



# NUCLEAR WASTE POLICY

Searching for Solutions

Tuesday, July 26, 2 p.m. EDT | *Presented by CSG South/SLC and CSG Midwest/MLC*



U.S. DEPARTMENT OF  
**ENERGY**

**Nuclear Energy**

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# **DOE Strategy for Consent-Based Siting for Integrated Waste Management System Facilities**

**Andrew Griffith  
Office of Nuclear Energy  
U.S. Department of Energy**

**Nuclear Waste Policy: Searching for Solutions  
July 26, 2016**



# Consent-Based Siting Initiative

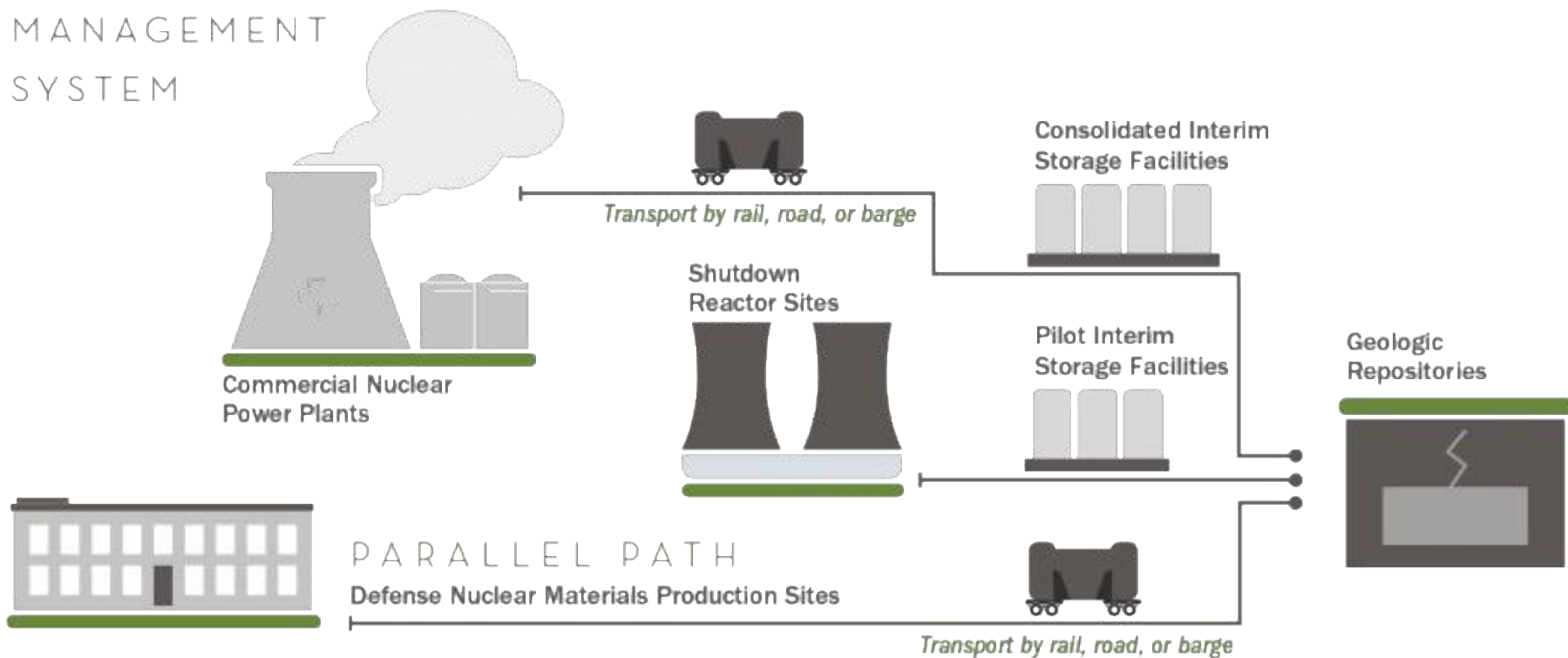
## CONSENT-BASED SITING

- Our goal is to develop solutions to the long-term, sustainable management of spent nuclear fuel and high-level radioactive waste in a manner that protects safety, health, and the environment.
- To achieve this goal, we are developing a process to site facilities collaboratively with the public, communities, stakeholders, and governments at the state, tribal, and local levels.
- Our goal in successfully siting any facility is that any community that engages in the siting process is better off for having participated.



# An Integrated Waste Management System is Needed

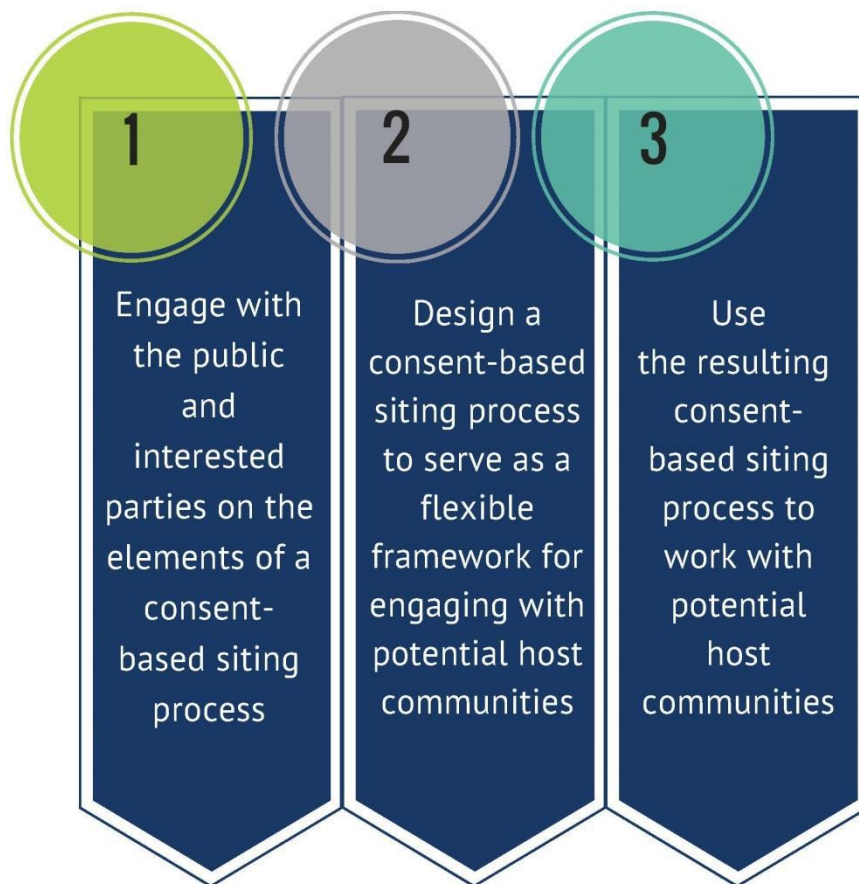
## INTEGRATED WASTE MANAGEMENT SYSTEM







## Steps Planned



### STEPS IN CONSENT-BASED SITING





# U.S. DEPARTMENT OF **ENERGY**

## Nuclear Energy

# How Did We Get Here? (the abridged version)

## HOW DID WE GET HERE?

(the abridged version)



Blue Ribbon  
Commission on  
America's Nuclear  
Future

### Administration's Strategy

STRATEGY  
FOR THE MANAGEMENT  
AND DISPOSAL  
OF USED NUCLEAR FUEL AND  
HIGH-LEVEL RADIOACTIVE WASTE



JANUARY 2013

The White House  
Office of the Press Secretary  
For Immediate Release  
March 24, 2015

### Presidential Memorandum -- Disposal of Defense High-Level Radioactive Waste in a Separate Repository

MEMORANDUM FOR THE SECRETARY OF ENERGY

SUBJECT: Disposal of Defense High-Level Radioactive Waste in a  
Separate Repository

The memorandum and accompanying report of January 9, 2015,  
analyzes the factors enumerated in section 8 of the Nuclear Waste  
Policy Act of 1982 (the "Act") concerning disposal of high-level  
radioactive waste resulting from atomic energy defense activities,  
conclude that a strong basis exists to find a separate repository is  
section 8 of the Act, and recommend that I

Presidential  
Memorandum

BARACK OBAMA

Secretary's  
March 2015  
Speech at  
Bipartisan Policy  
Center



Invitation for Public Comment to Inform the Design of  
Nuclear Waste Storage and Disposal Facilities

AGENCY: Fuel Cycle Technology Office of Nuclear

ACTION: Notice of Invitation

Invitation for  
Public Comment  
in the Federal  
Register

Consent-Based  
Siting Kickoff  
Meeting





# Public Meetings

## PUBLIC MEETINGS

### GOALS

- Provide opportunity for effective two-way dialogue and mutual learning
- Reinforce the Department's commitment to public engagement
- Demonstrate openness to multiple viewpoints

### AGENDA

- Consent-based siting and integrated waste management overview presentation by Acting Assistant Secretary John Kotek
- Panel discussion with a focus on local and regional perspectives
  - ❑ Working to include tribal and state interests on panels
- Facilitated small group discussions to receive input on the elements of a consent-based siting process



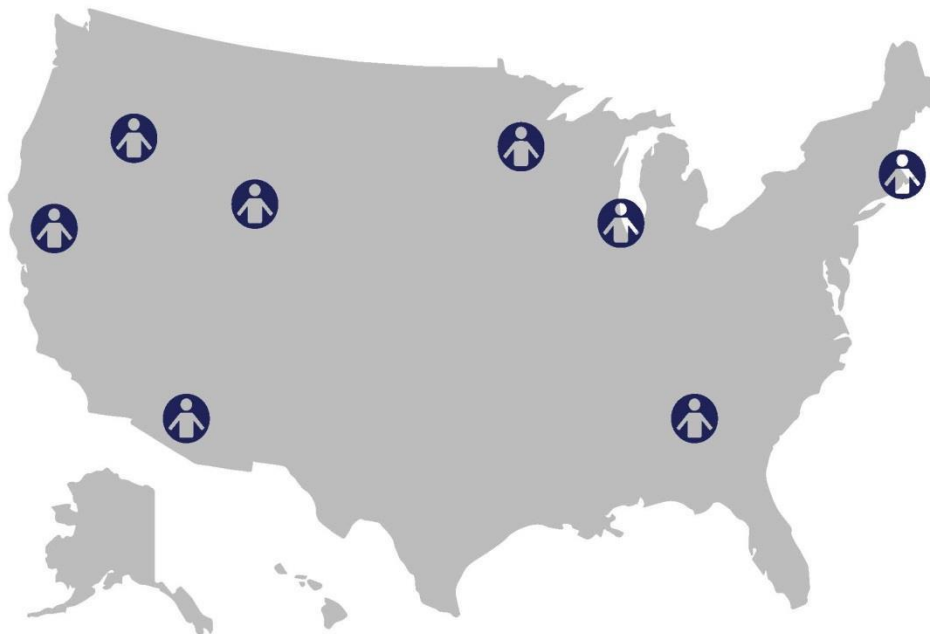


# Public Meetings Across the Country

## LOCATION

## DATE

Chicago, IL	March 29
Atlanta, GA	April 11
Sacramento, CA	April 26
Denver, CO	May 24
Boston, MA	June 2
Tempe, AZ	June 23
Boise, ID	July 14
Minneapolis, MN	July 21



CONSENT-BASED  
SITING PUBLIC  
MEETINGS







# Additional Engagement Opportunities

## ADDITIONAL ENGAGEMENT OPPORTUNITIES



Public webinars or conference calls



Meetings with stakeholders and groups by request



Opportunities to discuss consent-based siting at recurring, annual, or previously scheduled meetings and conferences



Series of forums to gain perspectives about nuclear waste and consent-based siting from average Americans



# What's Next?



Continued review of responses to the *Invitation for Public Comment to Inform the Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities*



Public meetings hosted across the country



Proposed initial funding opportunity announcement aimed at enabling communities to seek information about consent-based siting and nuclear waste, and engage citizens in discussions about their community's future



Summary report for public review and comment

## WHAT'S NEXT?





# Proposed Funding Opportunity Announcement

## PROPOSED FUNDING OPPORTUNITY ANNOUNCEMENT

- Approximately \$25M in FY17 Presidential Budget Request.
- The purpose is to provide resources to local communities that are interested in learning more about nuclear waste management and consent-based siting.
- Enables communities to begin exploring questions related to social, technical, and other areas of interest.
- Fully contingent on appropriations and final FY17 budget allocations.





# What We've Learned (so far)

## Nuclear Energy

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- **Distrust of the Federal Government in general and DOE specifically**
  - Need for a new organization/entity to assume the role of developing a durable solution
  - Need to DOE to get started; starting this program is too important to wait
  
- **Concern over transportation risks**
  - DOE recognizes the importance of safe and dependable transportation
  - Constructive relationships have been established with state/regional groups on transportation and emergency response (in line with NWPA sec 180(c))
  
- **Environmental Justice is important**
  - Reinforces DOE plans to make EJ a priority in our planning and outreach activities
  
- **Shutdown Reactor Sites continue to bear an unplanned (and unwelcomed) burden while a solution is developed**
  - DOE has little (if any) means to help, except to be successful is establishing a durable solution



The background image shows a wide, paved path leading towards a fenced-in industrial facility, likely a nuclear power plant. In the foreground, two workers wearing hard hats and safety vests are visible. The worker on the left is seen from the back, looking towards the facility. The worker on the right is facing the path, holding a clipboard and pen. The sky is blue with scattered white clouds. A large, dark blue circular graphic with a white border is centered over the path, containing text.

## QUESTIONS OR COMMENTS?

[energy.gov/consentbasedsiting](https://energy.gov/consentbasedsiting)

[consentbasedsiting@  
hq.doe.gov](mailto:consentbasedsiting@hq.doe.gov)



# AMERICA'S NUCLEAR SOLUTION

*Overview of WCS' Proposed Consolidated Interim  
Storage Facility in Andrews County, Texas  
July 26, 2016*



# Project Scope

- Environmental impacts analyzed with storage of 40,000 MTHM.
- 8 separate phases; storage of up to 5,000 MTHM in each phase.
- License for 40 years with multiple renewals of up to 20 years each.
- Initial SAR includes selected AREVA NUHOMS® and NAC International storage systems which prioritize shutdown sites.
  - Additional systems and sites to be added in future License Amendments.
  - Storage of used fuel from over 12 shutdown/decommissioned nuclear power plants will fit in Phase 1.
- Allows flexibility to transition beyond storage of fuel from currently decommissioned reactors.
- Ongoing discussions with DOE and the U.S. Congress on how to integrate the availability of an interim storage facility into the national strategy for used nuclear fuel management.



AMERICA'S NUCLEAR SOLUTION

# License Application

- License application submitted on April 28, 2016.
- WCS had the lead role in preparing the license application, with support from AREVA and NAC.
- The NRC began its review when they received the license application. Sent WCS a Request for Supplemental Information on June 22<sup>nd</sup>.
- WCS responded with information in July
  - Remaining responses by October 2016
- WCS requesting that the Environmental Impact Statement (NEPA) review begin when all responses submitted and this is the longest time constraint for the application.





# Initial License Application

- Priority on currently licensed systems for shutdown sites:

## **NAC International**

- ☐ **Maine Yankee**
- ☐ **Connecticut Yankee**
- ☐ **Yankee Rowe**
- ☐ **La Crosse**
- ☐ **Zion**

## **AREVA NUHOMS®**

- ☐ **Rancho Seco**
- ☐ SONGS Unit 1
- ☐ Millstone Unit 1
- ☐ Oyster Creek\* (S/D scheduled 2019)

**Indicates a “stranded” (ISFSI only) site identified in the 2012 Final Report of the “Blue Ribbon Commission on America’s Nuclear Future” (BRC)**

\* Fuel Burned less than 45 GWd/MTU

**Initial License Application covers ~80% of UNF and GTCC at BRC “Stranded” Site**



# Future License Amendments

- License could be expanded to include all shutdown sites and “uncanned” HBU Fuel:

## NAC International

- ☐ Kewaunee

## AREVA NUHOMS®

- ☐ Kewaunee
- ☐ SONGS Units 2/3
- ☐ Crystal River

## Other Vendors

- ☐ **Big Rock Point (ES)**
- ☐ **Trojan (H)**
- ☐ **Humboldt Bay (H)**
- ☐ SONGS Units 2/3 (H)
- ☐ Vermont Yankee (H)

**Plan to become a “universal” site through cooperative agreements with existing systems from other dry fuel storage vendors**



# Proposed CISF Site Overview



Site Location Map

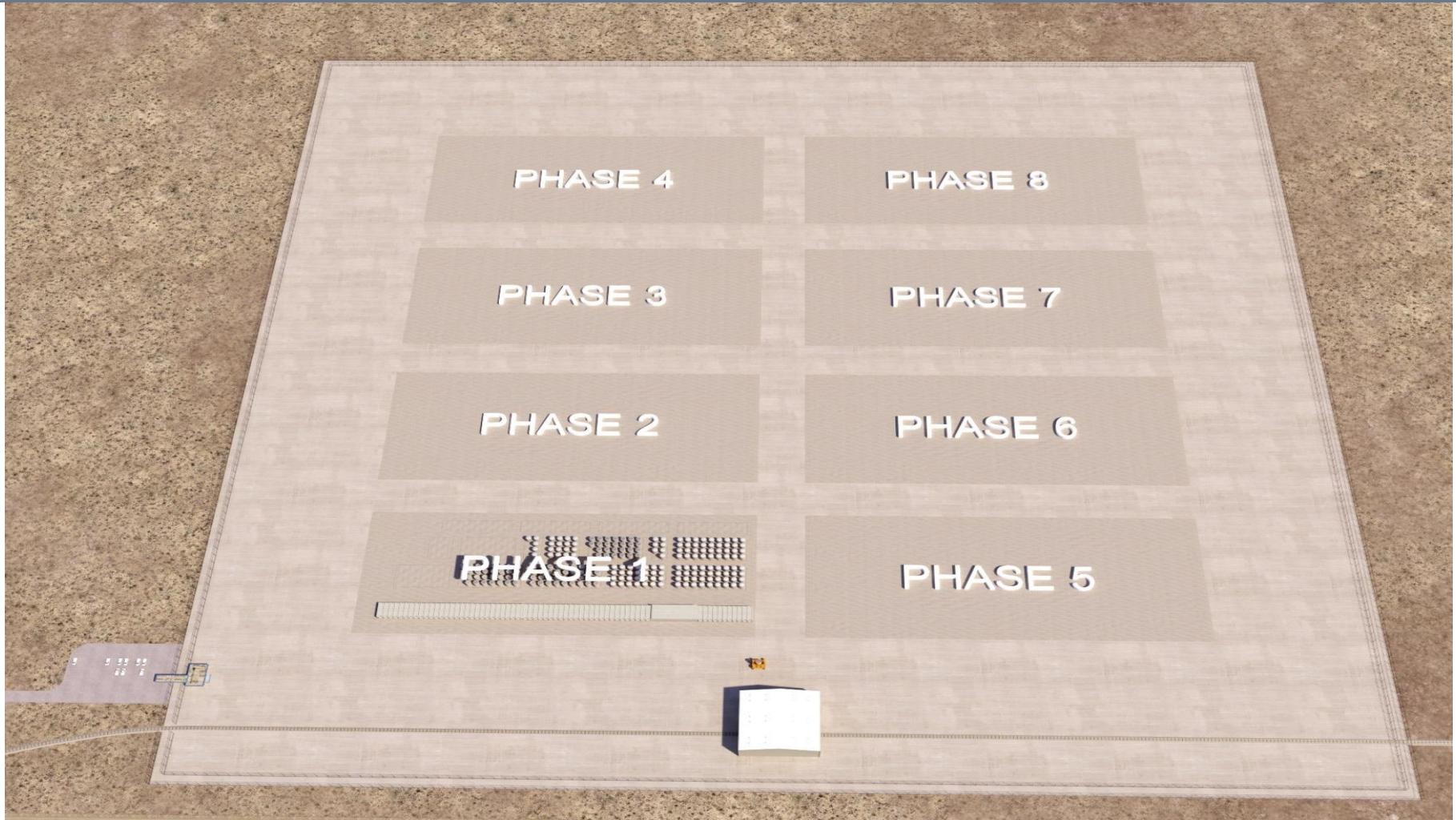
2 0 2 4  
Miles





AMERICA'S NUCLEAR SOLUTION

# Pad Layout for CISF



**Conceptual Drawing**





AMERICA'S NUCLEAR SOLUTION

# View of Deployed Systems for Phase 1 Pad



**Conceptual Drawing**

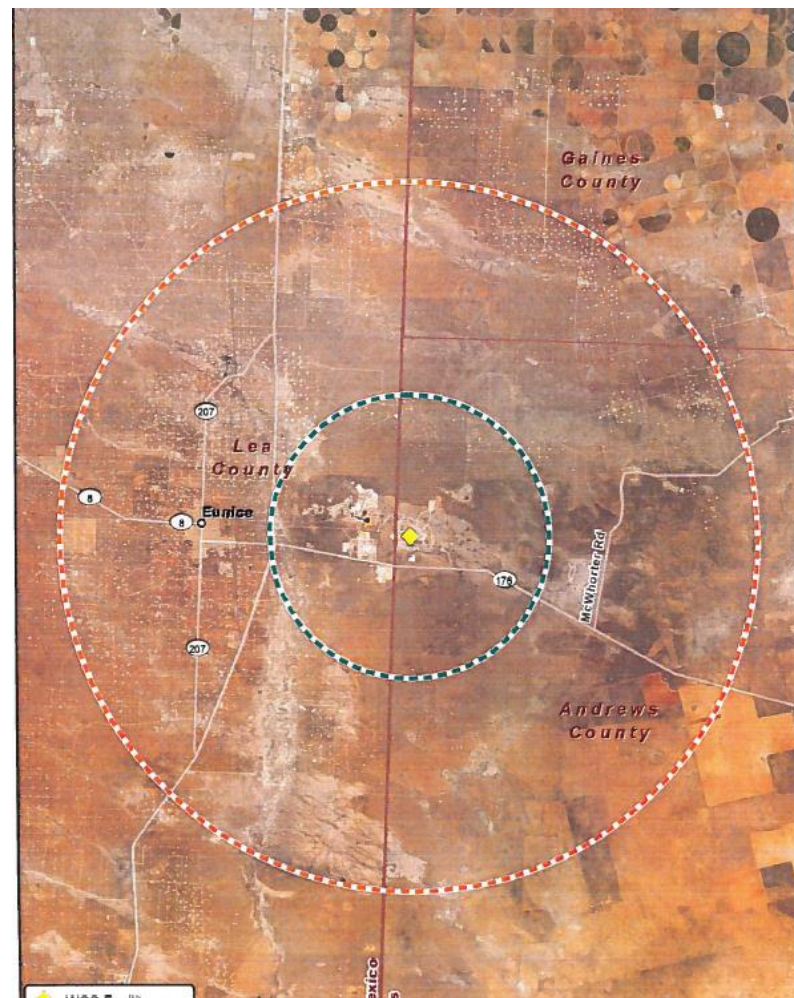




AMERICA'S NUCLEAR SOLUTION

# Thorough Environmental Characterization

- Environmental Impacts have been extensively analyzed in the region.
  - TCEQ conducted environmental reviews supporting issuance of LLW licenses.
  - NRC prepared an EIS for adjacent URENCO USA.
- WCS proposed approach allows addition of new storage systems as amendments, but ensures cumulative environmental impacts are analyzed.





AMERICA'S NUCLEAR SOLUTION

# Environmental Impact Statement

- Once the license application is accepted by the NRC, a notice of Intent to Prepare an EIS will be published in the Federal Register.
- The NRC will begin the scoping process and hold stakeholder meetings in the region to begin the process of collecting stakeholder comments.
- A Draft EIS will be published requesting public comment on the project.
- A Final EIS will be issued after public comments dispositioned.
- Construction of the CISF may only begin after issuance of EIS and License.



# Rail Lines Upgrades

- WCS already has the infrastructure to support transportation of heavy loads to WCS.
- Rail lines recently upgraded to support shipments of steam generators 204 MT ( 450,000 lbs) to WCS.
- Four steam generators were barged down the Mississippi River to Houston, TX, transferred to rail line and transported to WCS.





AMERICA'S NUCLEAR SOLUTION

# Consent-Based Licensing

- The Texas legislature has – on three different occasions – approved radioactive waste disposal operations in Texas, and has specifically authorized waste from other states to come into Texas;
- Andrews County Commissioners unanimously approved a resolution supporting an interim storage facility in Andrews County, Texas, in January 2015; and
- The Texas gubernatorial appointed advisory board of radiation experts which issued a statement of support siting an interim storage facility in Texas in the fall of 2014, *before* WCS announced its plans.



AMERICA'S NUCLEAR SOLUTION

# Legislative Changes Related to DOE Contracts and Funding

- Legislation filed in 2015 by TX Congressman Conaway (R-TX) and in February 2016 by Congressman Mulvaney (R-SC) support interim storage.
  - Allows DOE to enter into contracts with a private company for interim storage.
  - Allows DOE to take title to the used fuel for storage.
- WCS proposed license conditions stipulate that a contract with DOE is required to fund operations and decommissioning prior to accepting SNF.



AMERICA'S NUCLEAR SOLUTION

## Near-term CIS Deployment Would Benefit the U.S. Repository Program for Permanent Disposition

- U.S. UNF Management program viewed as an integrated “system” vs. individual components
- A system with CIS *and* a repository for permanent disposition would be much more robust and would eliminate the current “single point of failure” vulnerability
  - A CIS would provide a Surge Volume/Buffer to allow continued operations despite problems at a single facility (e.g., WIPP incident)
- CIS deployment would remove barriers to repository implementation by resolving public concerns, technical issues, and licensing contentions in the near-term



AMERICA'S NUCLEAR SOLUTION

# Acting NOW to Remove Barriers to the U.S. Repository Program

- Provides an early demonstration of safety and effectiveness of the UNF transportation infrastructure that will also be essential for repository operations
  - Potential to address public concerns and remove transportation related contentions to repository operations well before the actual need date
  - Reduces the risk of further degradation of on-site infrastructure at permanently shutdown reactor sites
  - Waiting to resolve transportation and infrastructure degradation issues until a repository is built increases risk of further delay in successful repository operations
- Creates a robust facility which could be expanded to develop and deploy the repackaging technology to prepare the UNF currently in dry storage for final disposal in a repository
  - Repackaging may be needed before the 20,000+ MTU (and growing) of UNF in dry storage can go into the repository
  - Waiting to develop a CISF/repackaging facility until a repository is built increases risk of further delay in successful repository operation

**CIS provides system-wide benefits and flexibilities to help advance a permanent geologic disposal program**





# Summary

- WCS proposed project is consistent with the BRC recommendations regarding need for consolidated interim storage and consent-based licensing.
- WCS, AREVA, and NAC have the qualifications and capabilities to license, construct, and operate the facility.
  - WCS site already has infrastructure supporting operating LLW facilities
- License Application covers ~80% of UNF and GTCC at BRC “Stranded” Sites.
- Site is environmentally well-characterized, enjoys broad local, state level and congressional support.
- A complement to and not a competitor to a permanent geological repository.
- See the website [www.WCSstorage.com](http://www.WCSstorage.com) for updates.



# **A CENTRALIZED INTERIM STORAGE FACILITY FOR USED NUCLEAR FUEL**

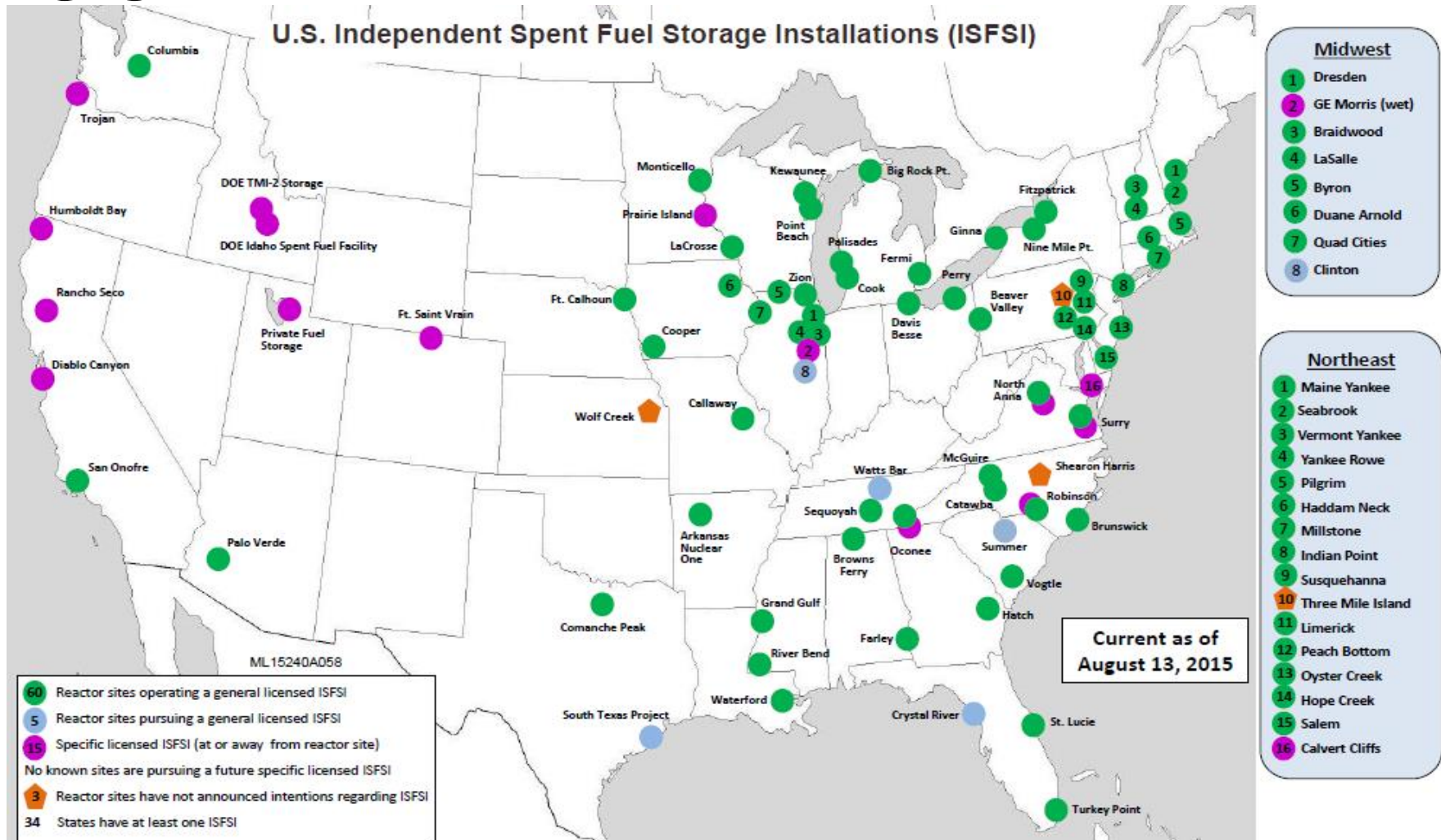
**A PARTNERSHIP OF  
THE EDDY-LEA ENERGY ALLIANCE  
AND  
HOLTEC INTERNATIONAL**

By: John Heaton, Chairman ELEA, LLC

# What Are The Waste Solutions

- Consolidated Interim Storage
  - Most Immediate Solution (4-5 years)
  - Need Access to Nuclear Waste Fund (Law)
- Geologic Repository
  - Years From Reality
  - WIPP Clear Option – Takes LWA Change)
- Technical Solutions
  - Reprocessing SNF
  - New Reactor Technology Could Burn SNF

# Interim Dry Storage Sites in the U.S.



Map courtesy of Ux Consulting, StoreFuel, STF206,  
10/6/15



# Why Do We Need Consolidated Interim Storage?

- CIS is a perfect compliment to a future repository – not a permanent solution
- CIS is a safe and secure way to age the fuel before storage at a future repository site
- Recommended by the BRC
- At 7 decommissioned sites, the spent fuel stored on-site is all that prevents from releasing the land to other uses
- CIS is the shortest path for DOE to begin taking spent fuel and reduce the amount the government pays as a result of lawsuits
  - ✓ By 2020 projected cost to be \$22 billion & \$38 billion by 2048
  - ✓ Currently projected at \$500M per year by 2020
- Provides the most flexibility for recycling, research, and disposal
- Dispels Arguments There Are No Solutions For SNF

# WHERE ARE WE TODAY?

- 2015 Senate tried Producing Comprehensive Bill – DOA needs help
- 2015 House– Conaway produces CIS bill – DOA Shimkus kills
- 2016 House – Mulvaney produces CIS bil – DOA Shimkus kills
- 2016 Senate is working on S. 854 comprehensive BRC bill
- 2016 Alexander reported to be working on CIS bill
- House Still Working On Yucca Bill, But May Include CIS (reluctantly)
- House wants Yucca funding and Senate wants CIS, but no Yucca
  - Will Bill provide for a pilot CIS only?
  - Will Bill overcome CIS restrictions in NWPA?
- NE embarking on Consent Based Siting Process Development and finding
- DOE interested in Defense only repository



# Who is the EDDY-LEA Alliance?

- Alliance of the Cities of Carlsbad & Hobbs and the Counties of Eddy & Lea
- Formed Under the Local Economic Development Act for Economic Development Purposes in 2006 & to Respond to Global Nuclear Energy Partnership (GNEP) Proposal from DOE
- ELEA purchased 1,000 acres of land approximately halfway between Carlsbad and Hobbs, N.M. for use

**The Eddy-Lea  
Energy Alliance**



**Community-Backed Solutions to National Problems**

# Why the ELEA Site?



- Land studied extensively during Global Nuclear Energy Partnership (GNEP) process
- Remote location
- Geologic stability
- Dry area
- Infrastructure present, including rail
- Preexisting robust scientific and nuclear operations workforce
- **STRONG CONSENT FROM AREA**



# SE New Mexico's Nuclear Corridor



# Holtec International

- Established in 1986
- Excellent on-time delivery record
- No history of long-term debt
- Self financed company growth
- Highest industrial credit rating [D&B-5A1]
- Business Mix:
  - ✓ 72% Nuclear
  - ✓ 15% Coal, 10% Gas & Renewables, 3% O&G

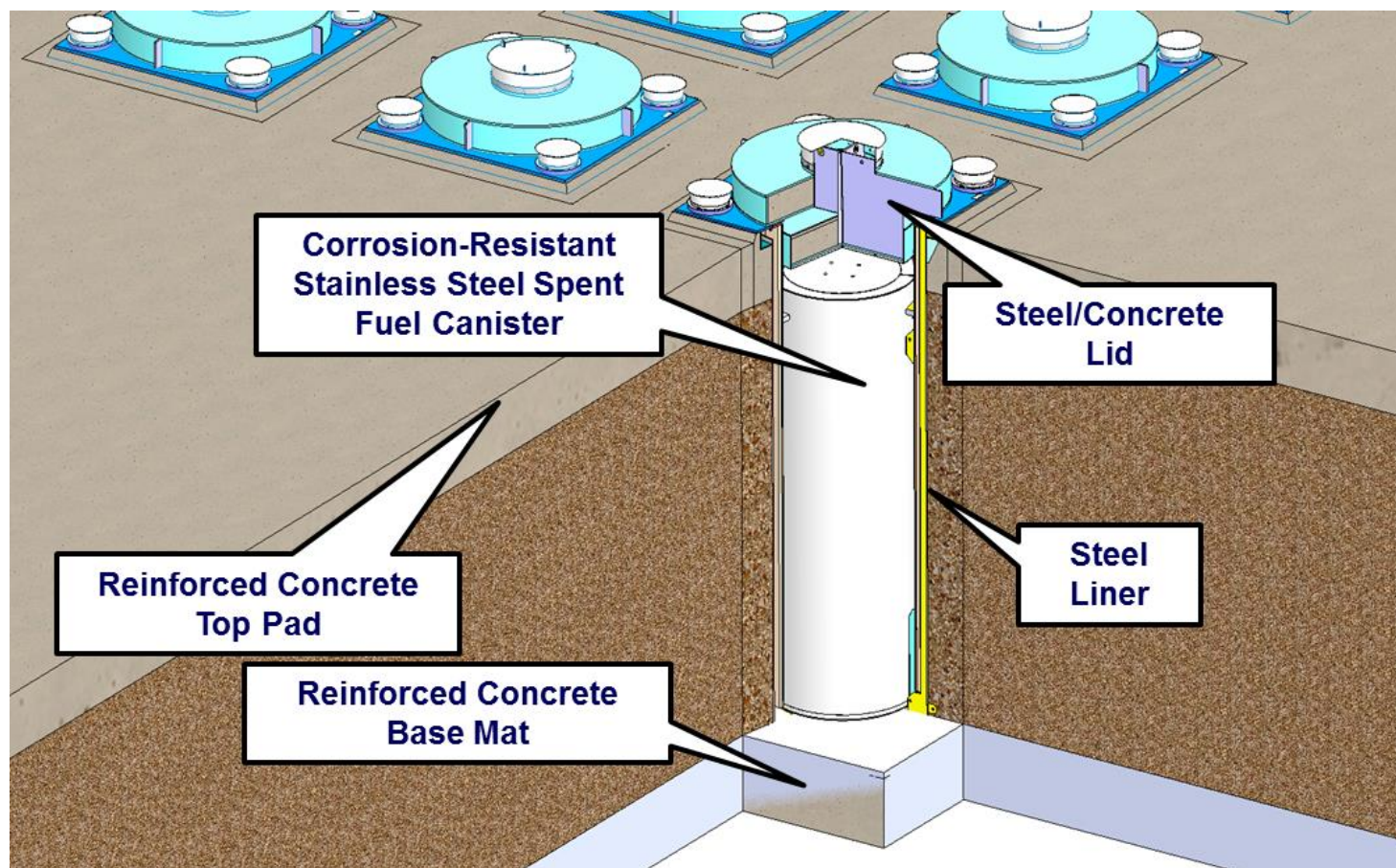
# HI-STORM UMAX: The Safest Solution for C.I.S.



*Holtec constructed the HI-STORM UMAX at a U.S. nuclear power plant*

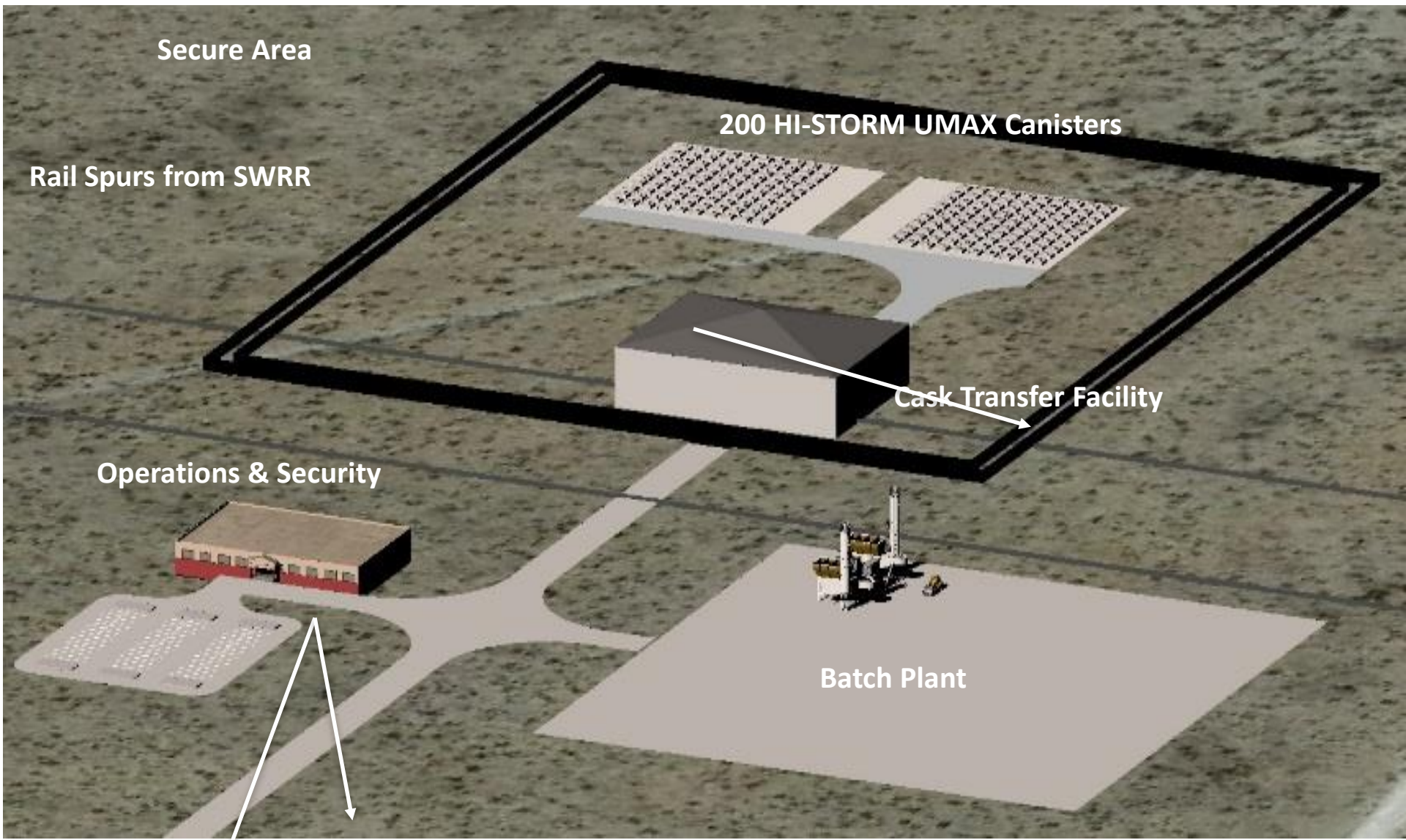


# HI-STORM UMAX: Stores Spent Nuclear Fuel Completely Below Grade



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# Phase 1 Construction





# Excavation



# CEC Placement





# CLSM Pour

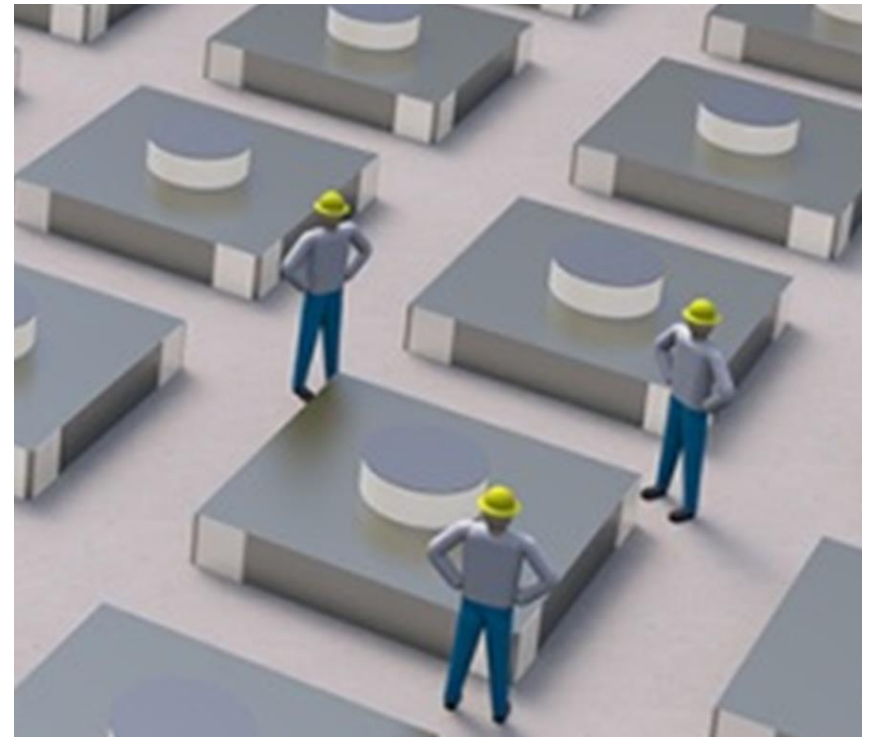


# Form for Top Pad



# Enhanced Security

- Configured to be visually inconspicuous
  - Profile is less than 610 mm (2 ft.) tall
  - A less visible target from the air
  - Reduced visibility from public land
- There are no areas on the ISFSI where a person may hide, making security an easily implemented activity



# Turning Plans into Actions

- Holtec will support the prompt development of the consolidated interim storage site
  - ✔ ELEA believes Holtec underground dry storage technology is a perfect solution for a CIS facility
  - ✔ Holtec has partnered with Eddy Lea Energy Alliance, LLC to establish a CIS
  - ✔ Holtec will design, license and operate the CISF
- Holtec has constructed an underground dry storage facility in the U.S. which is now in use



# **EDDY-LEA ENERGY/HOLTEC CONSENT STATUS FOR CISF**

- Strong resolutions of support from counties and cities in area
- Legislature just passed two memorials supporting the CISF project
- Governor has written a strong letter of support for the project to Sec. Moniz
- Public Members (cities and counties) have endorsed contract with Holtec
- Holtec is proceeding with NRC license

# NOW, WHAT ABOUT YOU?

- Why are you letting Shimkus & Upton kill any option to solve the problem? Illinois has the most nuclear power plants in the country?
- Holtec Private facility up and running by 2021
- 30 Total shuttered Reactors (7 ISFSI only, 4 license terminated, 3 in Decon, 3 Due to close, 13 in Safstor)
- 10 more considered at risk
- Others will fall into decommissioning status in the 2030' s
- There are 39 states with nuclear waste problems
- You Must Act to Motivate Your Cong Delegations

# Questions?

Please submit them in the question box  
of the GoToWebinar taskbar.

