HI-STORE CISF:
A Consolidated Interim Storage Facility for Used Nuclear Fuel in Southeast New Mexico

35th INMM Spent Fuel Management Seminar
Update on Private Spent Fuel Storage Solutions

By: Myron M. Kaczmarsky
Managing Director
Holtec Government Services
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Consolidated Interim Storage

- Discussion Topics
  - Holtec Corporate Overview
  - National Imperative
  - Project Brief:
    - Safety
    - Security
    - Transportation
  - Licensing Status
  - Providing a National Solution
Holtec International

Core Business Activities
- Safe & Secure Storage Used Nuclear Fuel
- Heat Transfer Equipment
- SMR-160 Delivery
- Battery Energy Storage Systems
- Decommissioning Nuclear Plants
- Consolidated Interim Storage

Largest US exporter for capital equipment supporting the nuclear industry

118 nuclear plants worldwide: 67 domestic, 51 international

Over 60,000 SNF assemblies loaded / 1,300+ Holtec systems loaded

A vertically integrated turnkey supplier of goods and services to the power generation industry since in 1986
Holtec’s Worldwide Dry Storage and Transport Experience

1,300+ Systems Loaded

118 Nuclear Plants Worldwide;
67 Domestic, 51 International
National Imperative

- NWPA 1982
  - Codified Repository as National Strategy
  - 1 mill/kWhr
  - $12B Spent on Yucca
  - Yucca Never Opened
  - Jan 31, 1998: Contract Breach

- On-Site Storage
  - 121 Facilities/39 States
  - Each w/ security, operations, maintenance

- National Liability
  - $800M/yr
  - $1.3B/yr beginning 2022
  - $6.9B through 2017
  - $34.1B Total
  - U.S. Treasury Judgement Fund

- Blue Ribbon Commission - 2012
  - Reaffirmed Repository as National Strategy
  - CISF Compliments Repository
Consolidated Interim Storage

- **Safe**: SNF storage system is designed and built to withstand *natural* and *man-made* events with no release of radioactivity

- **Secure**: SNF storage system and facility provide an impregnable fortress to protect SNF against *attacks*

- **Retrievable**: Allows removal of SNF canisters from facility in one shift for shipping to repository

- **Temporary**: *Compliments* repository, not *competition*. Canisters of SNF will be shipped to repository in the same manner they were shipped to site
CISF Utilizes HI-STORM UMAX Technology

- HI-STORM UMAX:
  - Seal welded canisters
  - Below grade vertical silos
  - Requires no water or electric
  - Produces no pollution, emissions, or noise

- Maximum Safety: Earthquakes, Oil & Gas Accidents, other postulated accidents

- Maximum Security: NRC DBT

- No Affect on Environment
  - No aquifers, ground water, or minerals affected
  - Radiation dose fraction of cosmic radiation

- No Negative Affect on State Economy
  - Oil & Gas: Drilling, Fracking, Disposal Wells
  - Ranchers & Farmers
HI-STORM UMAX Construction
Controlled Low-Strength Material
Pours Complete
Rebar for Top Pad
HI-STORE Site Layout

- Initial Storage Capacity: 500 canisters
- Total Storage Capacity: 10,000 canisters
- Facility utilizes 300 of 1,000 acres available
- Operations could commence in 2024
Transportation to HI-STORE

- Well-developed rail infrastructure
- HI-STORE 3.8 miles west of BNSF spur – Intrepid North
- Casks move by rail and remain on rail car until on HI-STORE facility
Transportation to HI-STORE

- Teamed with Edlow International
  - ✔ Founded in 1957. 100 clients in 50 countries.
  - ✔ Transports radioactive material using all modes of transportation.

- Regulations in place to transport Spent Nuclear Fuel
  - ✔ Department of Transportation:
    - Regulates shippers of hazardous material
    - Oversees vehicle safety, shipper training, emergency response, routing, shipping documents
  - ✔ Nuclear Regulatory Commission:
    - Approves Shipping Containers: Design, fabrication, operation, and maintenance
    - Regulates Physical Protection of shipments

- Transportation Plan
  - ✔ Transportation study to designate rail routes – Late 2020
  - ✔ Federal Railway Administration
    - 2 years to inspect and upgrade rails (if necessary)
    - Upgrade not expected – Cooper E80 loading greater than railcar loading (28 / 35 / 40)

- Public Outreach to Local Governments along NM rail routes
  - ✔ No concern from First Responders
  - ✔ Trained for radionuclides (Hospitals, Commercial X-Ray Sources, etc.)
Transportation to HI-STORE

- Transport Casks:
  - ✔ Designed by Holtec / Licensed by NRC
  - ✔ HI-STAR 190 primary means

- Transportation: Unit Train Consist
  - ✔ Two locomotives - Redundancy
  - ✔ Buffer Railcar – Protect Security and Engineers
  - ✔ One or More Cask Railcars – Expect 10 Cask Railcars
  - ✔ Rail Escort Vehicle
    - Safety Monitoring System – Reduce Derailments from Equipment Failures
    - Security (Classified)
Transportation: HI-STAR Cask

- Transport Casks
  - Safely confine fuel and shield workers and public from radiation
  - Multiple layers of steel, lead, and other materials

- Inside cask SNF is contained in another sealed canister

- Fully loaded casks can weigh 125-210 tons

Holtec Transport Cask
NRC Licensing Process


NRC Adjudicatory Hearings (ASLBP) (January 2019)

We Are Here

NRC*: BLM and NMED Coordinating Agencies
ASLBP: Atomic Safety and Licensing Board Panel
HI-STORE CISF Project Timeline

- Draft Environmental Impact Statement: Mar 2020
- Public Hearings: Apr-May 2020
- Submit Final RAI Responses: Sep 2020
- Final Environmental Impact Statement: Mar 2021
- Safety Evaluation Report: Mar 2021
- Construction Start: 2021
- Construction Complete: 2023
- Accept First Shipment: 2023
Providing a National Solution

- National Imperative:
  - ✔ Dispersed SNF across Nation
  - ✔ Cost to Every Taxpayer

- SE New Mexico Excellent Location
  - ✔ Land Characterized for GNEP
  - ✔ Geologically Stable, Arid, Remote
  - ✔ Robust scientific & nuclear workforce

- No Affect to General Public or State Economy:
  - ✔ Ranchers, Farmers, Oil & Gas

- Financial Benefits to New Mexico
  - ✔ $3B Capital Investment
  - ✔ 100 Operations & 100 Construction Jobs
  - ✔ $25M/yr Operating Costs
  - ✔ $15M-$25M/yr Revenue Sharing w/State
  - ✔ Manufacturing Facility: 150 Jobs
Questions?