

# Is Long-Term Surface Storage Safe?

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## The Radioactive Wastes Exist



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# Something Must Be Done

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- **The radioactive wastes exists**
- **Many times, the radioactive wastes are in storage**

## Some Countries Require the Owner to Hold Radioactive Waste at User Premises



Unwanted,  
highly radioactive  
material  
in public sector

## Some Countries Hold Radioactive Waste in Centralized Government Storage



Armenia

## Some Countries Hold Radioactive Waste in Centralized Government Storage



Egypt

## Some Countries Hold Radioactive Waste in Centralized Government Storage



**Georgia**

# Sealed Radioactive Source Strength Compared to IAEA Exemption Criteria

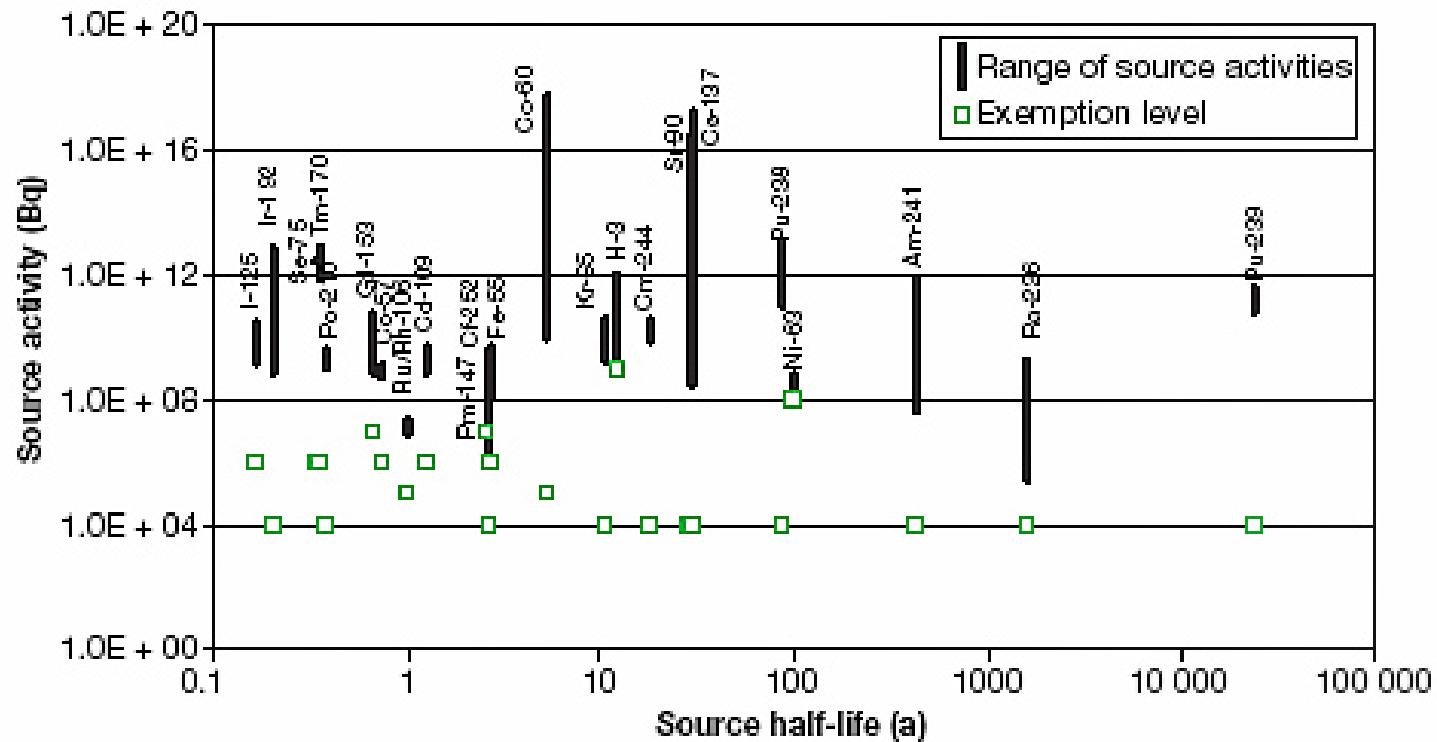


FIG. 1. Ranges of source activities for various radionuclides.

## After 100 years of Storage

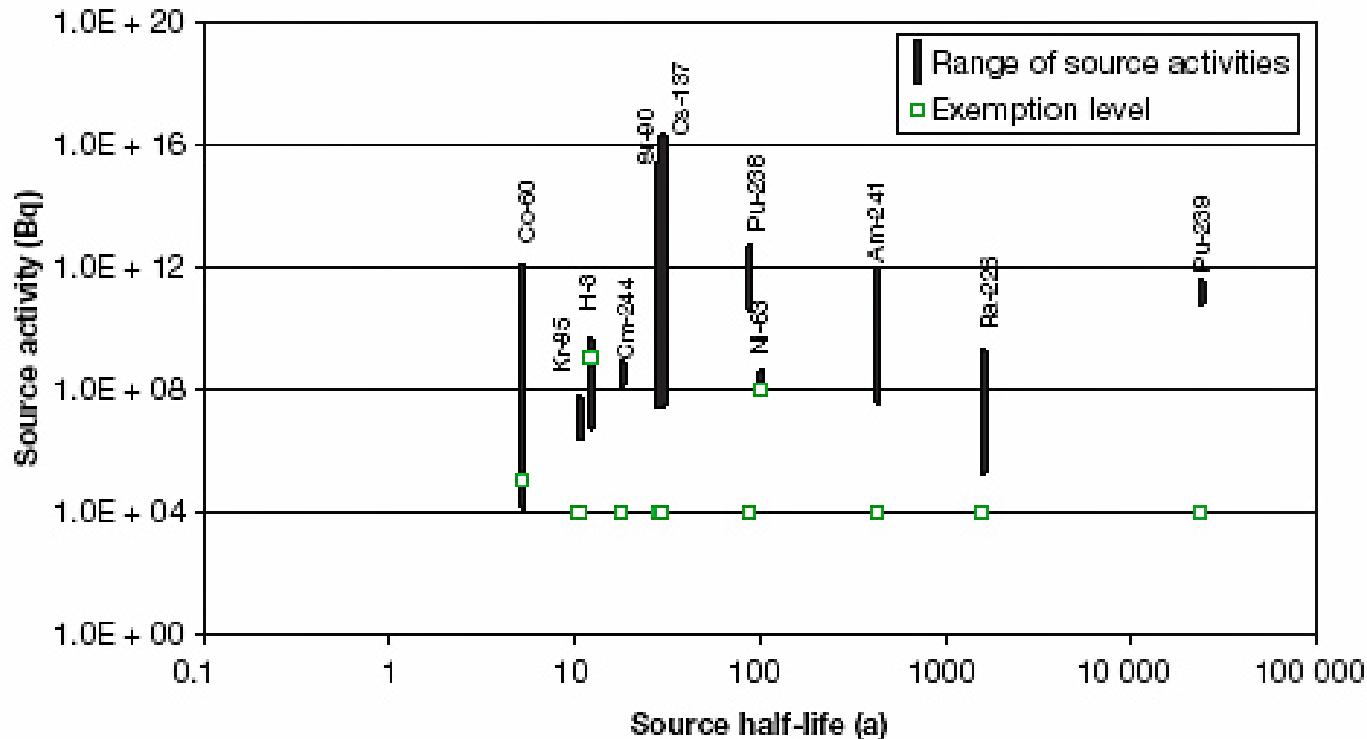


FIG. 2. The effect of 100 years of decay on the ranges of source activities.

# Safe and Secure

## 100 years? 1,600 years?



# Safe and Secure

## 100 years? 1,600 years?



## Systems View

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- **Storage is an important, but interim solution**
- **Storage is not the long-term answer**
  - Many wastes remain hazardous 100's to 1,000's of years
  - Centralized storage target for theft
  - Even governments may lose control

# Even Governments Can Loose Control



**Georgia, unattended  
3,000 Ci Cs-137  
powder**

## Disposal is the Only Long-Term Answer

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- Because the wastes exist, and storage for 100's to 1,000's of years not sustainable
- The people that created and benefited from rad materials should safely dispose of the wastes
- The burden of radioactive waste disposal should not be passed to generations that did not benefit from the radioactive materials
- Important part of countries infrastructure for safe management of radioactive materials

# Is Long-Term Surface Storage Safe?

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- **Surface storage is an important, but interim solution**
- **“Long-term storage of unwanted radioactive materials is not considered sustainable, and in many cases long-term storage may represent a high-risk situation.” (IAEA Tech Report 436, 2005)**
- **Proper disposal is the only long-term solution for long-lived radioactive wastes**