DISUSED SOURCES

The Need for Proper Management and Disposition

Overview of the LLW Forum's Disused Sources Working Group

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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
  - Gary Robertson
  - Cecilia Snyder
  - Lori Beagles

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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

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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

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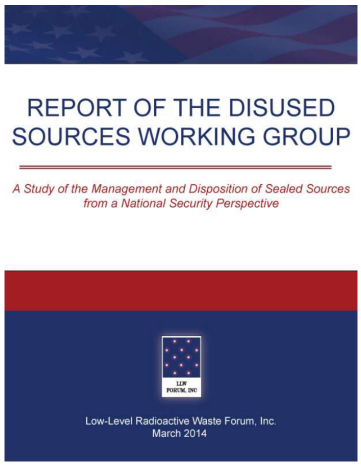
DSWG Report

- 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



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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

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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

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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

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Obstacles for Sealed Source Disposal

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

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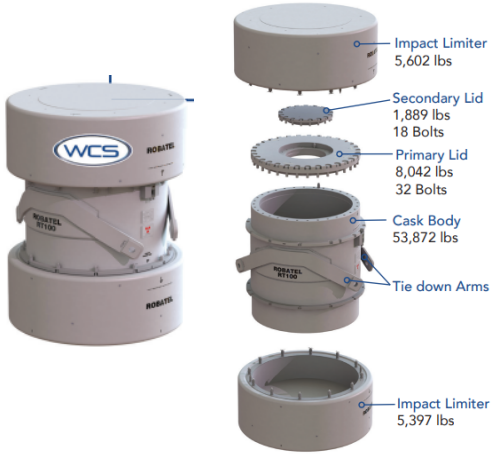
EnergySolutions / WCS Type B Cask Fleet



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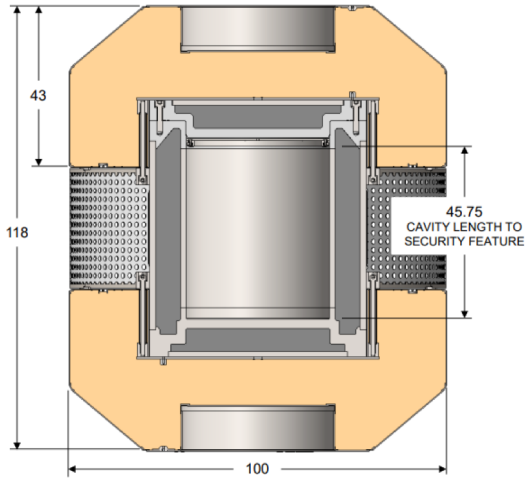
NNSA Designed Type B Casks

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



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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

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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.

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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

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Additional Information: