

# CALIFORNIA RADIOACTIVE MATERIALS MANAGEMENT FORUM

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April 9, 2009

The Honorable Dale Klein, Chairman,  
Gregory B. Jaczko, Peter B. Lyons,  
and Kristine L. Svinicki, Commissioners,  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

*Importance of Access  
to disposal for LLW Classes  
B and C — A University  
Perspective*

Dear Commissioners,

This is Cal Rad's second letter of background information for the April 17<sup>th</sup> briefing of the Commission on disposal of low-level radioactive waste.

On May 24, 2006, Dr. Joseph P. Ring of Harvard University made a very interesting presentation to the NRC's Advisory Committee on Nuclear Waste. Dr. Ring is the Associate Director, Radiological Services and Radiation Protection Officer at Harvard. His presentation, "Radioactive Waste, an Academic and Medical View," is enclosed. Dr. Ring's testimony can be found on pages 32 to 43 of the meeting transcript. See page 39 for his comments on the possibility that the DOE might provide access for disposal of non-DOE Class B and C LLW.

If you have any questions or comments about information in this letter or the enclosures, please call me at 925/283-5210 or send me an email at APasConslt@aol.com.

Sincerely,

Alan Pasternak

Encl.: Dr. Ring's Presentation  
ACNW Transcript, 5/24/06

Cc: NRC Staff  
Joseph P. Ring, Ph.D., CHP, Harvard University  
Cal Rad Forum Board of Directors

Visit Cal Rad's Web Site at [www.calradforum.org](http://www.calradforum.org)

# Radioactive Waste, an Academic and Medical View

Joseph P. Ring, Ph.D., CHP  
Harvard University



# Academic and Medical Radioactive Waste

- Short-lived materials
  - Decay-in-storage
- Longer-lived materials
  - Research
    - $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{36}\text{Cl}$ ,  $^{99}\text{Tc}$  (for example)
  - Medical
    - Flood Sources ( $^{57}\text{Co}$ )
    - Sealed Sources ( $^{60}\text{Co}$ ,  $^{137}\text{Cs}$ )



# RAM Use Drivers

- Hassle Factor
  - Alternate methods are preferred
    - RAM cost and regulation are disproportionate to risk
    - Researchers switch to hazardous materials that are not as well regulated with a net increase in population risk
- Cost
  - Disposal
  - Surcharges
  - State and local surcharges
- Site availability
- Stability and predictability





# Current Status

- Class A
  - Capacity exists
  - Lack of competition
  - Cost
  - Concern over future capacity and access
    - Lifespan
    - LLWPA restrictions
- Class B and C
  - Large level of concern



# Sources Class B and C

- Existing sources
  - Disused sources do not have a disposal option and are in storage
    - Lack of resources (options, space, money)
- Concerns
  - Capacity for Class B and C Wastes
  - Disposal access

# Regulatory Structure





# LLRW Policy Act

## ■ Intentions

- Redistribute responsibilities to generating states
- Reduce wastes

## ■ Accomplishments

- Reduced waste so it no longer applicable due to small volumes and economics

## ■ Concerns

- Decreased access
- Significant expenditures with no new site
- Do not penalize states



# LLRW Policy Act Options

- Revise or Repeal
  - Unlikely to happen
- Permit access to all DOE facilities
  - Class B and C in GTCC facility
- Consider a new facility on federal land



# Regulatory Model

- Current Model

- Overly complicated
- Classification based on source
- Disposal based on legislation

# Model Revision

- Risk based classification and disposition
  - Harmonize with non-rad waste disposal
    - at least for Class A
- Revised Model Basis
  - Security
  - Public health and safety
  - Protection of the environment
  - Overall risk
  - Cost





# Revised Model

- Risk based classification and disposal
  - NCRP 116 Limitation of Exposure to Ionizing Radiation
- Allow disposal in RCRA sites in compliance with EPA risk model
- Texas style short-lived exemption for municipal disposal facilities
  - Disposal in a Type I Municipal Solid Waste Facility or a Hazardous Waste Facility
  - Title 30, Texas Administrative Code (30 TAC), Subchapter C Section 336.225
- Consider Clearance
  - ANSI N13.12



# Class A Options

- Risk based model allows environmentally responsible options:
  - RCRA Subtitle C or D facilities
    - Low Activity (LARW) and low activity mixed wastes (LAMW)
  - Uranium mill tailing impoundments (UMTRCA regulated sites)
    - HVLA
    - TENORM



# Class B and C Options

- Create a national source recycling program
- Disposal not storage
  - Security concerns
  - Control long-term solution
- Consider inclusion in DOE GTCC program
  - Small volume





# Storage Option

- Centralized Storage (not preferred)
  - Only when there is a proved societal advantage
  - Based on same criteria as disposition
  - Concern for additional costs and doses to workers and public from management and transportation

