

# DISUSED SOURCES

*The Need for Proper Management and Disposition*



## Overview of the LLW Forum's Disused Sources Working Group

Michael Klebe  
October 13, 2021



## DSWG Current Membership

• Members:

Joseph Klinger, CMCC – Chair  
Rich Janati, PA  
Kevin Siebert, WA

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                Lori Beagles

Gary Robertson



## Disused Sources Working Group Origin

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- 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

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- 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*



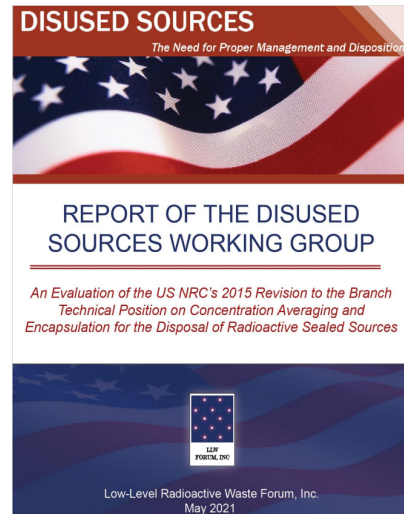
## US NRC BTP on Concentration Averaging and Encapsulation

- BTP provides:
  - Guidance for proper classification of waste for disposal
  - Acceptable methods for averaging radionuclide concentrations over the volume or mass of waste
- Original in 1995
- Revised in 2015:
  - Improve clarity
  - Update position on LLRW blending
  - Align the BTP with the NRC's risk-informed performance regulatory approach



## DSWG Report

- Report published – May 2021
  - Evaluates the revised BTP as it relates to sealed sources
  - Describes classification process for encapsulated sealed sources
  - Provide a classification example
  - Discusses alternative approach for waste classification
  - Identifies some BTP related obstacles for sealed source disposal



## US NRC BTP on Concentration Averaging and Encapsulation

- Revised BTP does not appear to have increased the disposal of sealed sources.
- General industry consensus is the revised BTP has improved the classification process
  - Adds clarity
  - Reduced interpretation
  - Allows for the use of larger containers
  - Provides flexibility to apply the least restrictive classification



## Obstacles for Sealed Source Disposal

- Type B shipping cask
  - Cost and availability
  - Commercial fleet (EnergySolutions and WCS)
  - NNSA designed
  - NAC International Optimus
- Incentive

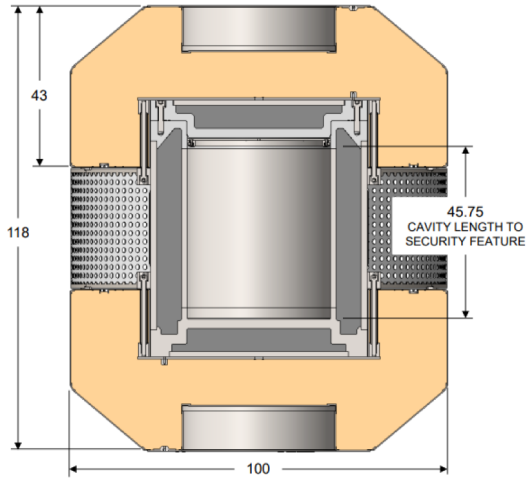


## EnergySolutions / WCS Type B Cask Fleet



## NNSA Designed Type B Casks

- 380-B
  - Designed by Areva Federal Services
  - Doesn't rely on device for shielding
  - Weight:
    - 55,000 lbs. empty
    - 67,000 lbs. max



## NNSA Designed Type B Casks

- 435-B
  - Designed by Areva Federal Services
  - Relies on source device for shielding
  - Wagstaff Applied Technologies manufactured 4 for NNSA-OSRP (one donated to IAEA)
  - Weight:
    - 10,100 lbs. max



## NAC International Inc. – Optimus L & H

- Cavity dimension:
  - 32.5” dia. x 47”
- Optimus L
  - 49” dia. x 70”
  - Weights:
    - Contents – 3,150 lbs.
    - Gross – 9,200 lbs.
- Optimus H
  - 74.2” dia. x 83.2”
  - Weights
    - Contents – 7,300 lbs.
    - Gross – 32,000 lbs.



## Obstacles for Sealed Source Disposal

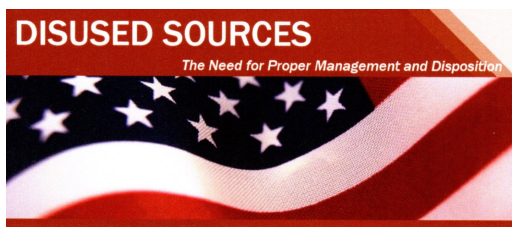
- Lack of an incentive for licensees to dispose of unused sources
- Not a priority for regulatory programs
- Possible options:
  - Possession limit (2-year)
  - Possession fee (annual source fee)
- Discussed at the Friday’s DSWG meeting



## Additional Information:

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

[www.disusedsources.org](http://www.disusedsources.org)

A banner for 'DISUSED SOURCES' with a dark blue background. The text 'DISUSED SOURCES' is in large white letters. Below it, the subtitle 'The Need for Proper Management and Disposition' is written in smaller white text. The main text describes the DWSG's mission: 'The DWSG was formed to develop recommendations for improving the management of disused sealed radioactive sources.' The website 'www.disusedsources.org' is prominently displayed. A list of additional resources is provided at the bottom.

**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

