



HI-STORE CISF:

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

**Science & Technology Interim Committee
Hobbs, New Mexico
September 1, 2022**

Consolidated Interim Storage



✓ Who is Holtec?

✓ Project Brief:

- Safety
- Security
- Transportation

✓ Licensing Timeline

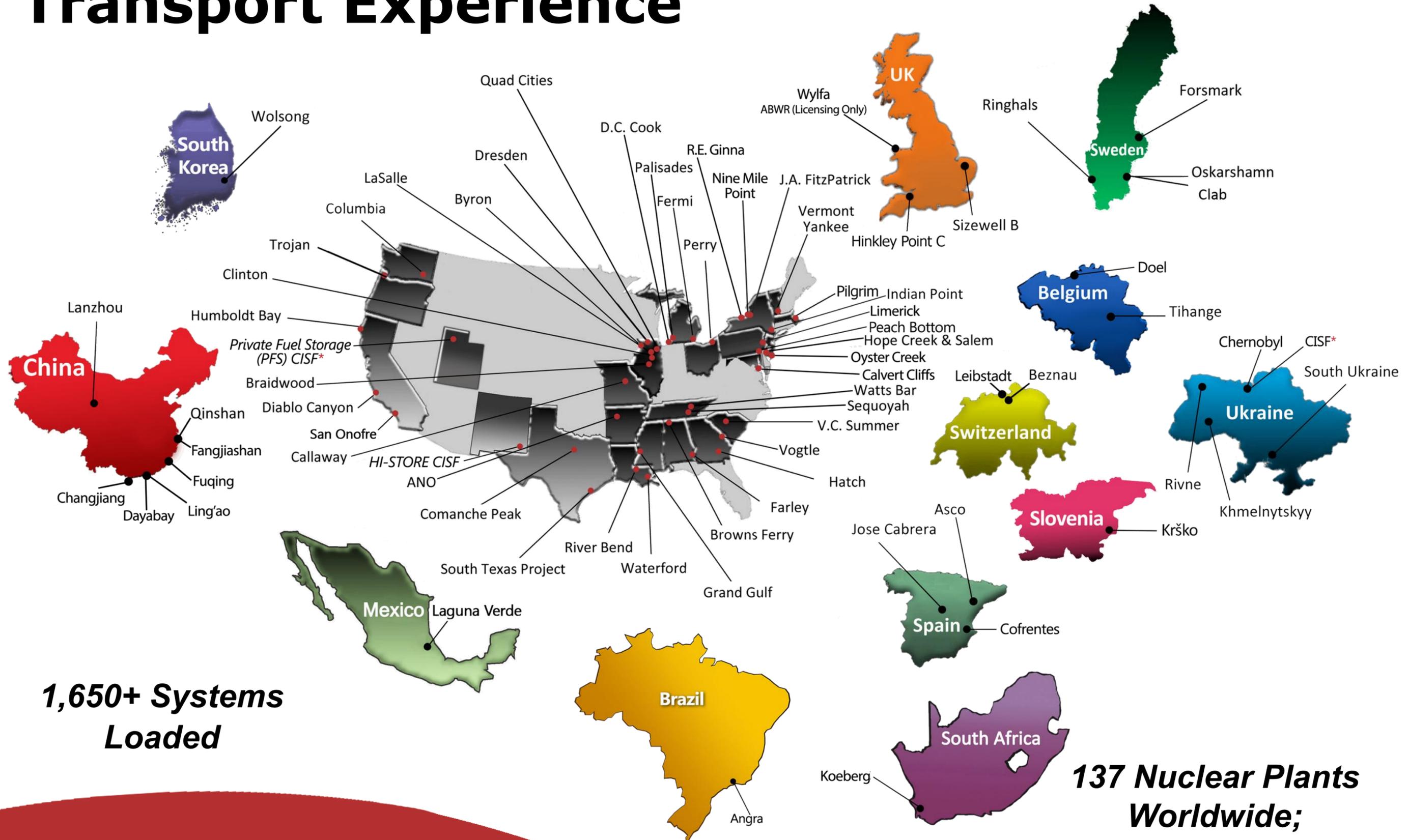
Holtec International

- 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
- **137** nuclear plants worldwide:
74 domestic, **63** international
- Over **60,000** SNF assemblies loaded /
1,650+ Holtec systems loaded

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



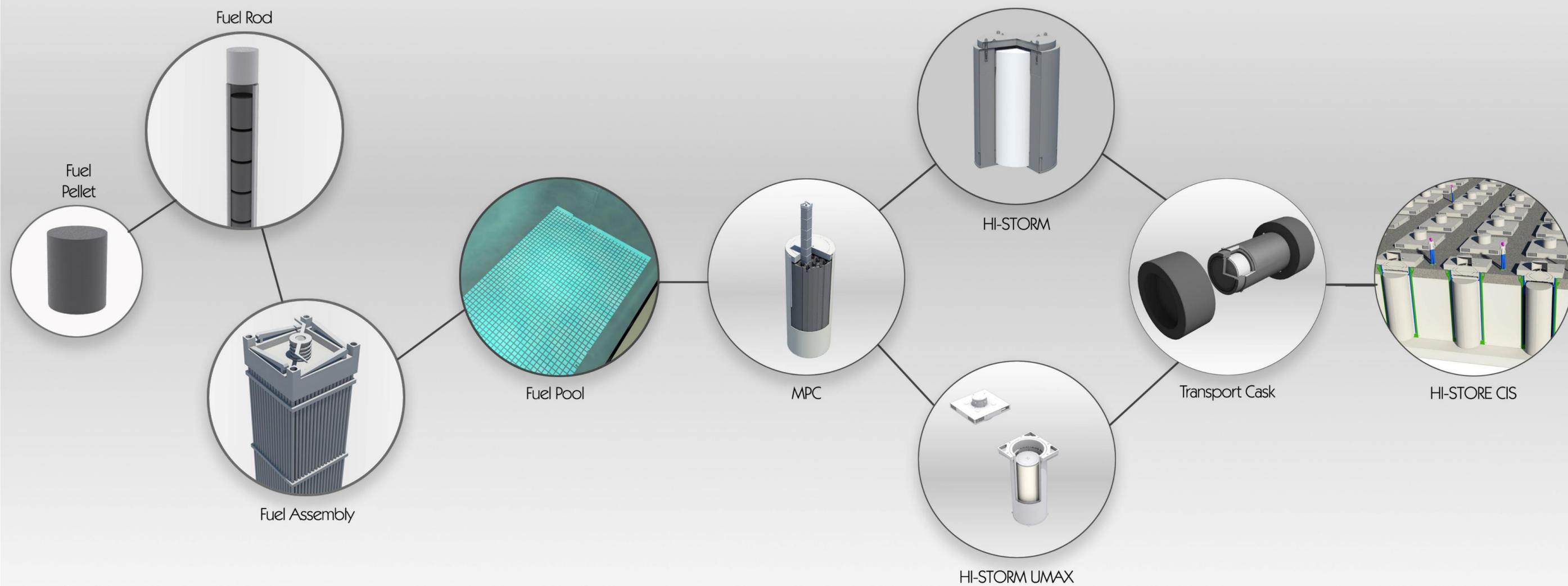
Holtec's Worldwide Dry Storage and Transport Experience



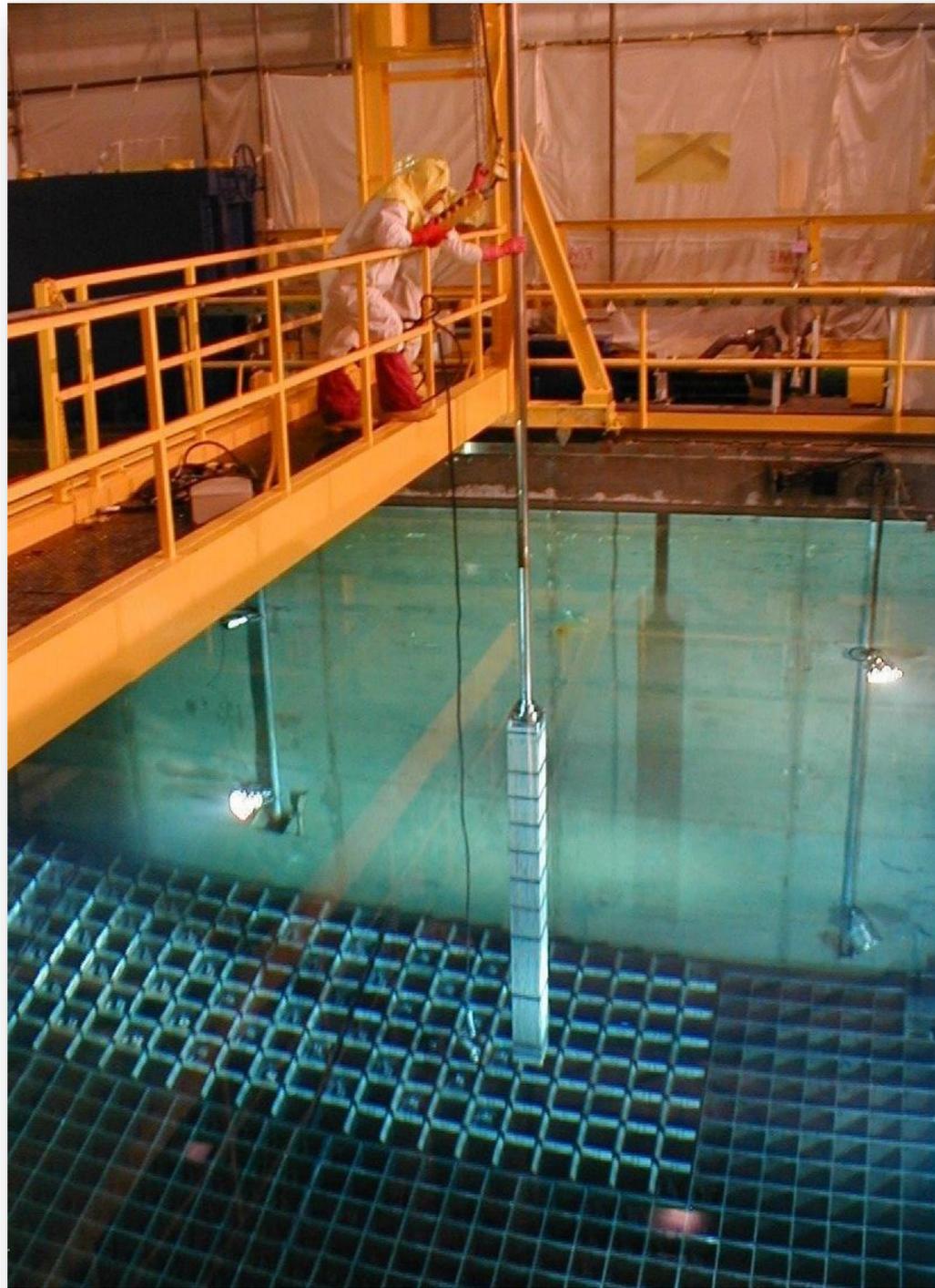
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Nuclear Fuel & How it is Stored



Nuclear Fuel Storage



Wet Storage



Dry Storage

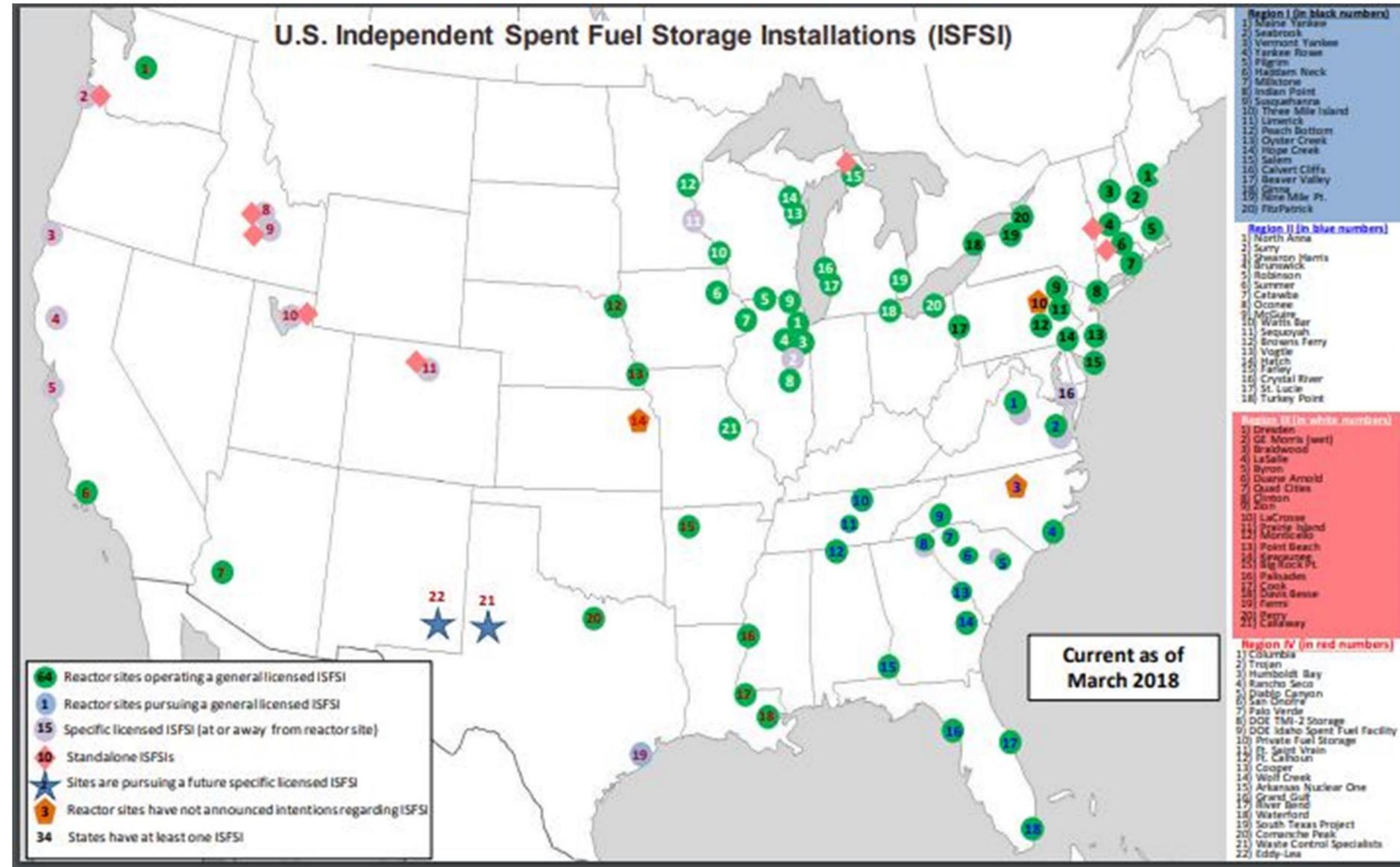
National Imperative

- 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

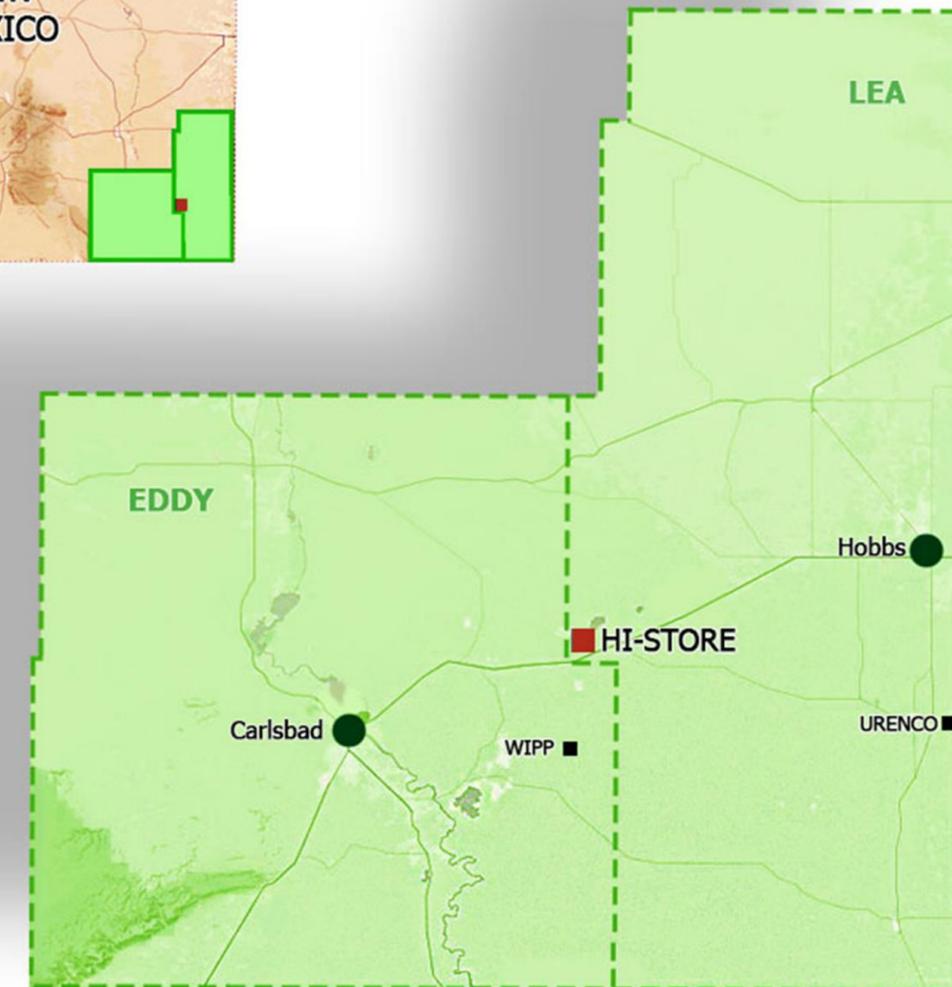
- National Liability
 - ✓ \$800M/yr
 - ✓ \$1.3B/yr beginning 2022
 - ✓ \$6.9B through 2017
 - ✓ \$34.1B Total
 - ✓ U.S. Treasury Judgement Fund

- 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:** *Compliment's* 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

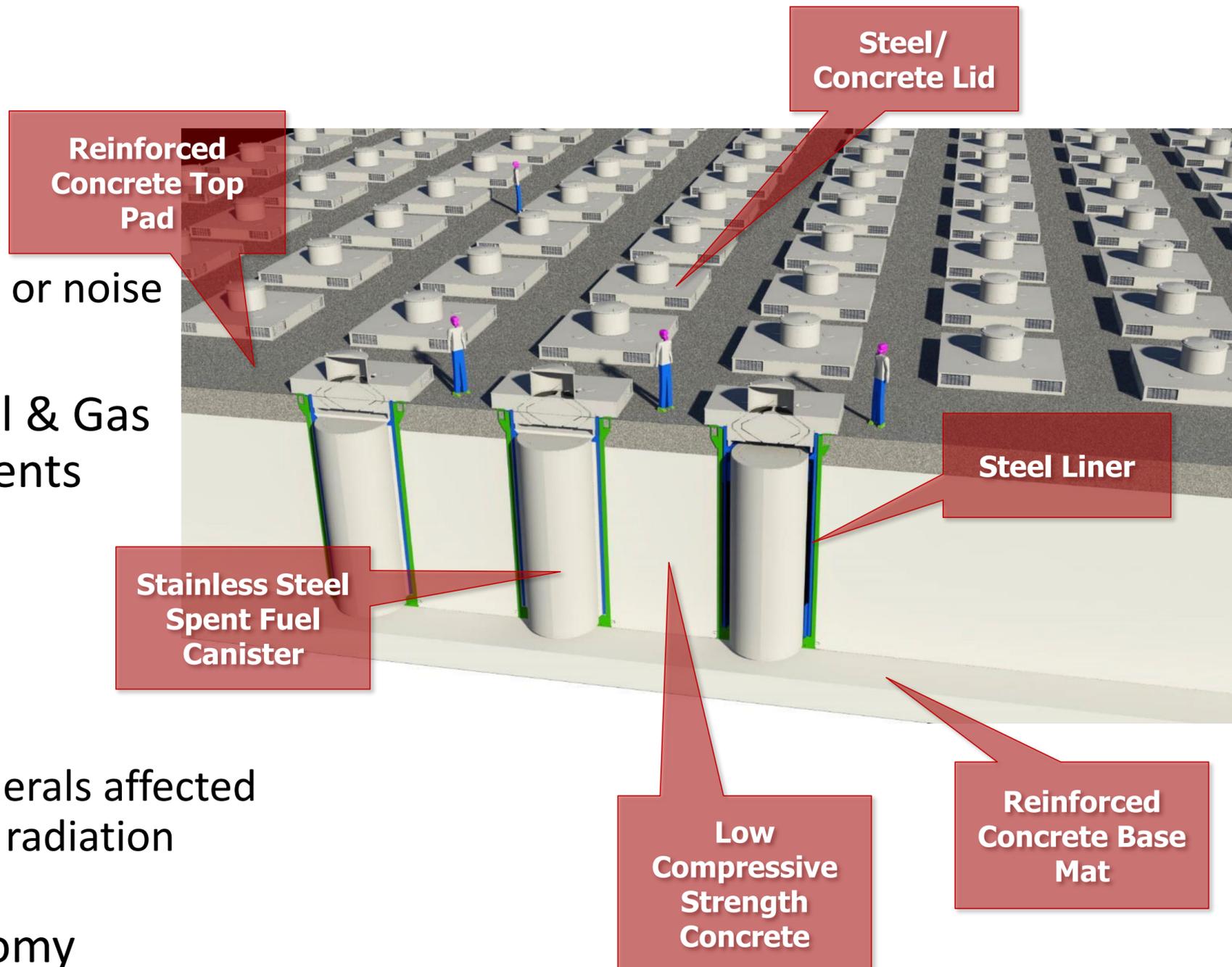
■ Maximum Security: NRC DBT

■ 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



Mentone, Texas – March 26, 2020

Earthquake Metrics

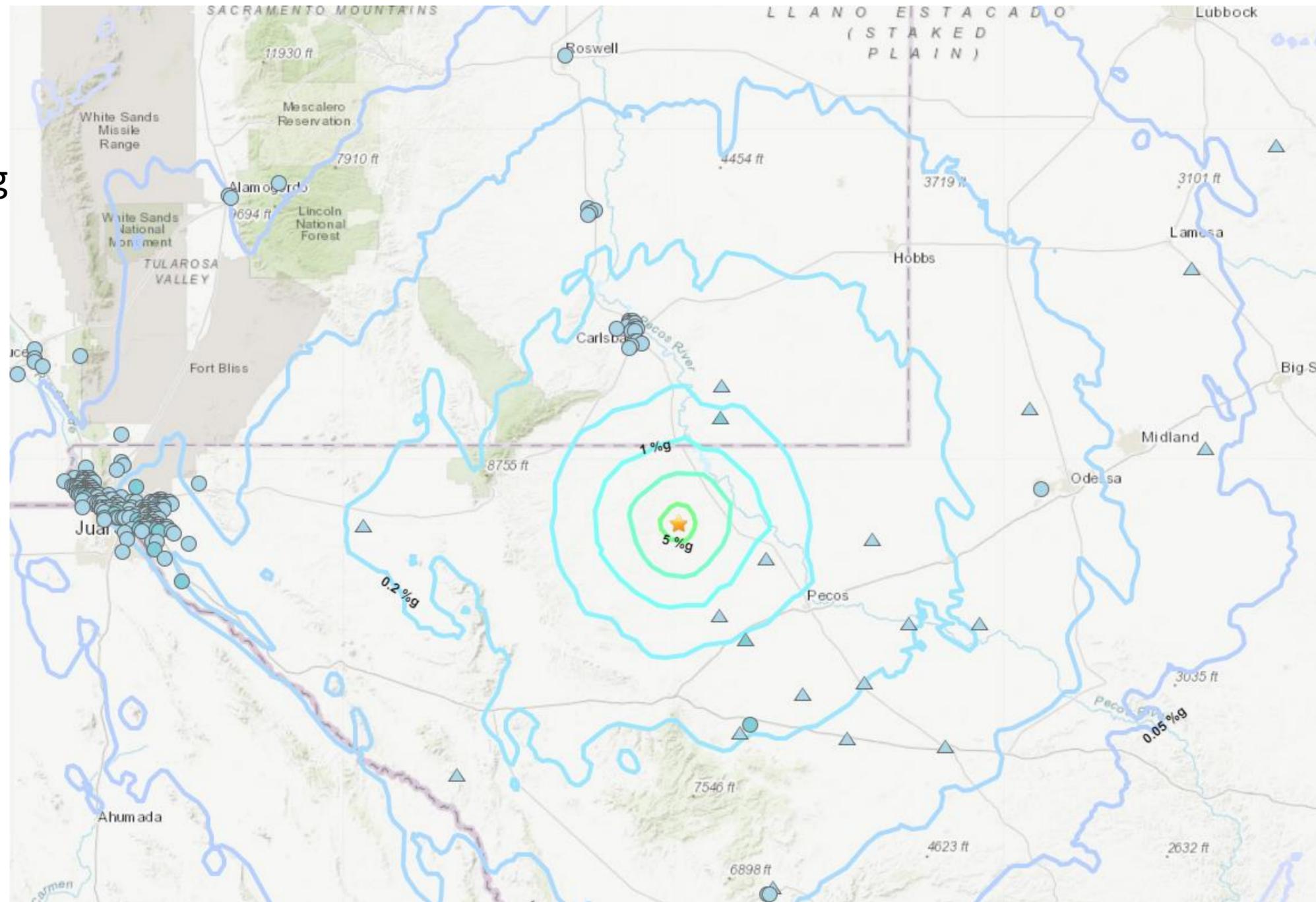
- ✓ 10K Year Return – 0.27g
- ✓ U.S. NRC DBE – 0.45g
- ✓ Proposed CISF – 1.3g

Mentone, TX

- ✓ 5.0 Richter Scale
- ✓ 5%g – 0.05g

Proposed CISF

- ✓ Rated for 1.3g
- ✓ 26x > Mentone, TX

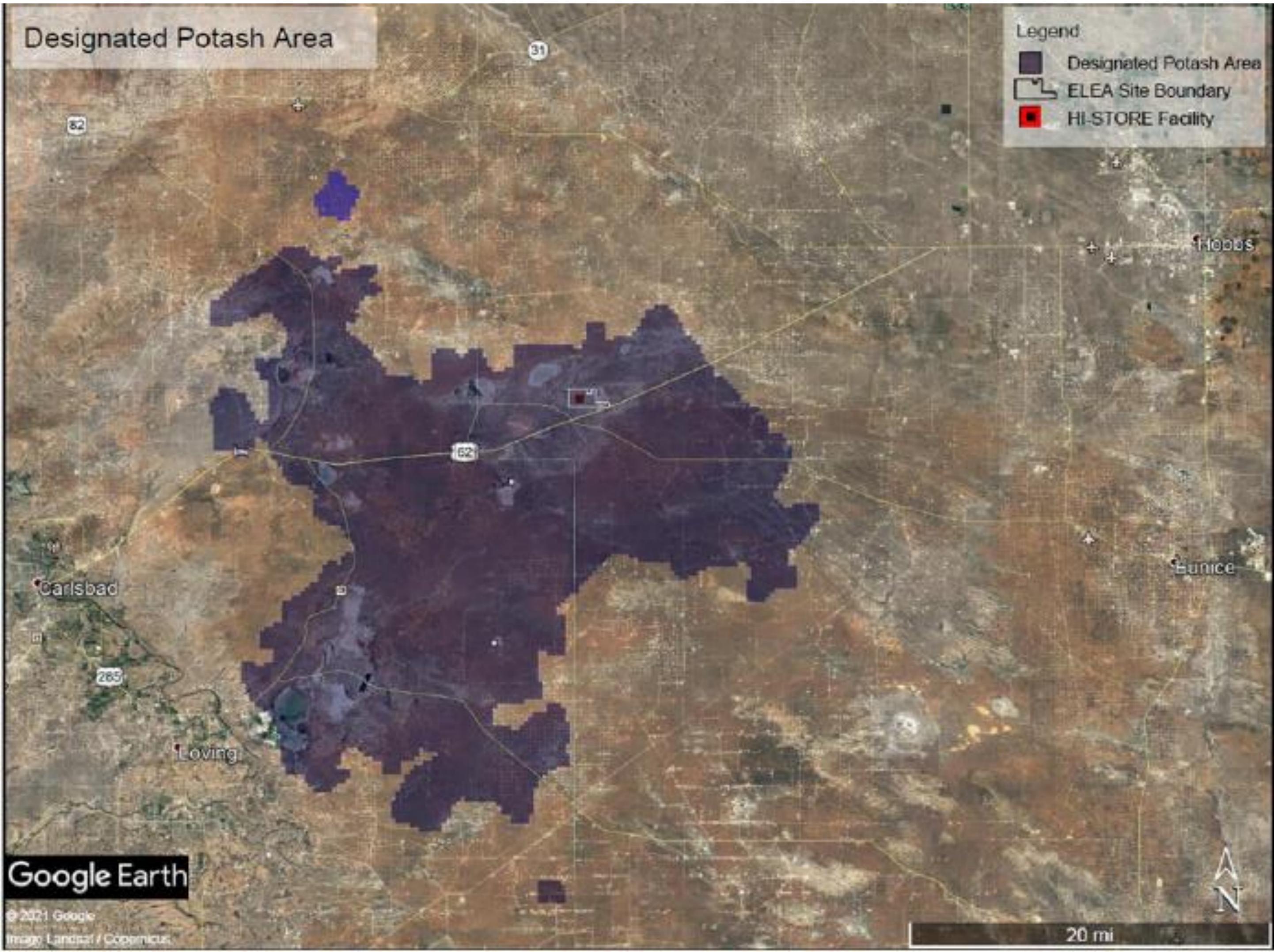


PGA (%g): Peak Ground Acceleration (percent of 1 g-force)

Designated Potash Area

Legend

- Designated Potash Area
- ELEA Site Boundary
- HI-STORE Facility



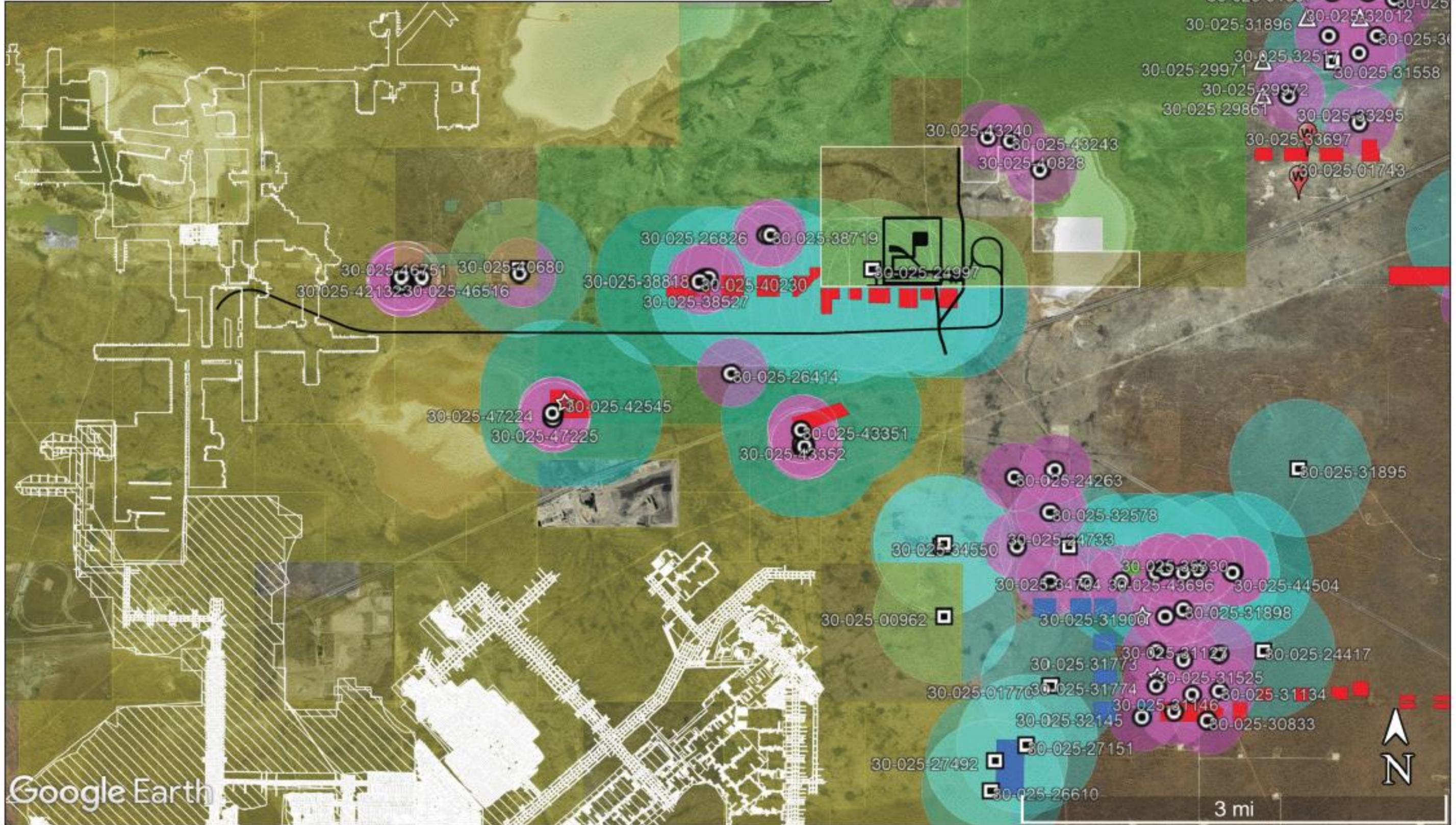
Google Earth

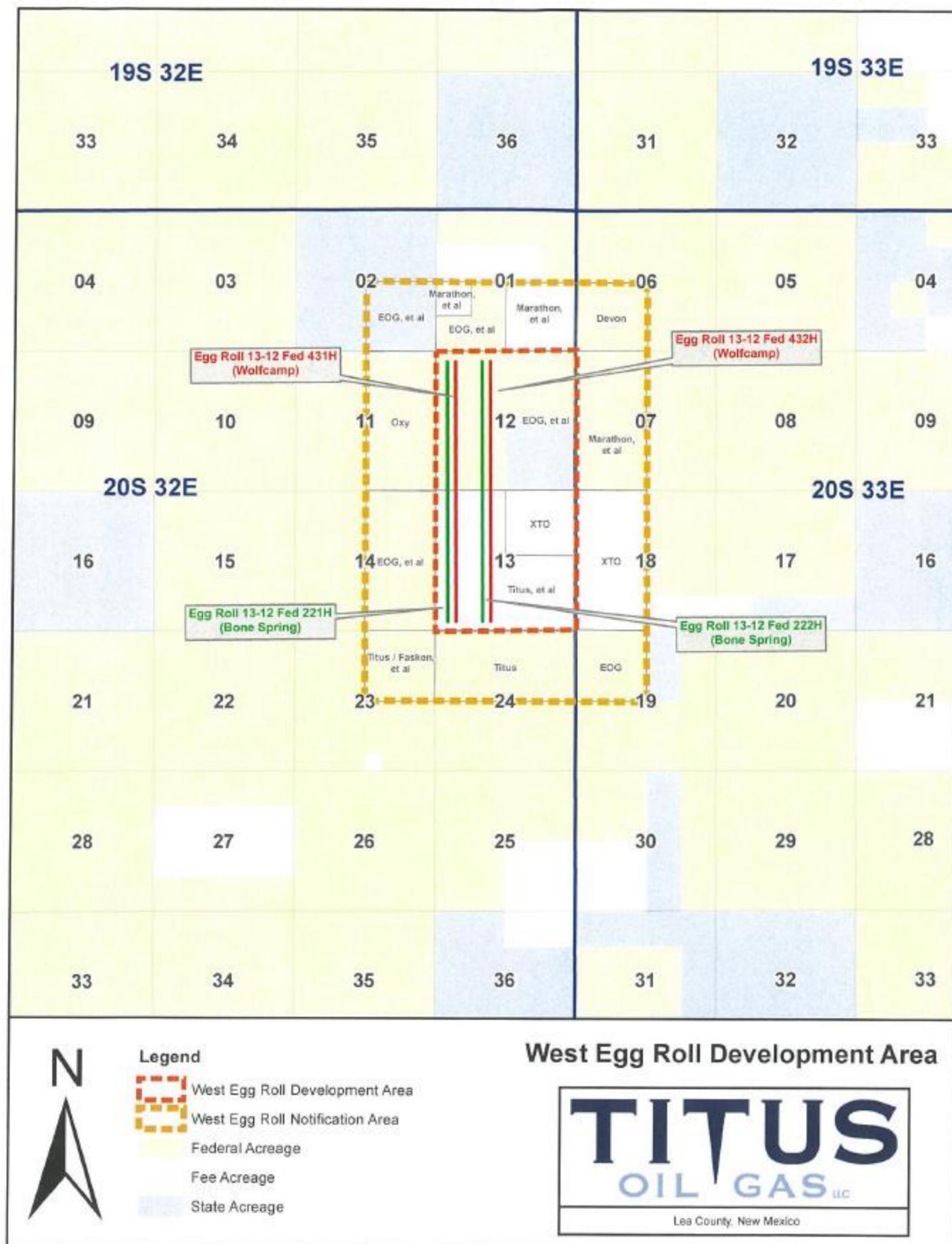
© 2021 Google
Image Landsat / Copernicus

20 mi

-  POTASH MINE WORKINGS
-  BLM POTASH LEASE – INTREPID
-  SLO POTASH LEASE – INTREPID
-  BLM POTASH LEASE – MOSAIC/AG
-  SLO POTASH LEASE – MOSAIC/AG
-  WATER WELL
-  APPROVED DRILL ISLAND
-  GAS WELL
-  OIL WELL
-  INJECTION WELL
-  1/2 MILE BUFFER – GAS
-  1/4 MILE BUFFER – OIL

The Secretary of the Interior (SOI) Order 3324 and the State of New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Commission (EMNRD OCC) Order No. R-111-P.





“All oil and gas reserves will remain available for extraction either by horizontal or vertical drilling during facility construction and operations.”

U.S. NRC NUREG-2237
Final Environmental Impact Statement
Holtec International’s CISF
Lea County, New Mexico

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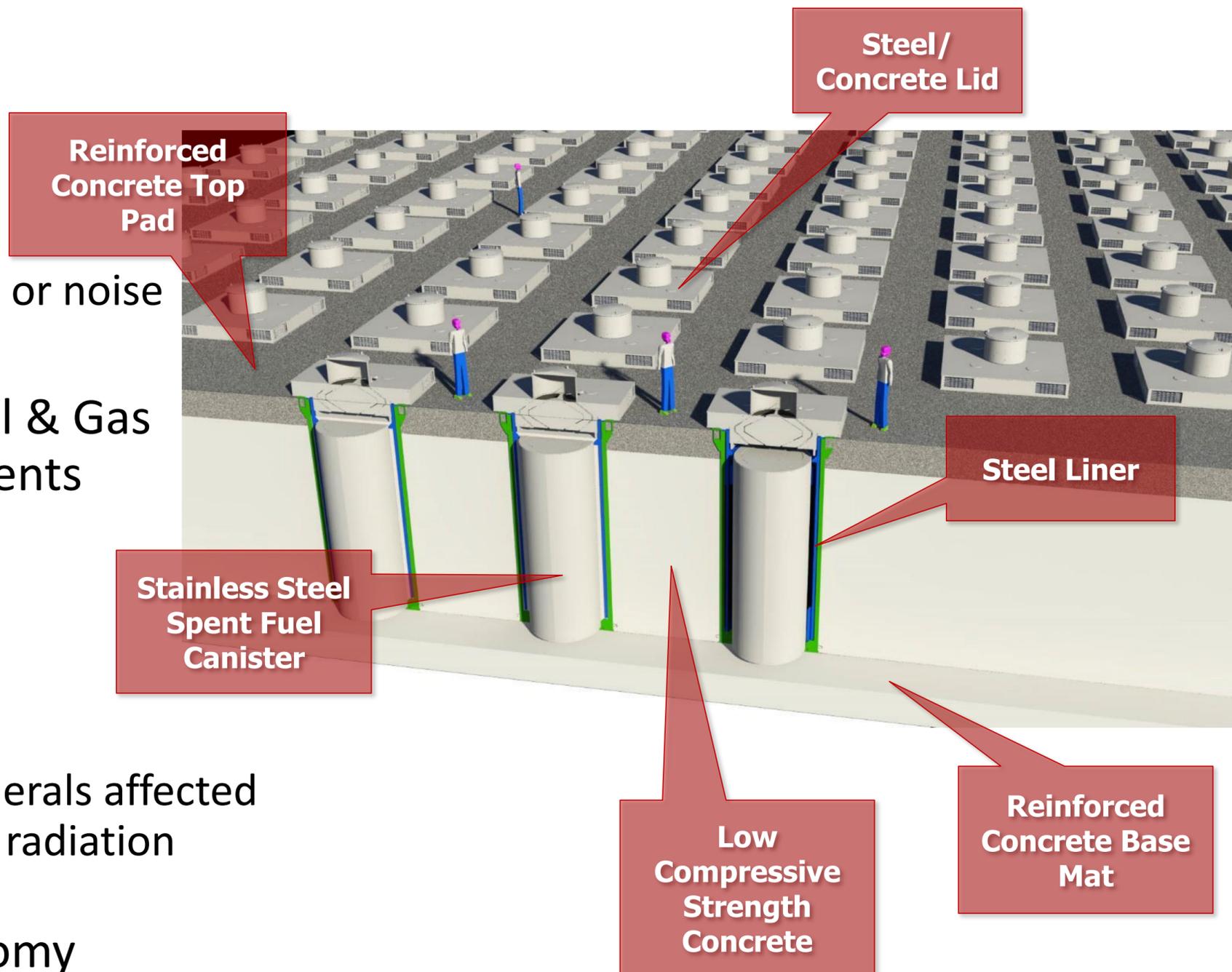
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HI-STORM UMAX Construction



Controlled Low-Strength Material



Pours Complete



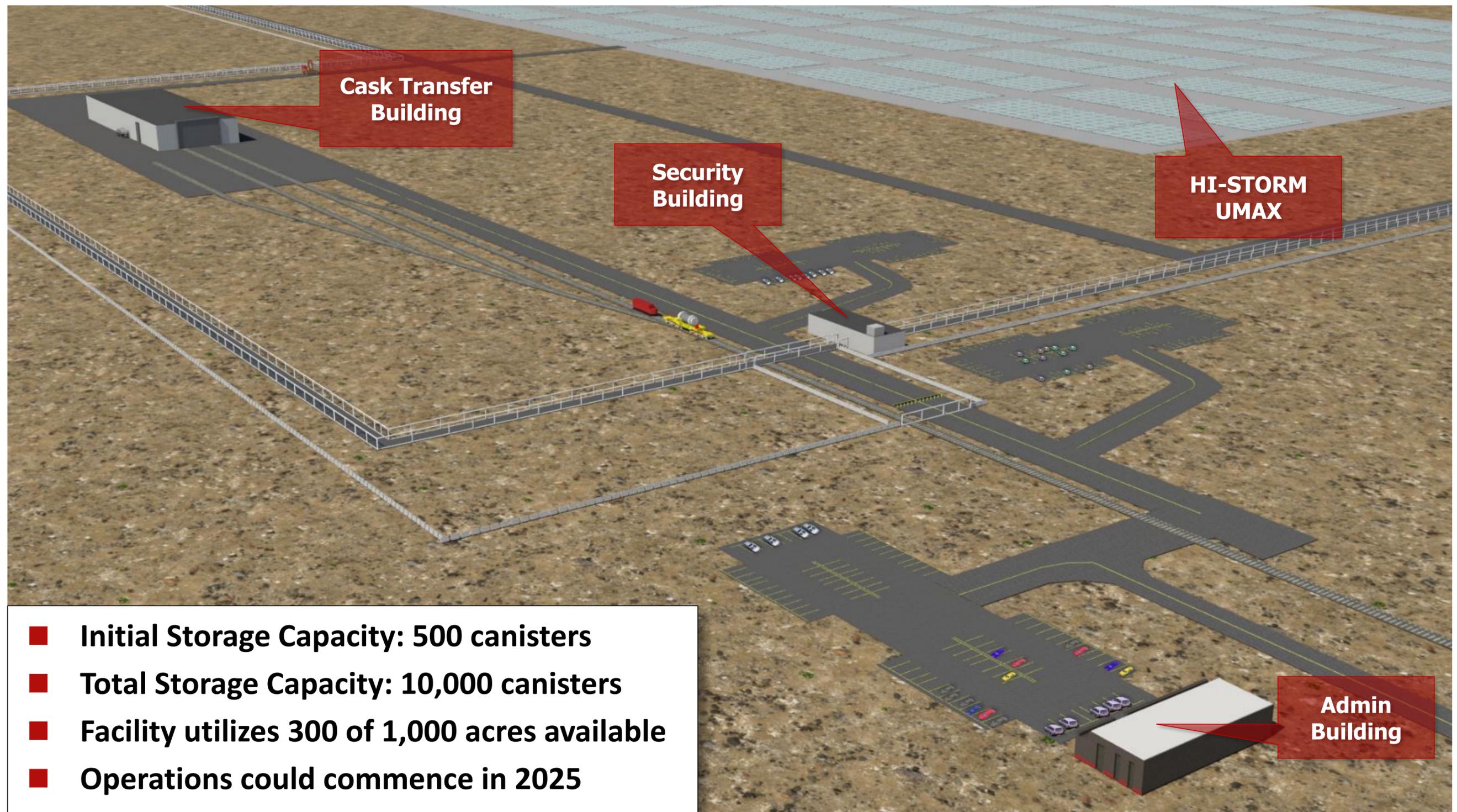
Rebar for Top Pad



HI-STORM UMAX Loaded



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 2025

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

■ Transportation of Spent Nuclear Fuel Strictly Regulated

✓ Department of Transportation:

- Regulates shippers of hazardous material
- Oversees vehicle safety, shipper training, emergency response, routing, shipping documents

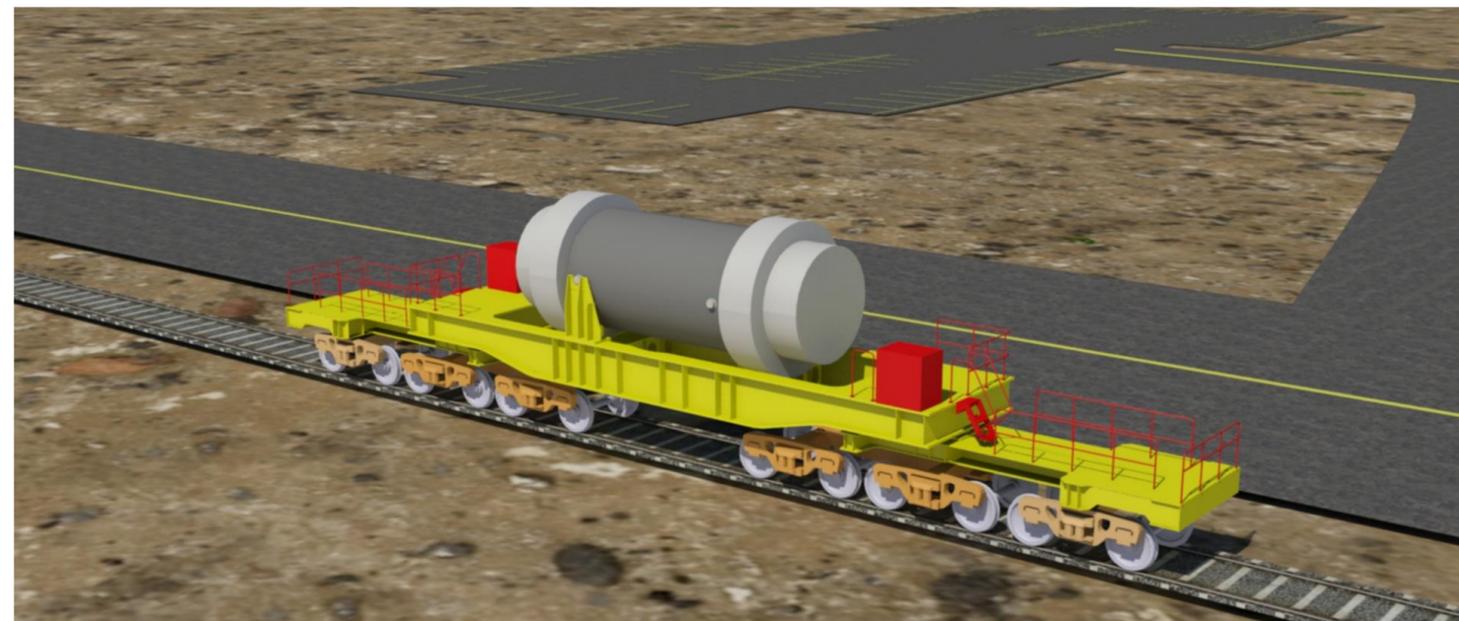
✓ Nuclear Regulatory Commission:

- Approves Shipping Containers: Design, fabrication, operation, and maintenance
- Regulates Physical Protection of shipments

■ Transport Casks: Designed by Holtec / Licensed by NRC

✓ HI-STAR 190 primary means

✓ Other licensed variations based on canister to be shipped



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
 - Wired and Wireless Sensors
 - Monitored in REV and at off-train monitoring center
 - ✓ Security (10 CFR 73.37 / NUREG-0561)

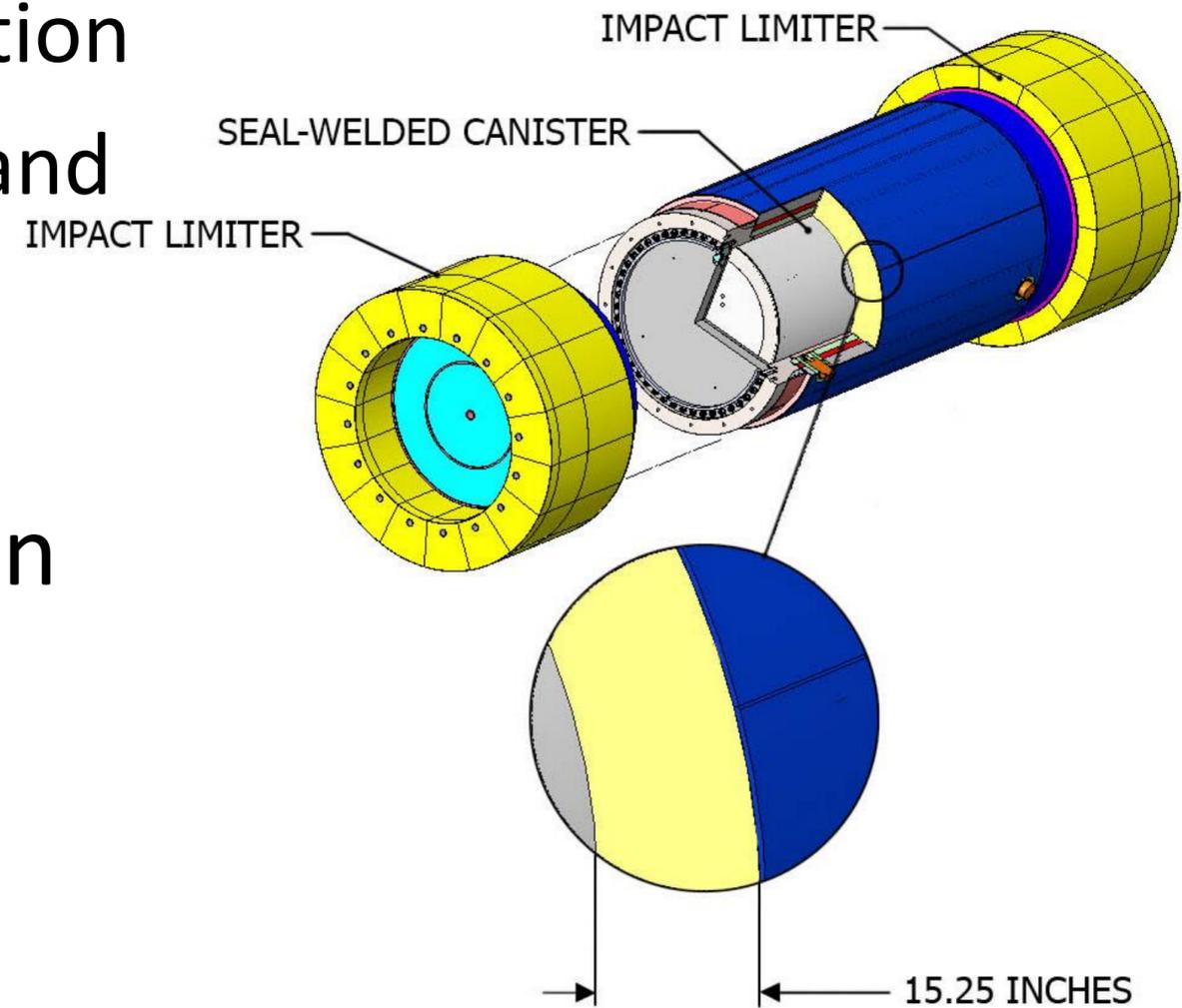
Transportation: HI-STAR Cask

■ 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

Atlas Rail Car with HI-STAR 190XL

■ Railcar with Cask

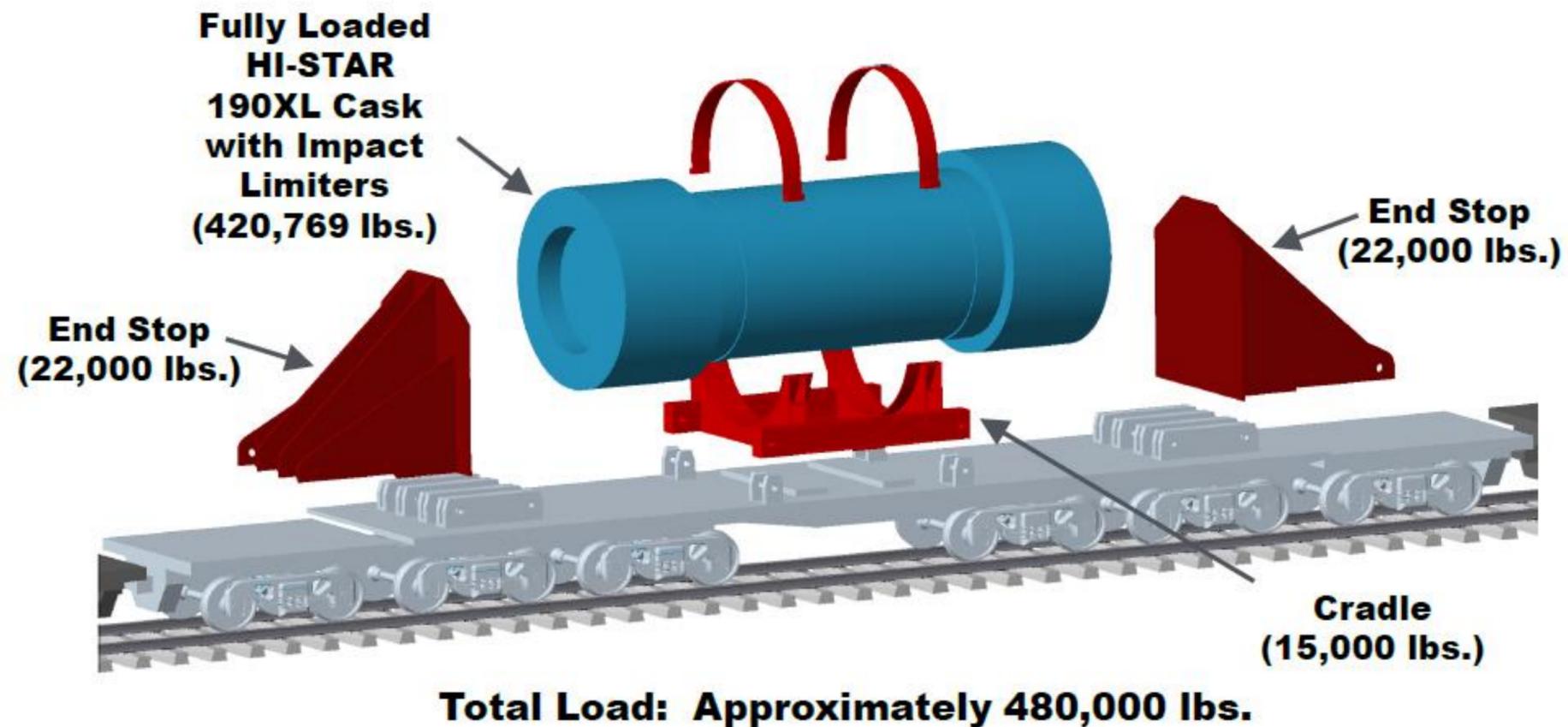
- ✓ Cask w/transport package: 240 tons
- ✓ Railcar: 97.5 tons
- ✓ Total: 337.5 tons
- ✓ 28 tons/axle

■ Dash 9 GE-C44-9W

- ✓ Total: 210 tons
- ✓ 35 tons/axle

■ E80 Rail Rating

- ✓ 40 tons/axle



Cask Design Robust & 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



HI-STAR 180
2.5" vice 5.5" Steel Canister

NRC Licensing Process



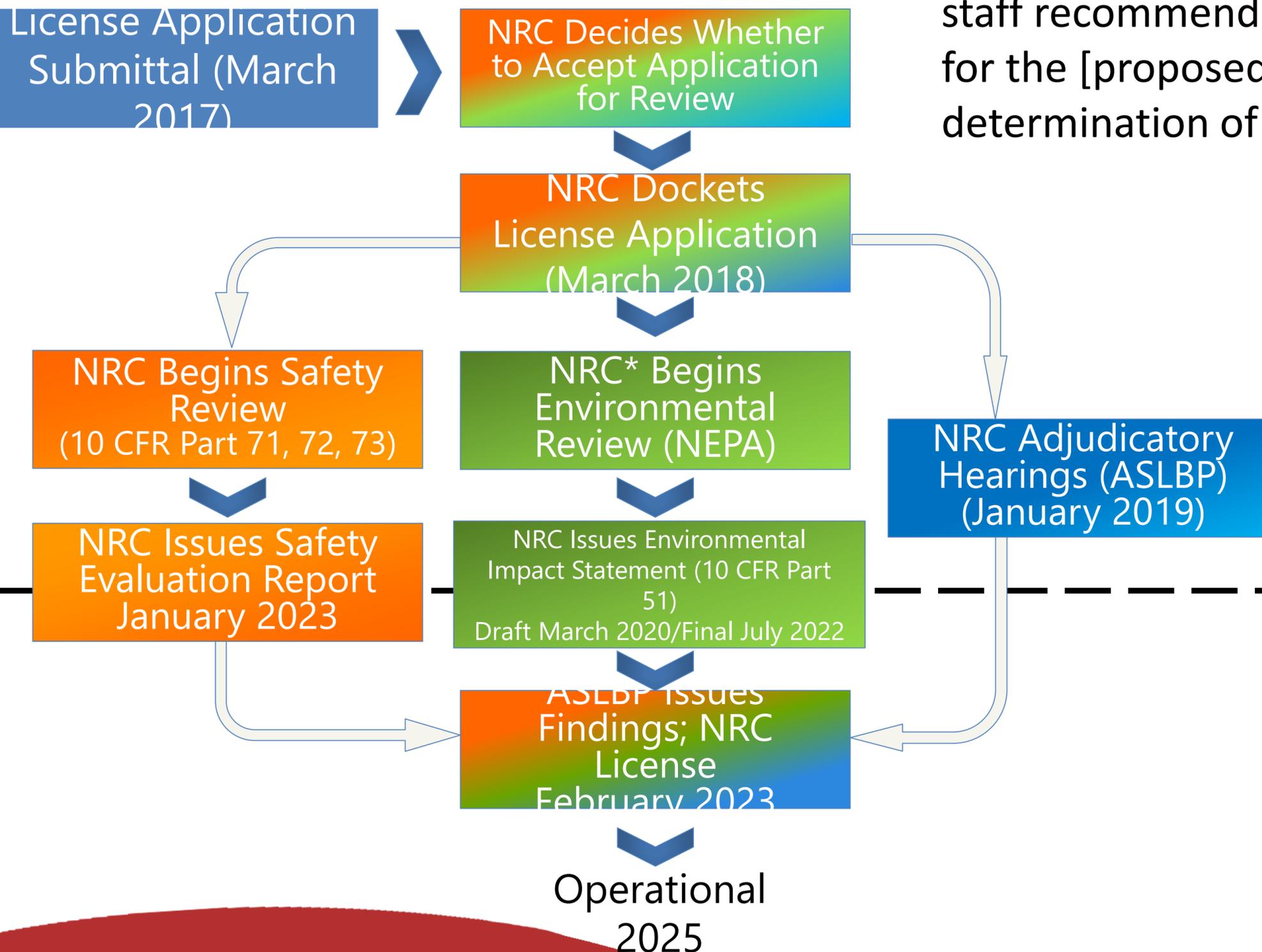
“Based on its environmental review, the NRC staff recommendation is issuance of a license for the [proposed facility] subject to the determination of the staff’s safety review.”

U.S. NRC NUREG-2237

Final Environmental Impact Statement

Holtec International’s CISF

Lea County, New Mexico



We Are Here

NRC*: BLM and NMED Coordinating Agencies

ASLBP: Atomic Safety and Licensing Board Panel

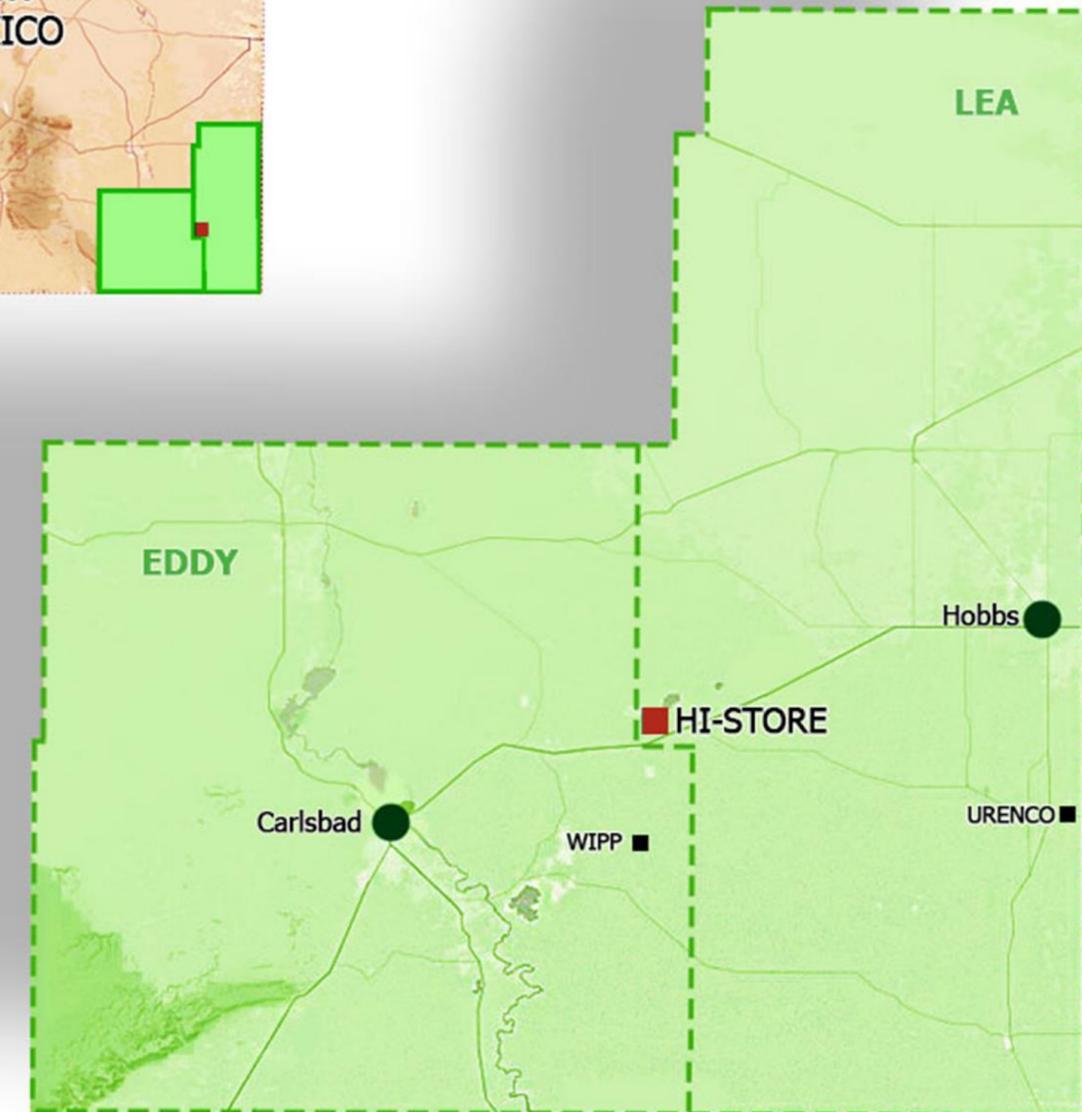
Why Not Status Quo?

- 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 (Indirect)
 - ✓ Manufacturing Facility: 200 Jobs
 - ✓ Revenue Sharing w/ELEA
 - 30% Gross Revenue: \$15M-\$25M/yr (Direct)
 - ELEA shares 1/3 with State



Questions?



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