implementation time from effective date – 30 days or longer?
- NRC proposed compatibility categorization?

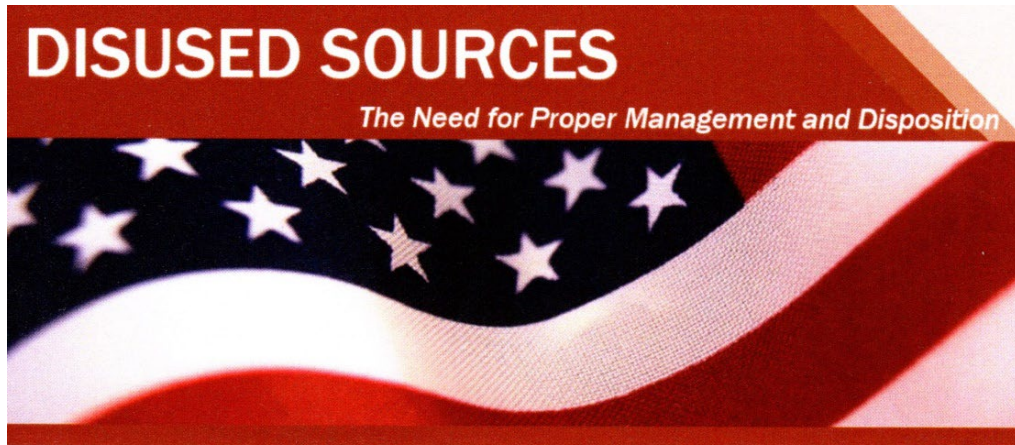
SECY-22-0112

- DSWG will consider merits of commenting to the Commission at Friday's meeting

Re-evaluation of DSWG recommendations

- Members tasked with identifying top 3
- Aggregate responses at Friday's meeting
- Develop priority list and a plan for implementation

Additional Information:



A project of the Low-Level Radioactive Waste Forum, Inc.

www.disusedsources.org



The DWSG was formed to develop recommendations for improving the management of disused sealed radioactive sources.

www.disusedsources.org

Additional Resources Include:

- Report of the Disused Sources Working Group
- Brochures for current and prospective licensees re: lifecycle costs of sealed source ownership
- Report on Disposition Options and Costs for Certain Radioactive Sealed Sources and Devices
- Report on Compact Import and Export Requirements