HI-STORE: A Consolidated Interim Storage Facility for Used Nuclear Fuel & HLW

By: Ed Mayer, HI-STORE Program Director, Holtec International
**HI-STORE: How Private Initiative Can Contribute**

- Opportunity for DOE to follow through on government’s promise to defuel nuclear plant sites

- Supplements long-term repository

- Allows removal of used fuel from nuclear plant sites sooner than awaiting repository

- Cost efficient away-from-reactor storage

- Eliminate stakeholder & political challenges with fuel storage at reactor plant site by relocating fuel to area with strong local and state support
Holtec & ELEA Team

- Holtec International
  - U.S. company with U.S. manufacturing
  - Advanced dry storage technology
  - Experience in licensing fuel storage facilities
  - Turnkey Projects
  - Vertically Integrated

- Eddy-Lea Energy Alliance, LLC
  - Long-standing NM alliance:
    - Cities of Carlsbad & Hobbs
    - Counties of Eddy & Lea
  - Formed in 2006
  - NM Local Economic Development Act

Holtec Advanced Manufacturing Division, Camden, NJ
Holtec’s CIS Expertise:

*Only* world supplier with extensive experience in developing CIS:

1. America’s only licensed CIS (Skull Valley, Utah)

2. Ukraine’s facility in Chernobyl.


Ukraine’s Central Storage Facility (in development)
HI-STORE Site & Location

- 1,000 acres: geologically stable, dry, elevated land
- Developed infrastructure: electric, water, roads & rail
- Remote location:
  - 35 miles from nearest town
  - Midway between Carlsbad & Hobbs, NM
- Populace: robust scientific & nuclear workforce
- Strong support:
  - Local communities
  - State & Local government
Support for HI-STORE

- Letters from the Cities of Carlsbad and Hobbs
- Letters from Counties of Eddy and Lea
- Letter from Governor of New Mexico
- Memorial Letters from House and Senate of New Mexico
HI-STORE Technology: HI-STORM UMAX

HI-STORM UMAX at Callaway, MO
HI-STORM UMAX Characteristics

- Holtec’s Below Grade Dry Storage Technology
- Designed to store canisters up to 75 ¾ in dia / 213 in tall
- Will store any US-origin commercial nuclear fuel:
  - Packaged in dry storage canisters
  - Stored in fuel pools
- No repackaging of fuel required
HI-STORM UMAX Characteristics

- **Operational Advantages**
  - ✔ Single, Universal System
  - ✔ Canister placed into storage or removed in less than one shift

- **Maximizes Security**
  - ✔ Facility visually inconspicuous
    - ✔ Profile < 2 ft tall
    - ✔ No area of obstructed view
  - ✔ Less visible from air
  - ✔ Reduced visibility from public land

- **Maximizes Safety**
  - ✔ Minimize dose to environment & crew
  - ✔ Virtually immune to environmental disasters - hurricanes, floods, tornados, earthquakes
  - ✔ Designed to withstand crashing aircraft or on-site fire without any radiological consequences

HI-STORM UMAX at Callaway, MO
Two Part Approach to Licensing

Part 1. HI-STORM UMAX
- August 2016 Submitted HI-STORM UMAX License Amendment:
  - ✔ Added NUHOMS 24PT1 canister for vertical storage
  - ✔ RSIs received & responded to Feb 17
- In succession update HI-STORM UMAX certificate to:
  - ✔ Add canisters from specific shutdown / decommissioned plants
  - ✔ Add all canisters licensed to store SNF

Part 2. Site Specific License
- Pre-submittal Mtg Dec 6, 2016: Focus - Environmental Report
- Pre-submittal Mtg Feb 1, 2017: Focus - Outline of the SAR
- NRC audit Feb 22 & 23, 2017
- Mar 31, 2017: Submitted Site Specific License Application
  - ✔ Initial application - 500 canisters
  - ✔ Reference the HI-STORM UMAX Certificate & FSAR
- Future Amendments
  - ✔ Will reference the amended HI-STORM UMAX CoC & FSAR
  - ✔ Amendments for additional canisters up to 10,000
HI-STORE Site Layout

- Total Storage Capacity 10,000 canisters (120,000 MTU)
- Initial Storage Capacity 500 canisters
- Facility utilizes 500 of the 1000 acres available
- Operations could commence 2022
Pending agreement with DoE and Nuclear Utilities:

- License issued by the USNRC: Early 2019
- Construction Start: 2019
- Construction Complete: 2022
- Accept First Shipment: 2022
Transportation to HI-STORE

- HI-STAR 190
  - ✔ 8/7/2015 - Initial application submitted
  - ✔ 01/25/17 - Holtec response to second round RAIs submitted
  - ✔ 04/07/17 – Informal communication with NRC continues to resolve additional NRC questions
  - ✔ NRC is targeting end of June, 2017 for CoC

- HI-STAR 100
  - ✔ Licensed for HI-STORE 100
  - ✔ Pilgrim & VT Yankee

Below-grade Storage at Humboldt Bay Power Plant, Eureka, CA
Questions?