



## **HI-STORE CISF:**

# ***A Consolidated Interim Storage Facility for Spent Nuclear Fuel in Southeast New Mexico***

**September 2019**

# Consolidated Interim Storage

## ■ Topics

- ✓ Who is Holtec?
- ✓ What is Spent Nuclear Fuel
- ✓ National Imperative
- ✓ Project Brief: Safety, Security, Transportation
- ✓ Why Not Status Quo?
- ✓ Licensing & Regulating

# Holtec International

## ■ Core Business Activities

- ✓ Safe & Secure Storage Used Nuclear Fuel
- ✓ Heat Transfer Equipment
- ✓ SMR-160 Delivery
- ✓ Decommissioning Nuclear Plants
- ✓ Consolidated Interim Storage

## ■ Largest US exporter for capital equipment supporting the nuclear industry

## ■ **116** nuclear plants worldwide: **65** domestic, **51** international

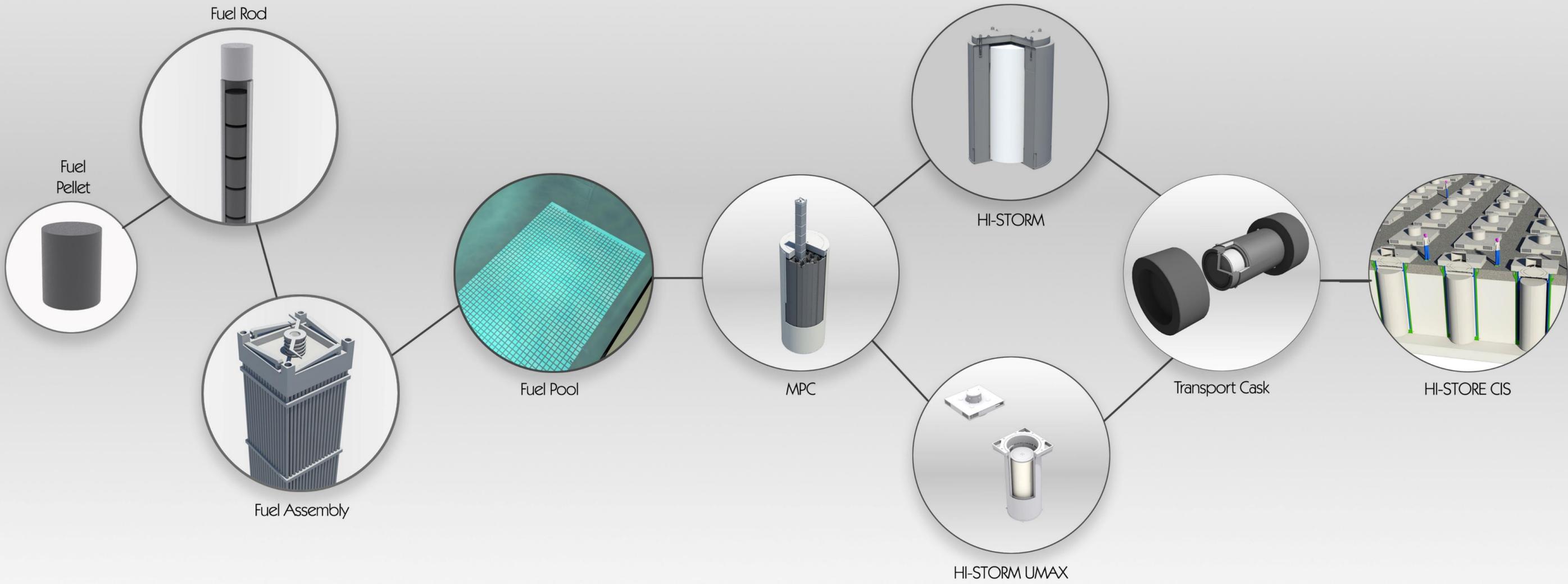
## ■ Over **60,000** SNF assemblies loaded / **1,300+** Holtec systems loaded

A vertically integrated turnkey supplier of goods and services to the power generation industry since in 1986

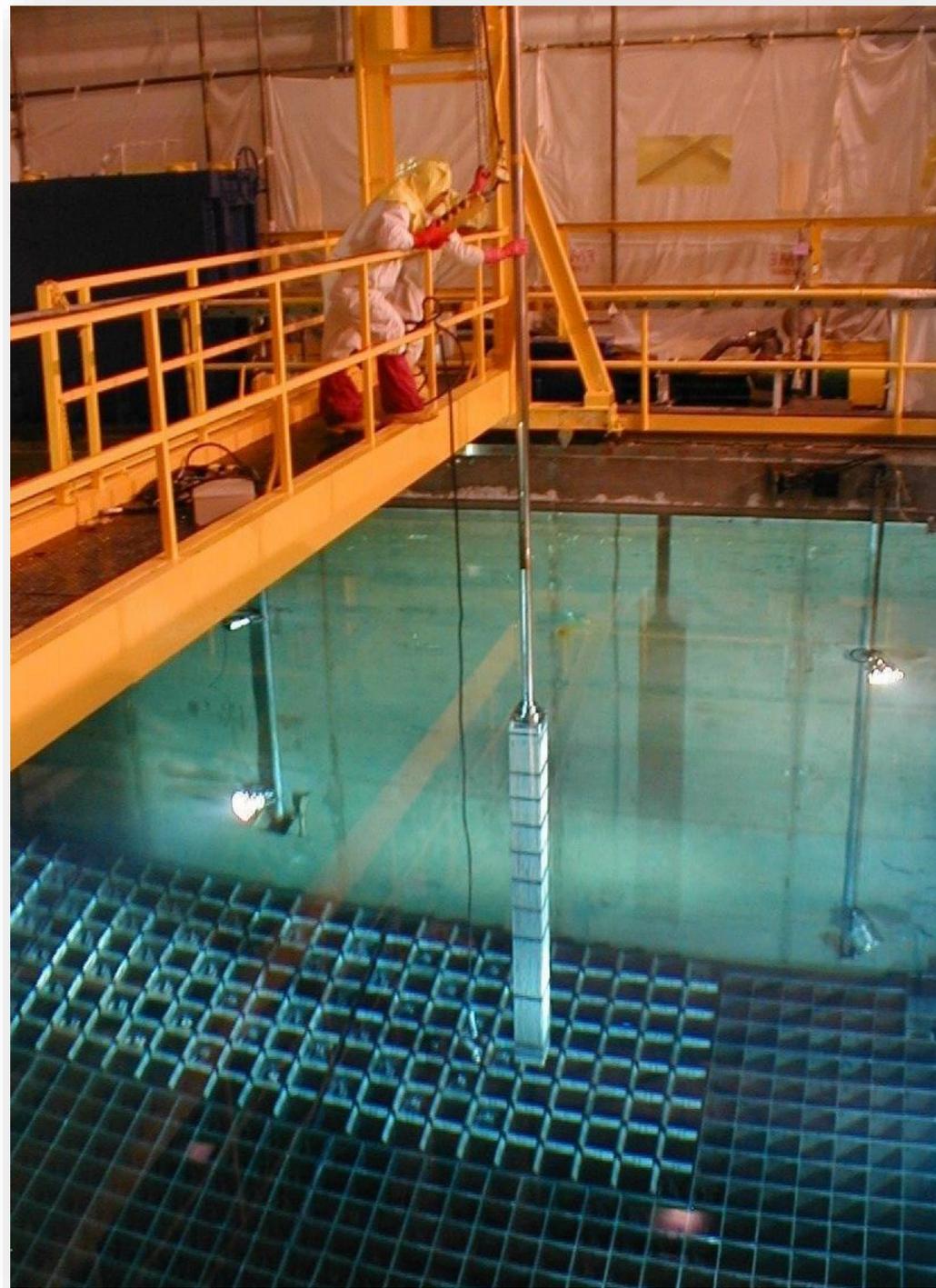




# Nuclear Fuel & How it is Stored



# How Nuclear Fuel is Stored



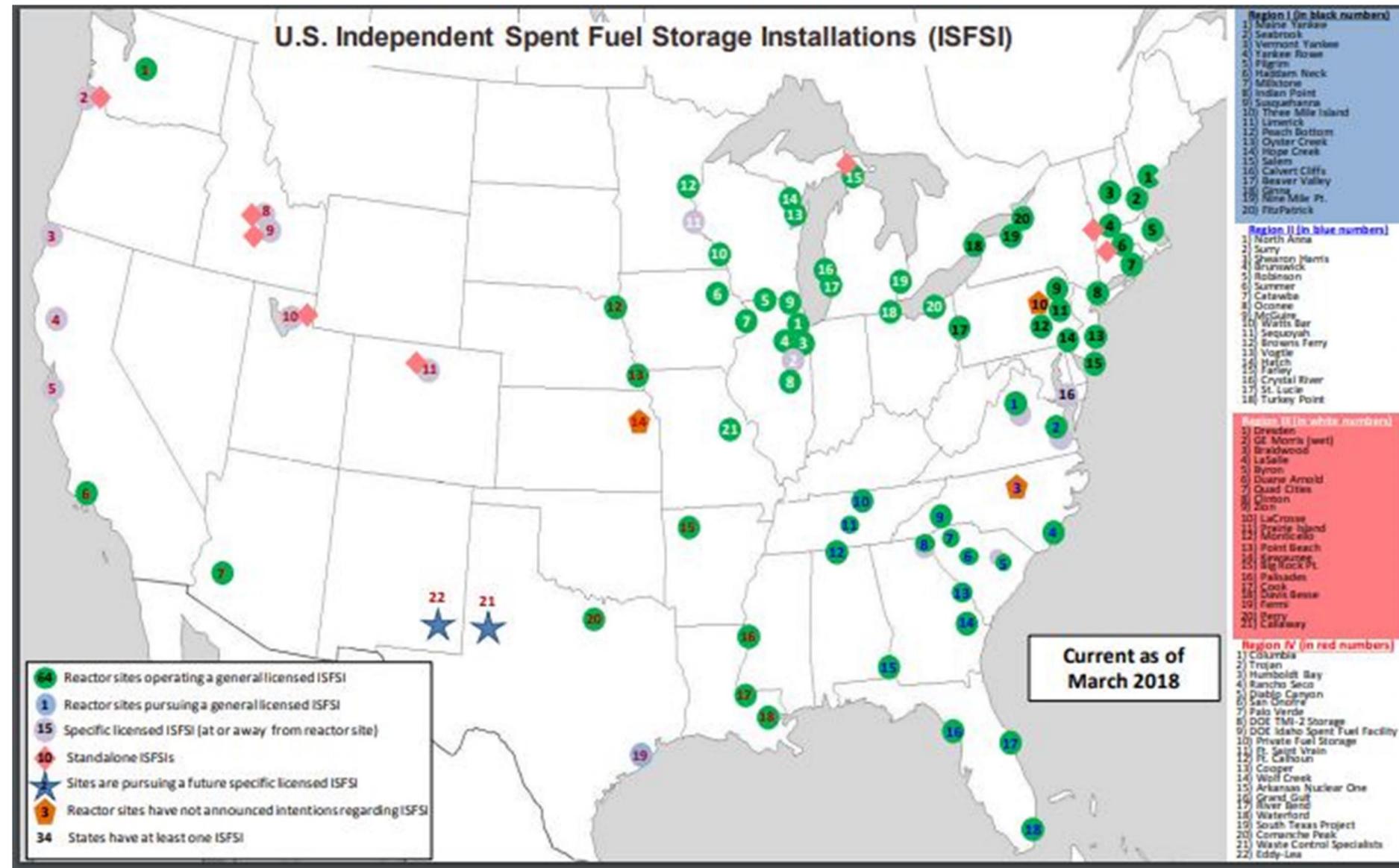
Wet Storage



Dry Storage

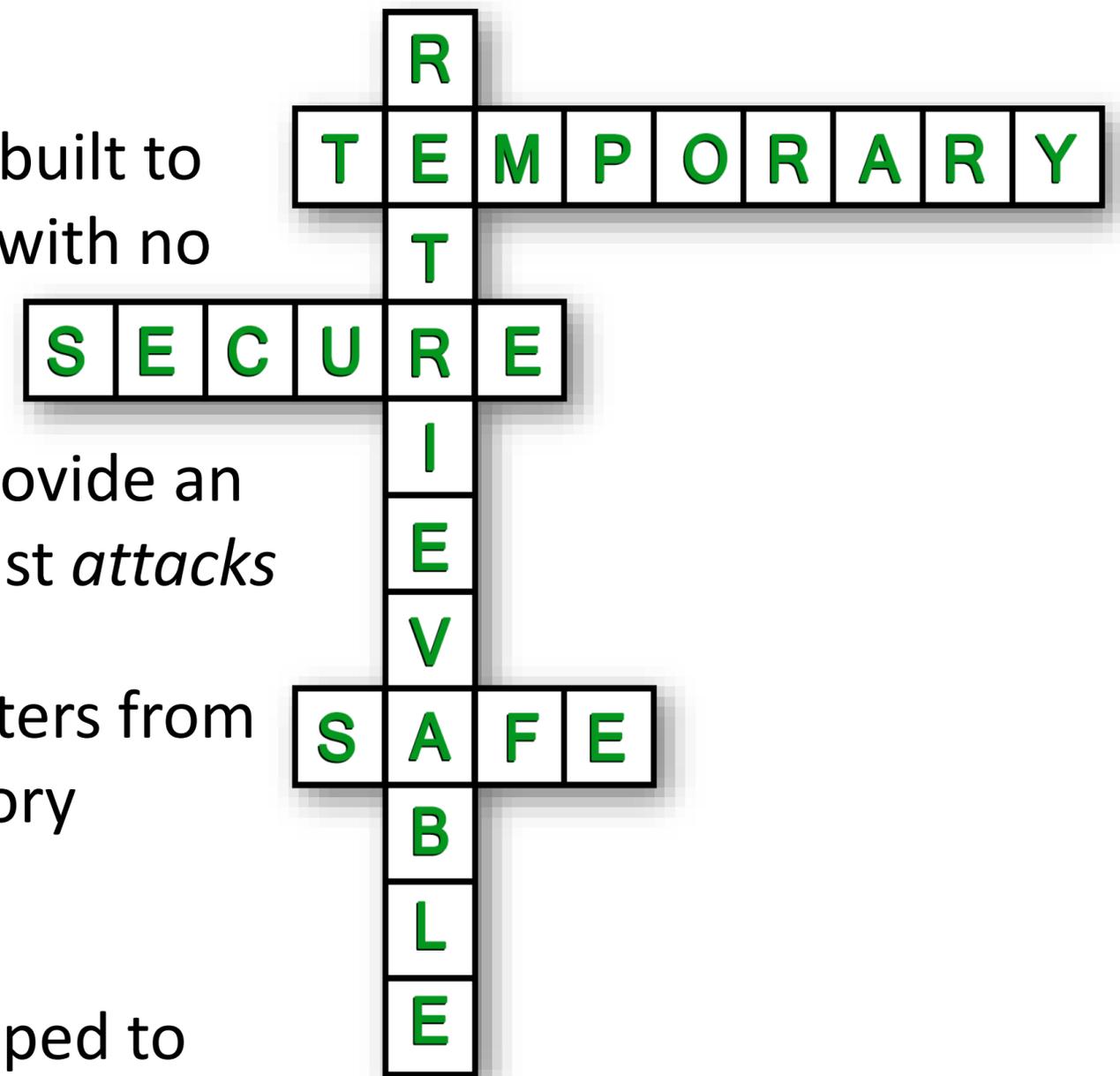
# National Imperative

- **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

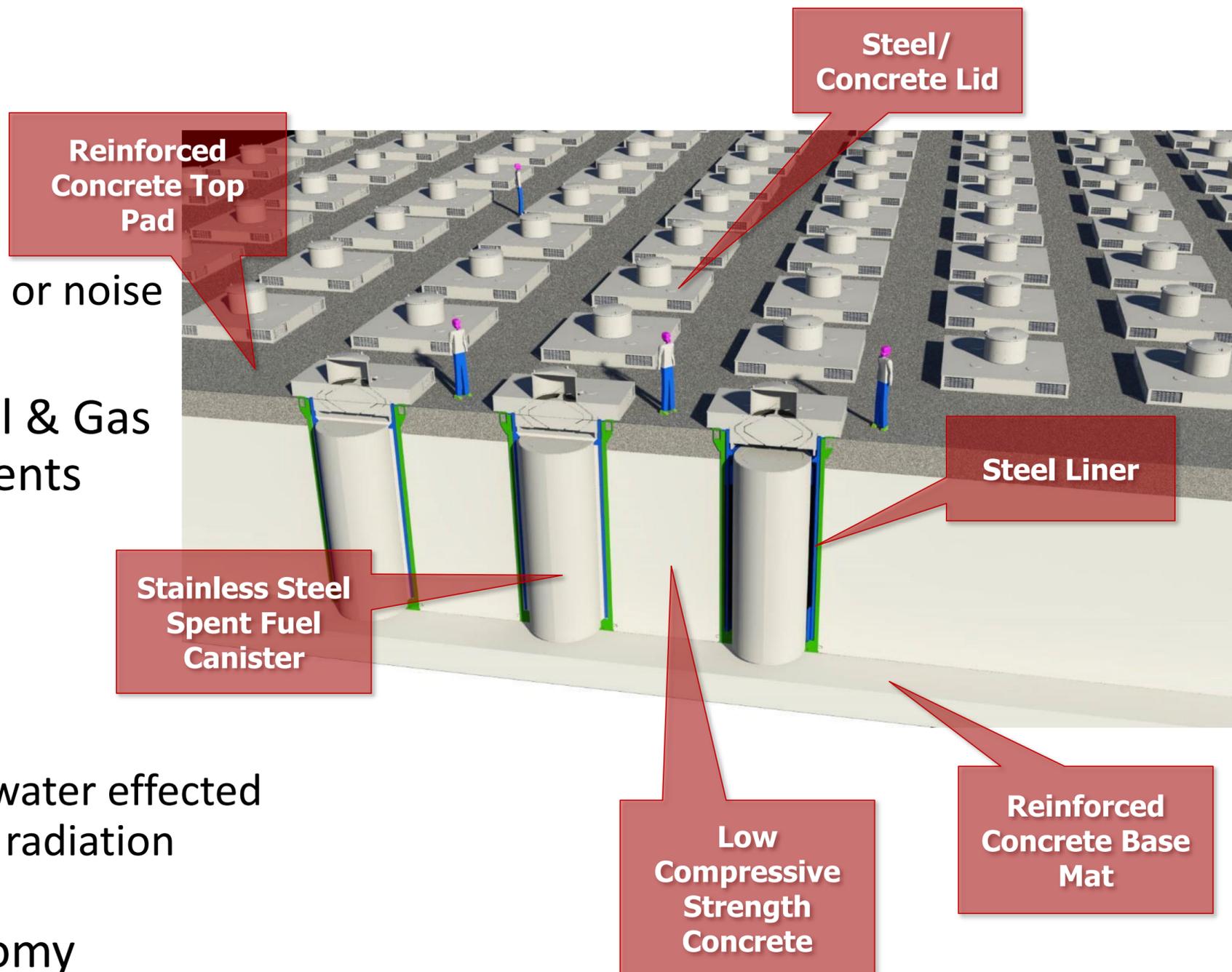
## ■ Maximum Security: NRC DBT

## ■ No Affect on Environment

- ✓ No minerals, aquifers, or ground water effected
- ✓ 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



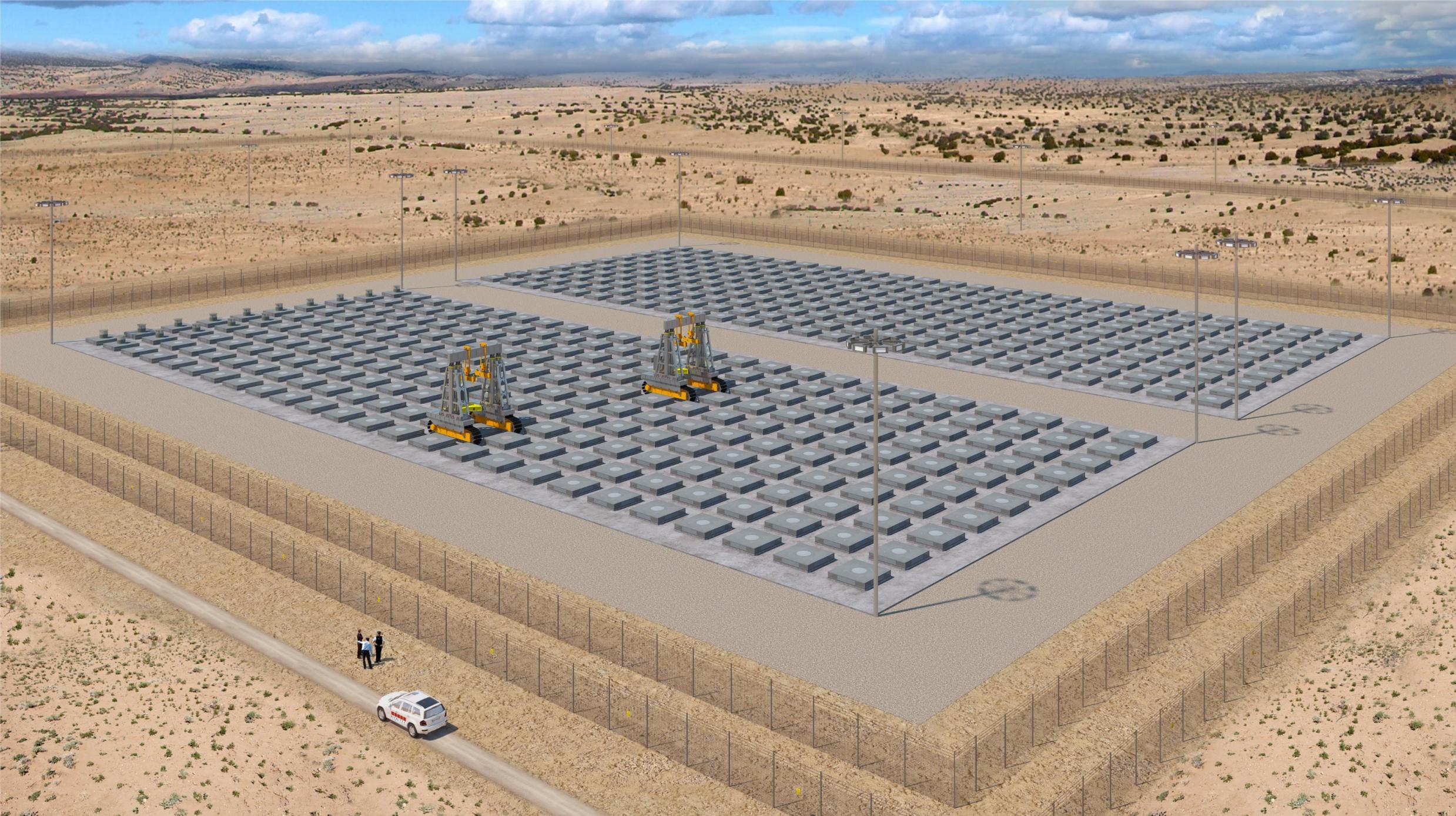
# Rebar for Top Pad



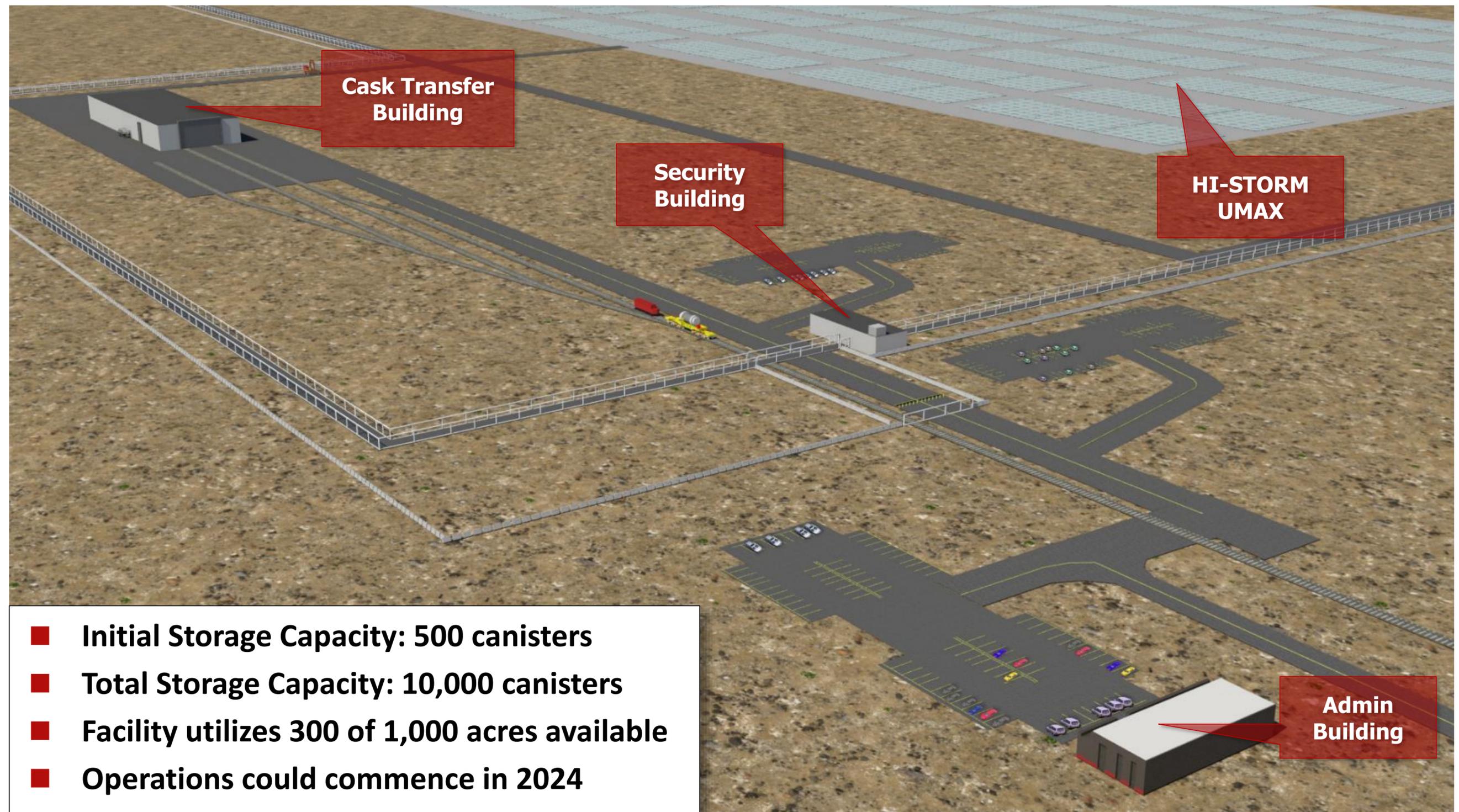
# HI-STORM UMAX Loaded



# Phase 1: 500 HI-STORM UMAXs



# 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

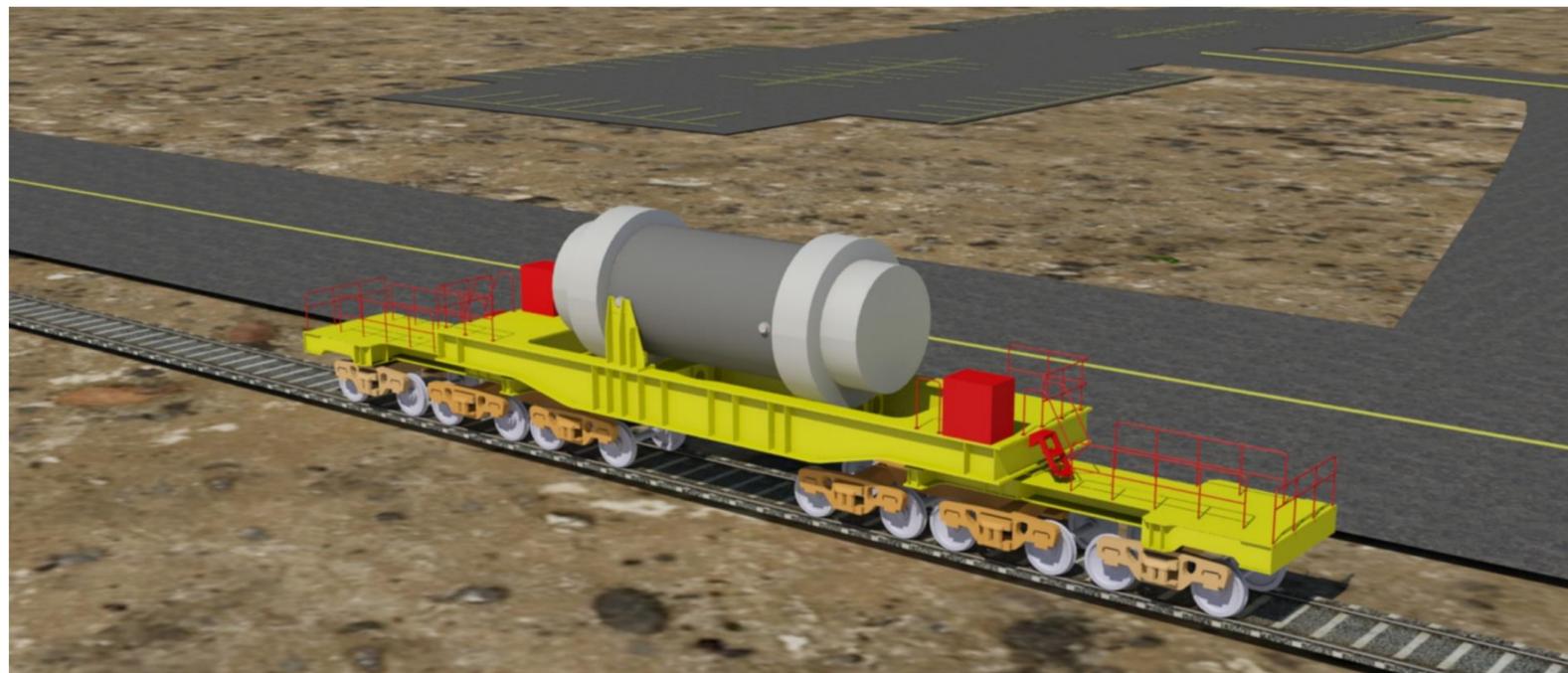
# Transport to HI-STORE

- Local area has 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



# Transport to HI-STORE

- Transportation of radioactive material including Spent Nuclear Fuel is strictly regulated
  - ✓ Nuclear Regulatory Commission and the U.S. Department of Transportation
- Two transport cask types will be used which were designed by Holtec and licensed with the NRC
  - ✓ HI-STAR 190 and HI-STAR 100MB



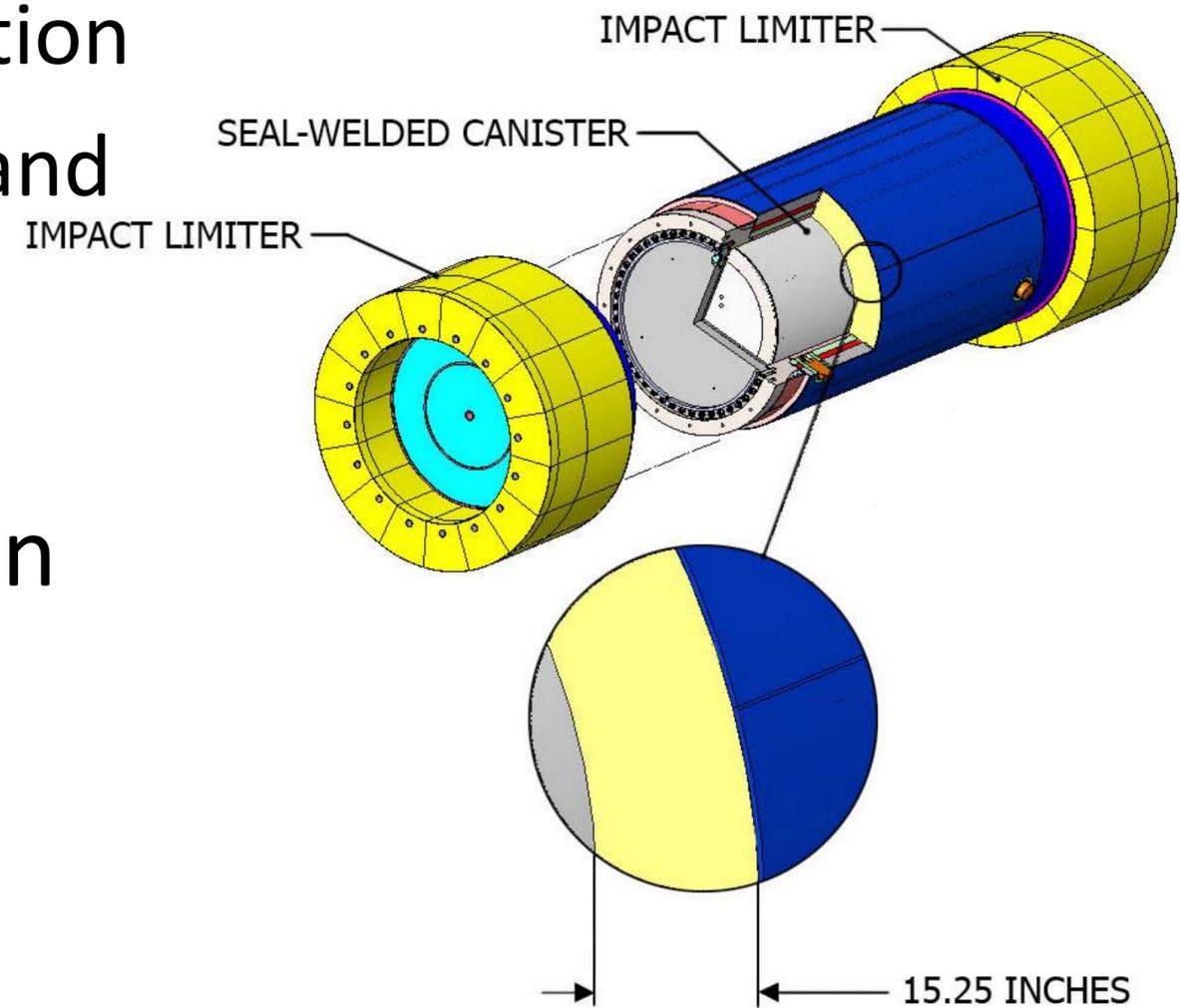
# Transport to HI-STORE

## ■ 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 weigh 125 tons or more for rail shipments



Holtec Transport Cask

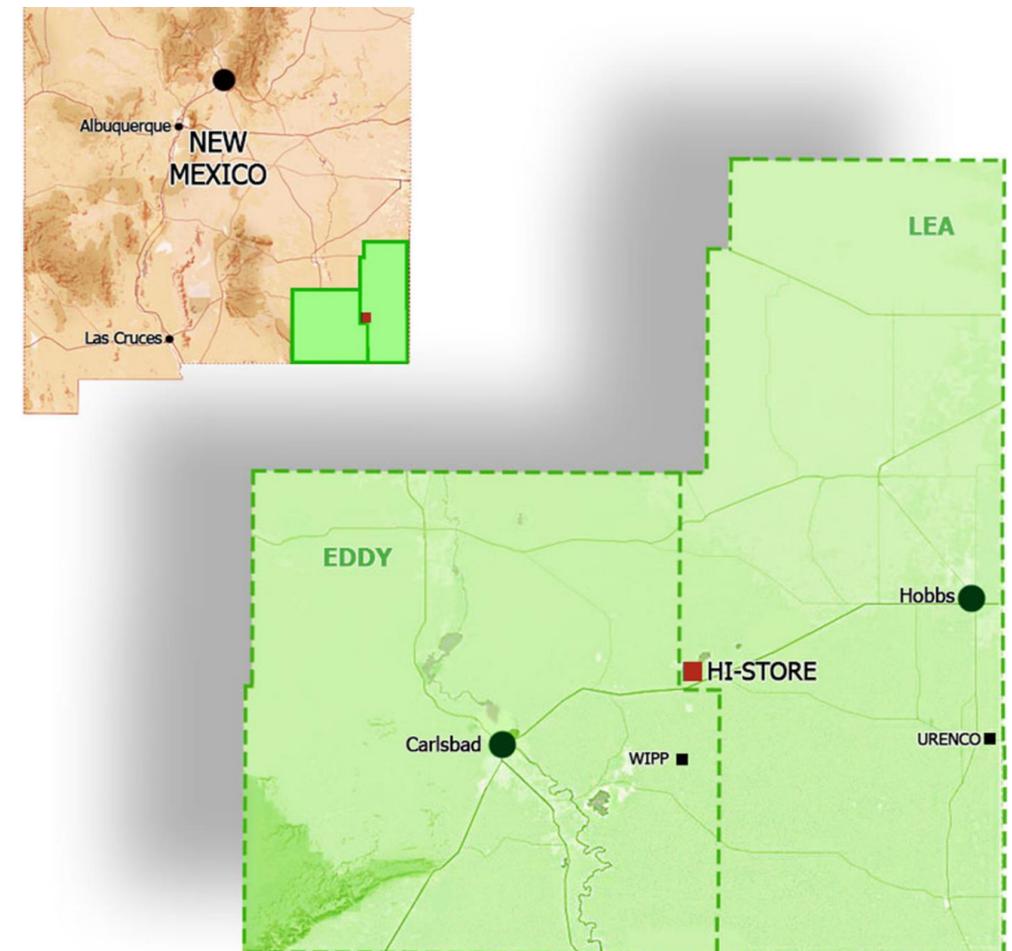
# Cask Design Robust & Proven Safe

- Designed to protect public from releases of radioactive material in the unlikely event of an accident
- Must survive four successive accident conditions:
  - ✓ free drop, puncture, fire, and submersion in water

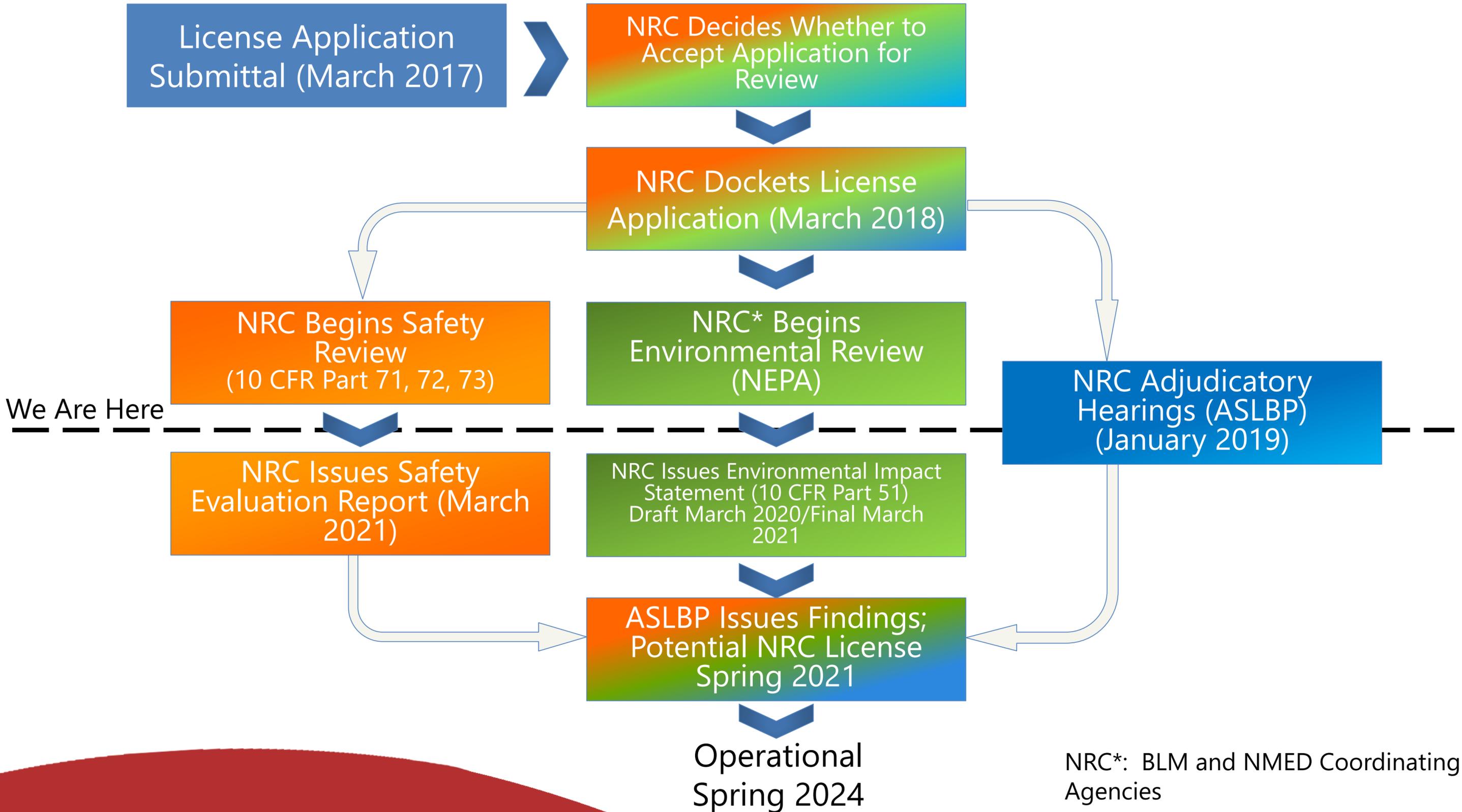


# Why Not Status Quo?

- National Imperative:
  - ✓ Dispersed SNF
  - ✓ 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
  - ✓ \$25M/yr Operating Costs
  - ✓ \$15M-\$25M/yr Revenue Sharing w/State
  - ✓ 100 Operations & 100 Construction Jobs



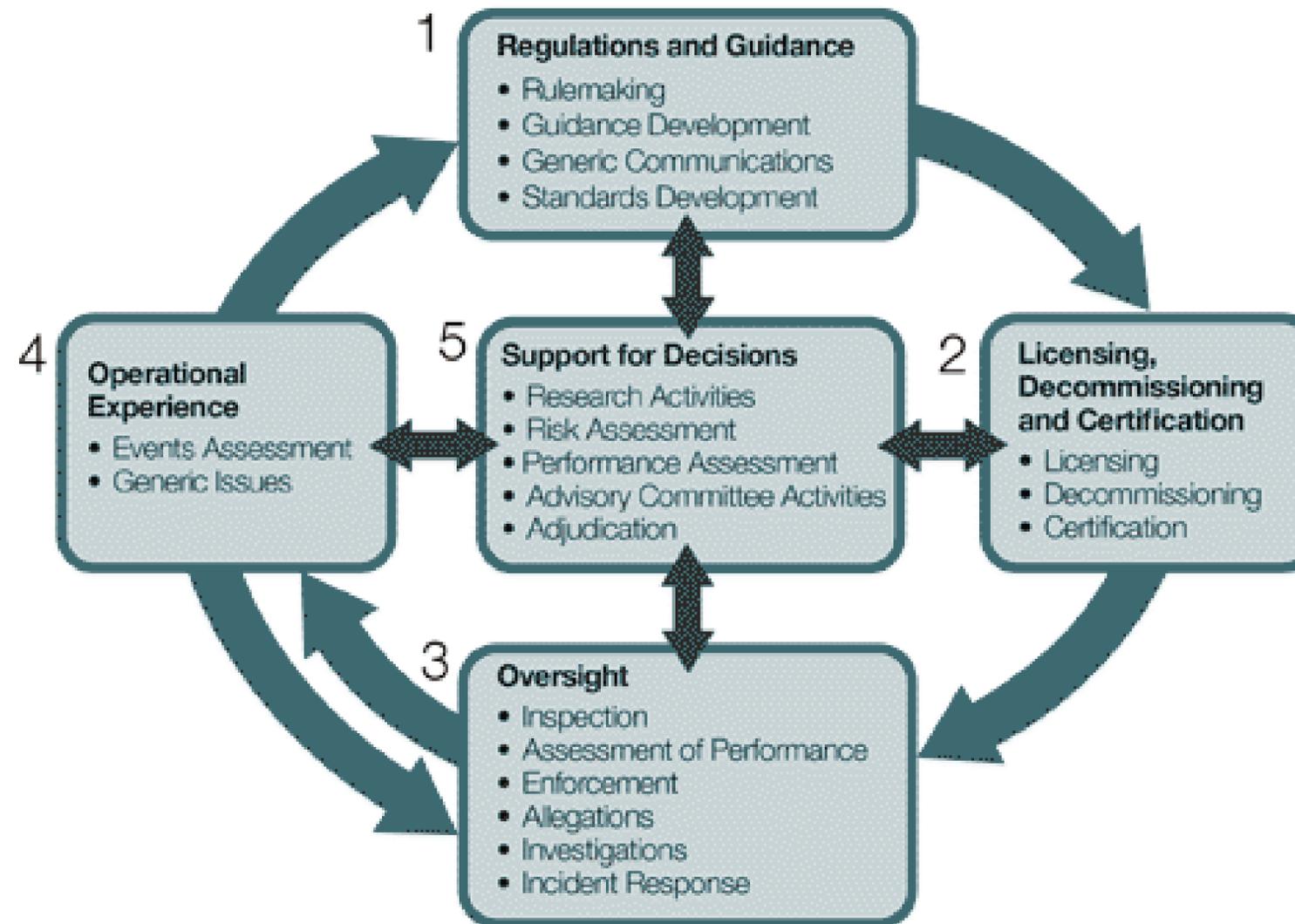
# NRC Licensing Process



NRC\*: BLM and NMED Coordinating Agencies

ASLBP: Atomic Safety and Licensing Board Panel

# NRC Facility Regulation



1. Developing regulations and guidance for applicants and licensees.
2. Licensing or certifying applicants to use nuclear materials, operate nuclear facilities, and decommission facilities.
3. Inspecting and assessing licensee operations and facilities to ensure licensees comply with NRC requirements, responding to incidents, investigating allegations of wrongdoing, and taking appropriate followup or enforcement actions when necessary.
4. Evaluating operational experience of licensed facilities and activities.
5. Conducting research, holding hearings, and obtaining independent reviews to support regulatory decisions.

# Regulation At All Levels of Government

## ■ Federal

- ✓ License Application: NRC (BLM & NM Coordinating Agencies for EIS), Submitted March 31, 2017
- ✓ Land Use Permit (Rail Spur, Co Road 55): BLM, To be submitted September 2019
- ✓ Endangered Species Act: USFWS, Surveys complete, No threatened or endangered species present
- ✓ Permitting Rail Spur: STB, Non-carrier private spur and not under STB jurisdiction

## ■ State

- ✓ National Historic Preservation Act: NM SHPO, Surveys complete, avoidance primary mitigation tool
- ✓ NM Road 243 / Railroad Spur ROW Crossing: NMDOT, Apply once project approved and before construction begins
- ✓ Air Quality Permit: NMED, Apply once project is approved and before construction begins
- ✓ Groundwater Discharge Permit: NMED, Apply once project approved and before construction begins
- ✓ NPDES Construction & Industrial Stormwater Permit: NMED, Apply once project approved and before construction begins
- ✓ Hazardous Waste Generation and Storage Permit: NMED, Apply once project is approved and before construction begins
- ✓ EPA Notification of Hazardous Waste Activity: NMED, Apply for ID number prior to generation of waste during facility construction
- ✓ Petroleum Storage Tank Registration: NMED, Register storage tanks

## ■ Local

- ✓ Co Road 55: Lea Co Road Dept., Road on private land. Landowners informed.

# Questions?



**Ed Mayer**  
**Program Director**

**(856) 797-0900 Ext. 3671**  
**(703) 401-7330**

**[e.mayer@Holtec.com](mailto:e.mayer@Holtec.com)**

**1 Holtec Blvd.**  
**Camden, NJ 08104**