Pre-1970 Buried TRU-Contaminated Waste Sites

Briefing to Environmental Management Site-Specific Advisory Board Chairs

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September 27, 2007

Briefing Topics

- Background and history
- Current Status
- Recent Government Accountability Office (GAO) report findings

Background History

The Early Years

- Transuranic-contaminated materials first created during the Manhattan Project
- From 1940s-1970, TRU-contaminated wastes disposed of by shallow land burial, inextricably co-mingled with LLW in pits and trenches at five sites, or by ocean dumping
  - Wastes dumped or placed without benefit of high-integrity packaging and little regard to long-term consequences
- Concerns over such disposal practices led to ban in 1970, establishment of "TRU waste" category, and retrievable storage of TRU waste pending availability of repository site
- "Bright line" of sorts drawn between pre-1970 *disposed-of* waste and post-1970 *stored* waste

Background History, Continued

1970s-1980s

- Lack of perfect parity between remedial plans for pre-1970 and post-1970 wastes stokes controversy for AEC/ERDA/DOE
  - DOE largely self-regulating until ~1986
- Reference plans for managing buried TRU in place set out in President Reagan's 1983 *Defense Waste Management Plan,* which said to—
    - monitor sites, take remedial action as necessary, periodically re-evaluate safety, and conduct technology development as needed
- First GAO report findings on buried TRU in 1986 and DOE response in 1987

Background History, Continued

- AEC and successor agencies resisted repeated calls for blanket exhumation of all buried TRU sites due to concerns over worker-retrieval risks, high costs, and dispersion potential
  - Pilot retrieval campaigns in 1970s generally affirmed worker risk concerns
  - Several NAS committees cautioned against exhumation absent a "significant radiation hazard"
  - Public risks asserted to be low due to immobility of transuranics in environment
  - Costs of full retrieval put at $6-10 billion (1987 dollars)

Background History, Continued

1990s-2000s

- 1997 WIPP NEPA documents suggest risks posed by buried TRU sites are extremely small, even under hypothetical no-action scenario
- 1997 IEER report *Containing the Cold War Mess* highlights inventory discrepancies in past reporting
- 1999 WIPP opens
- 2000 DOE response to IEER report affirms need for local remedial decision-making under RCRA/CERCLA regulations
- 2006 request by Subcommittee on Energy and Water Development to GAO to (re-) evaluate buried TRU situation
- June 2007 GAO report

Complications of Note for Buried TRU Sites

- Large uncertainties in waste inventories
- Changes in official definitions of "TRU waste"
- Confusion with retrievably stored TRU since stored waste also often "buried"
- Either buried TRU or retrievably stored TRU can be disposed of onsite at generator sites or offsite at WIPP, depending on specific configuration and regulatory direction
- Terminology differences site-to-site

Current Status

- Past reference plans and policies focused on in-place disposal have been superseded by RCRA/CERCLA remedy selection criteria and site-specific negotiations with regulatory authorities
- Range of remedies must be considered on site-specific basis with public review, including full retrieval option

Current Status, Continued

- Following suite of remedies selected/under consideration for buried TRU sites:
  - Existing RODs:
    - *Oak Ridge*—surface cap and land use controls
    - *SRS*—surface cap and institutional controls
  - Future RODs:
    - *Idaho*—targeted retrievals and in-situ grouting, with evapotranspiration (ET) cap, vapor extraction, and institutional controls
    - *Hanford*—targeted retrievals, surface capping, institutional controls
    - *LANL*—ET cap, institutional controls

2007 GAO Study on Buried TRU Sites

- Initial charge to evaluate risks, legal requirements, remedial plans, and costs of buried TRU site remediation
- GAO visited all five sites and interviewed state/EPA regulatory officials
- GAO notes that final remedial plans at sites with largest inventories remain largely undetermined
- GAO notes that preliminary total costs for remediation of buried TRU sites are $1.6 billion, but that these could increase dramatically if more focus placed on retrieval
- No recommendations at this time