



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

#### Briefing

By: John Heaton Vice Chair Eddy-Lea Energy Alliance 2019





### HOW DID WE COME TO FEAR NUCLEAR POWER?





How did we come to fear nuclear power? SHUTTERSTOCK









# NOTHING

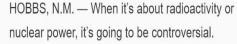
#### ENERGY ALLANCE, LLC. Scoping meeting on Holtec held in Hobbs

Curtis C. Wynne, Hobbs News-Sun Published 10:33 a.m. MT July 20, 2018



(Photo11: Jessica Onsurez Current-Argus)





Thursday's meeting of the New Mexico Legislature's interim Radioactive and Hazardous Materials Committee in Hobbs was no exception when rail transportation of spent r



Editorial: NM, Holtec track records bury storage

#### site worries

BY ALBUQUERQUE JOURNAL EDITORIAL BOARD Tuesday, May 29th, 2018 at 12:02am

 f SHARE
 There are two ways to look at the proposal to license an interim storage facility in southeast New Mexico for the nation's spent nuclear fuel from power plants:

w Mexico, a poor minority-majority state, is once again destined to be the ping ground for dangerous items no other state will take, and those items











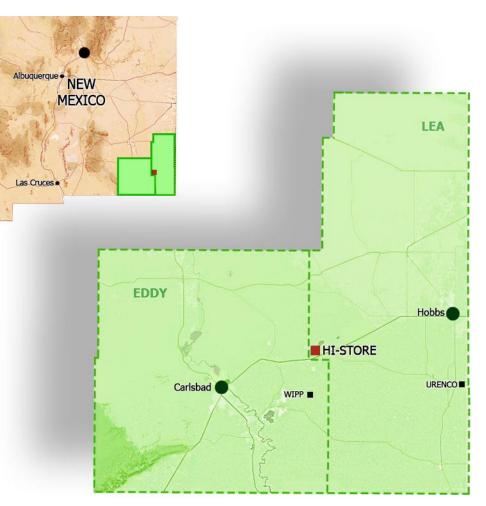




## WHO IS EDDY-LEA ENERGY ALLIANCE



- JPA Between Carlsbad, Hobbs, Eddy & Lea Counties
- Formed For Joint Economic Development Efforts
- Bought 1,000 acres: Geologically stable, dry, elevated land
- BRC Strongly Recommending CIS
- Thoroughly Characterized
- Electric, water, roads & rail Access
- Remote location:
  - ✓ 35 miles from nearest town
  - ✓ Midway between Carlsbad & Hobbs, NM
- Robust scientific & nuclear workforce WIPP
  - V URENCO



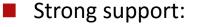
### **Strong Local Support**

uclear Future

interim storage facility.

eptember, 2013

apability; and



- ✓ Local communities
- ✓ State & Local government
- 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
- New Mexico State Radioactive & Hazardous Materials Committee
- Letter from City of Tatum

CITY OF CARLSBAD STATE OF NEW MEXICO RESOLUTION NO. 2013-41 COUNTY OF EDDY A RESOLUTION SUPPORTING THE EDDY LEA ENERGY ALLIANCE'S (ELEA) RESOLUTION NO: R-13-57 EFFORT TO BRING IN AN INTERIM STORAGE FACILITY FOR SPENT NUCLEAR SUPPORT FOR A NUCLEAR INTERIM STORAGE FACILITY FUEL IN SOUTHEASTERN NEW MEXICO IN THE MATTER OF the Board of County Commission WHEREAS, the Eddy-Lea Energy Alliance is a limited liability company ow by the New Mexico public entities of the Cities of Carisbad and Hobbs, and Eddy County and Les County. is (ELEA) effort to bring an interim storage facility for spent nuclear fuel to WHEREAS, millions of taxpaver dollars are being spent on monitoring and ersight of spent fuel each year and millions more are being spent on settlement ments related to waste disposition. WHEREAS, millions of taxoaver collars are being spent on d millions more are being spent on settlement payments related to was WHEREAS, spent fuel presents a safety hazard at its current location, but could safely be moved to a consolidated interim storage sits using proven technology, which is the recommendation of the President's Blue Ribbon Commission on America's. Iterim storage site using proven technology, which is the WHEREAS, the dry, remote southeastern corner of new Mexico is ideal for such ing scientific and nuclear operations workforce exists in the temporary storage. A pre-existing scientific and nuclear operations where the temporary storage. A pre-existing scientific and nuclear operations where the area, as does a community that is open-minded about possible ELEA's property, located between Carlsbad and Hobbs, is an excella erim storage facility at the ELEA site NOW, THEREFORE BE IT RESOLVED BY THE GOVERNIN State of New Mexico to this resolution to the legislature, dovernor CITY OF CARLSBAD, that having carefully evaluated interim storag endorse and direct the board of the Eddy-Les Energy Alliance to ago PPROVED AND ADOPTED this 3<sup>80</sup> day of September, 201 entralized interim storage facility at the FLEA site: and, furthermore Susana Martinez to distribute this resolution to the legislature, governor, Energy Secre UNTY BOARD OF COMMISIONERS ATTEST April 10, 2015 Darline Koppie INTRODUCED, PASSED, ADOPTED AND APPROVED this Delos Amuta Bannu This latter is to inform you of my support of the con te effort to bring a consolidated interirs storage facility for spent fuel to southeastern New Interest deviation by your accessionation to accept a constant dealed approach the weater nagement should highlight arease such as south-assistant New Maxico where there is brook gott in the region for such an endeaver. The Edity-Lee Energy Allence (ELEA) is an pation by the City of Carlabad. City of Hobbe, Eddy County an ty. As you are aware, the residents of this area have a high level of ware communities in New Maxico support safely moning speer fiver to a consolidated intentin urage vite using proven technology which is the most senable approach to this problem until a emotived and tang-term technology which is the most senable, approach to this problem until a which thit has been used since 1146 with ne advance incidents. State Capital + Room and + Sama Re, New Morices Report + propagations + Sama and and A MEMORIAL A MEMORIA STINC THE EDOT-LES ENERCY ALLIANCE TO DEVELOP & SOMESTING THE EDOT-LEA ENERGY ALLIANCE TO DEVELOP A SOLIDATED INTERIN STORAGE FACILITY. BOLIDATED INTERIM STORAGE FACILITY. WHEREAS, the 2013 report from the blue ribbon commissio future strongly recommended that one or America's nuclear future strongly recommended that one or in storage facilities be establishe ers consolidated interim storage facilities be established apent nuclear fuel generated by temporarily store the spent nuclear fuel generated by rica's nuclear fleet, which generates a WHEREAS, muchaer power plants are an important -free source of reliable electricity production i WHEREAS, muclear power plants are an important of a source of reliable electricity production in the United ited States, and without them, America would be emitting bundred million matrix tons, or theaty-fine second and ates, and without them, America would be emitting six carbon disuids into the stmosphere annually; and adred million metric tons, or twenty-five percent more, of WEREAS, there are thirtsen decomissioned reactors arbon dioxide into the stmosphere sumually; and the United States that need a place for their used fuel to be WHEREAS, there are thirtsen decompleatoned reacture i ured, and about twenty more will be decommissioned by 2035; . United States that need a place for their used fuel to be tored, and about twenty more will be decommissioned by 2015 WHEREAS, many power generators have overly packed fuel pools, and others have very limited on-site storage WHEREAS, many power generators have overly packed for ools, and others have very limited on-site storage WHEREAS, the nuclear power utilities have standard apability; and racts with the United States government requiring that WHEREAS, the nuclear power utilities have standard he United States government take possession of the SH 34 Pere 1 ntracts with the United States government requiring that he United States government take possession of the BH 40



# WHY HOLTEC?



- Issued RFI and Received Presentations from Majors
- ELEA Board Visited Manufacturing, Storage Systems, Consulted Experts
   Issued RFP
- HOLTEC Outright Winner
  - ✓ Safest Most Robust System Only System Approved for San Andres Fault
  - ✓ 60% of SNF Storage in the U.S.
  - ✓ Strong Record of Safety
  - ✓ Extremely Strong Financially
  - ✓ Research Oriented to Continue to Advance
  - ✓ Strong Leadership



# SHIPPING AND STORAGE (FOUR) LAYERS OF CONTAINMENT

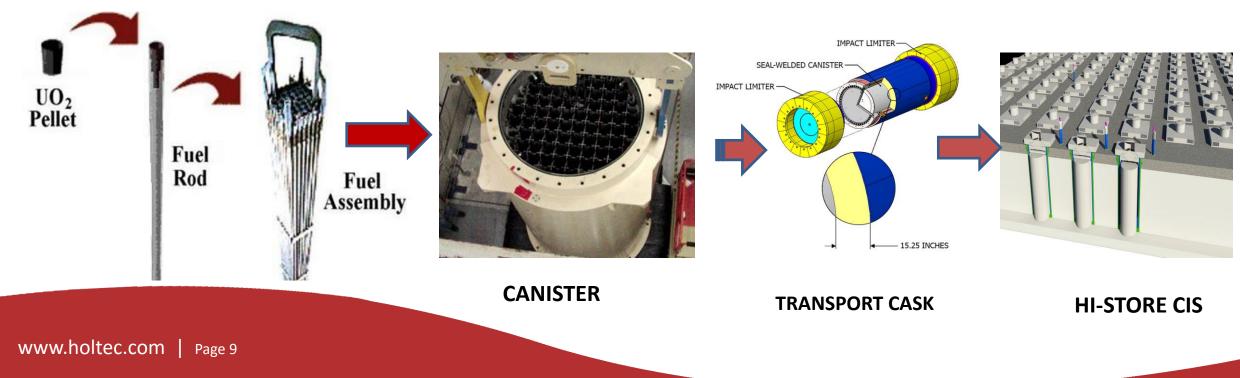


#### FIRST: FUEL CONTAINING THE URANIUM IS A SOLID CERAMIC

#### SECOND: FUEL ROD IS ZIRCONIUM METAL

THIRD: CANISTER MADE OF STAINLESS STEEL CONTAINS USED FUEL

FORTH: TRANSPORT CASK OR SUB-SURFACE STORAGE FACILITY

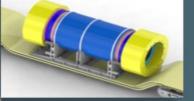






# Safety of Spent Fuel Transportation

Protecting People and the Environment

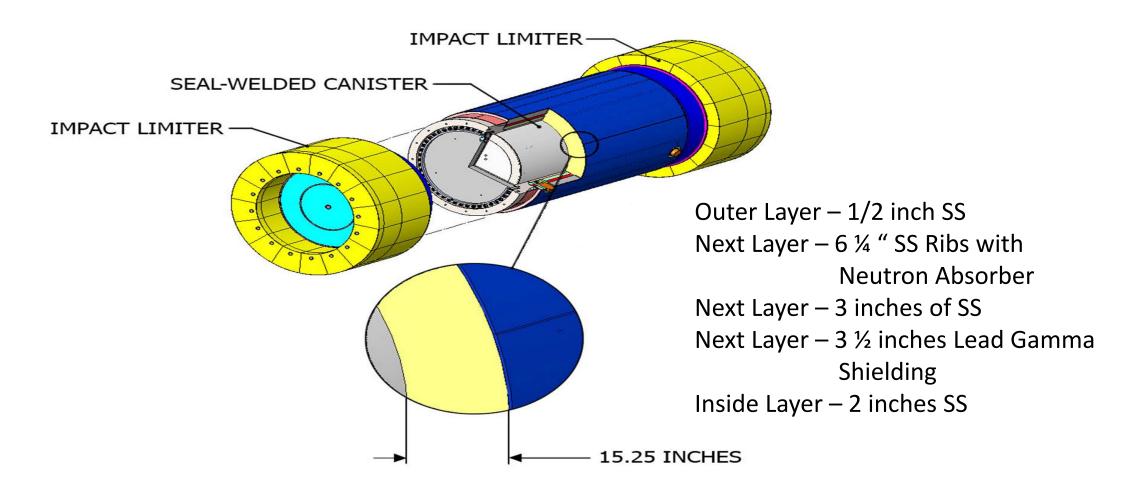


NRC SAYS: ONE IN ONE BILLION CHANCE OF RELEASE!!!

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### HOLTEC 190 TRANSPORTATION CASK



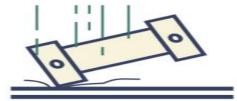


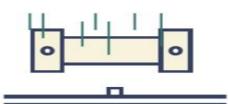


### **CASK TEST DROP ON SPIKE**













The NRC requires spent fuel shipping casks to survive four tests in sequence:

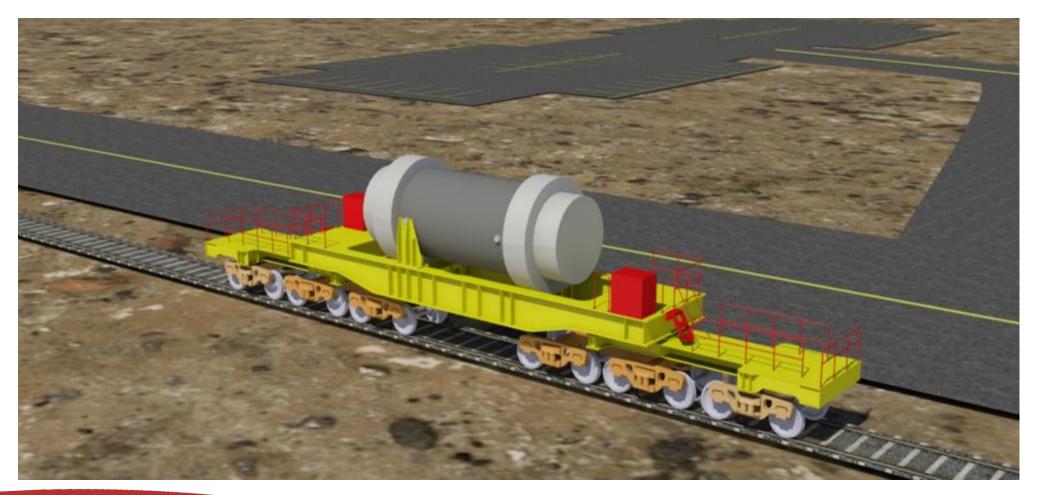
- 1. free-drop impact,
- 2. puncture impact,
- 3. fire, and
- 4. water immersion.

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### **TRANSPORTATION SYSTEM**





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# HOW RAILROADS WORK



#### ■ 92% OF RAIL IS PRIVATELY OWNED

DOT, NRC, FRA MAKE THE ROUTE DETERMINATIONS ✓ CHOOSE BEST RAIL, SAFEST ROUTES TO DESTINATION **V**CAREFULLY INSPECTED BEFORE DEPARTING TO MEET STANDARDS DEDICATED TRAINS WITH 7 – 10 CARS **W**BUFFER CAR BETWEEN ENGINE & TRANSPORT CARS & SECURITY CAR WILL HAVE A SECURITY CAR WITH GUARDS AND GUNS **V**SATELLITE TRACKED AND GIVEN RAIL PREFERENCE TO DESTINATION SLOWER SPEED ON ALL CLASSES OF RAIL FOR SAFETY (50 MP MAX) WEIGHT IS DISTRIBUTED BY ADDING AXLES TO CARS LOCOMOTIVES WEIGH THE SAME AS THE LOADED RAIL CAR



### **USED FUEL TRANSPORT HISTORY**



- 1,300 Used Fuel Transports by Utilities Have Occurred in U.S. Without Incident or Release
- 850 Naval Fuel Transports by Navy Without Incident or Release
- 1,000s of Warhead Shipments Between Kirkland & Pantex
- 30,000 World Wide Transport Without Incident or Release
- WIPP 12,000 Shipments Without Release
- WIPP 14 Million Loaded Miles (moon and back 28 times)
- Sandia Does Cask Integrity Testing
- Casks are Virtually Indestructible



# **HOW WILL SHIPPING OCCUR?**



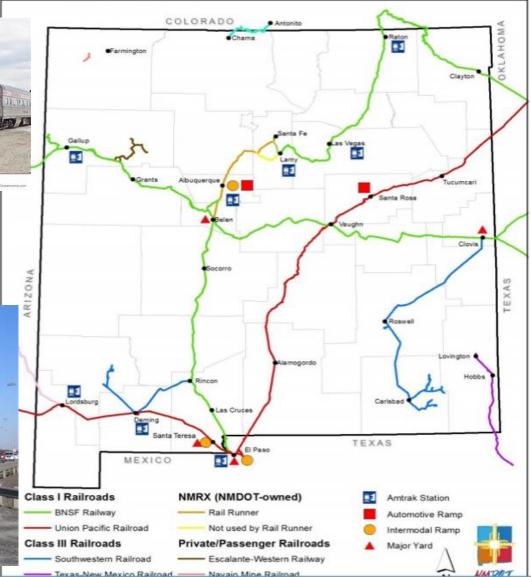
Will it be rail?
Will it be barge?
Will it be ship?

Will it be heavy haul?

Will it be all of above?



DVERSIZE LUANI



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### HI-STORE CONSTRUCTION EXercise Alliance, LLC

EDDY - LEA



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#### **CEC Placement**



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### CLSM Pour – Controlled Low Strength Material

EDDY - LEA

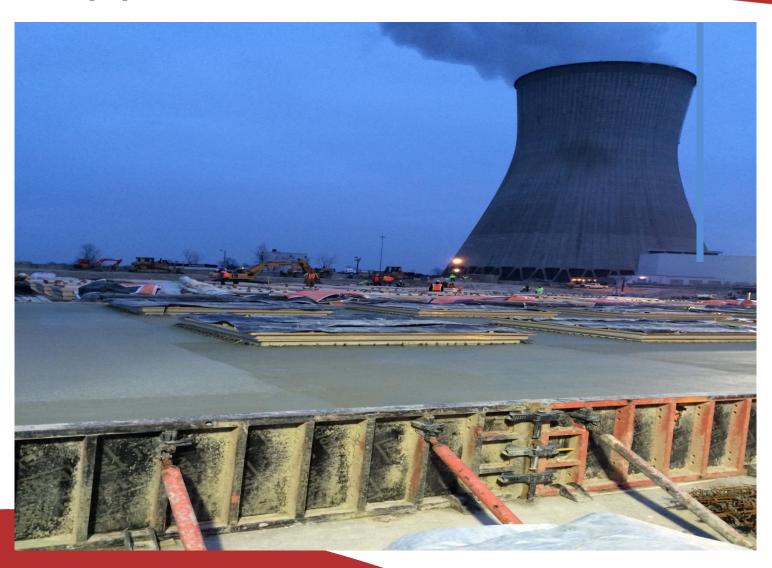
ENERGY ALLIANCE, LLC.





# **Upper Slab Pours**

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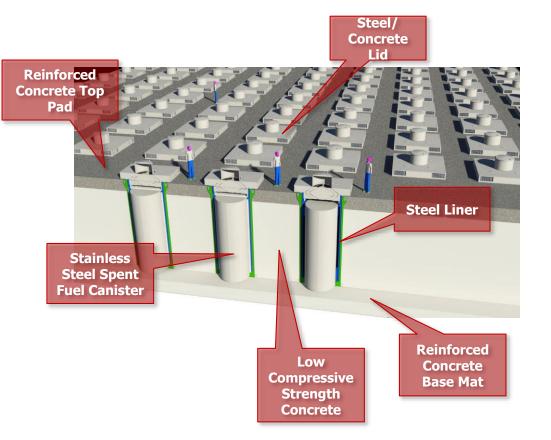




### **HI-STORE CISF Utilizes the HI-STORM UMAX Technology**



- Below-grade, passive, vertical, aircooled
- Maximizes Safety & Security
- Store canisters up to:
  - ✓ 75 ¾ in dia. / 213 in tall
- Any US-origin commercial nuclear fuel approved by NRC:
  - ✓ Packaged in dry storage canisters
  - ✓ Stored in fuel pools
- Operational Advantages
- No repackaging required





### WHAT ARE STATE & AREA BENEFITS?



- □ INCENTIVE PAYMENTS:
- □ INCENNTIVE PAYMENT IS TARGET OF GROSS REVENUE

ESTIMATE 25% LOCAL; 75% STATE FOR ROADS

- □ \$2.4 BILLION CAPITAL INVESTMENT
- 215 HIGHLY PAID JOBS
  - ✓100 CONSTRUCTION WORKER FOR 10 YEARS
  - ✓100 TECHNICAL RAD TRAINED MATERIAL HANDLERS & SECURITY FORCE
    - 10 RAIL CAR AND TRANSPORT CASK MAINTENANCE
    - 5 CENTER OF EXCELLENCE FOR HOLTEC WORLD WIDE TRAINING
  - ✓15-30 SILO CONSTRUCTION WELDERS AND FABRICATORS
  - ✓ OTHER POTENTIAL SPIN-OFFS (Research: Aging, Science, Heat Transfer, etc)

#### **HI-STORE Site-Specific License** Timeline



Application submitted to USNRC: March 2017 Application accepted by USNRC: March 2018 Sept 2018 RAI #1 partial: April 30 – May '18 5 NRC Public Meetings in NM: February 2019 **RAI #2**: NRC Completes Review: July 2020 Pending Agreement w/DoE and/or Nuclear Utilities: V Construction Start: 2020 ✓ Construction Complete: 2023 ✓ Accept First Shipment: 2023

#### **HI-STORE Site-Specific License Timeline**



- Application submitted to USNRC:
- Application accepted by USNRC:
- NRC public meetings (phone & in NM): April N
- RAI #1 received (partial):
- Adjudicatory process closed:
- Holtec answers to petitions submitted: C
- ASLB Oral Arguments:
- RAI #2 :
- ASLB Accept Standing & Contentions
- Draft EIS
- Final EIS
- NRC completes review:

March 2017 March 2018 April – May 2018 September 2018 September 14, 2018 October 2018 January 23, 24 2019 February 2019 May 10, 2019 June 2019? Late Spring 2020 July 2020





# **FINAL THOUGHTS**



- THERE WILL BE A CONSOLIDATED INTERIM STORAGE FACILITY!!
- YOU CAN HAVE IT IN NEW MEXICO OR TEXAS?
- IF IN TEXAS:
  - ✓ EUNICE 2 MILES AWAY, HOBBS 15 MILES & JAL 15 MILES
  - ✓ RAIL ROUTE THROUGH JAL & EUNICE
  - ✓ NEW MEXICO HAS ALL THE EMERGENCY RESPONSE RESPONSIBILITY 37 miles to Andrews
  - **Y**TEXAS GETS ALL THE BENEFITS & NEW MEXICO HAS ALL RESPONSIBILITY
- WIPP & URENCO HAVE BEEN GREAT PROJECTS FOR OUR AREA
- RURAL AREAS HAVE TO FIND THEIR NICHE
- RURAL AREAS DON'T TELL OTHERS WHAT BUSINESS TO PURSUE
- NO INTERACTION WITH WATER OR O&G INDUSTRY
- VERY BENIGN NO PUMPS NO MOVING PARTS GETS COOLER EVERY DAY.



#### **THANK YOU & Questions?**





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