AMERICA'S NUCLEAR SOLUTION

WCS Consolidated Interim Storage Facility: How WCS Contributes

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PANEL 111 – THURSDAY, 9 MARCH 2017

Overview

- WCS in Andrews County – An Established Site
- Application Status Update
- Current Timeline
- Advantages of a Private Entity

WCS in Andrews County

- Site includes ~14,000 acres (~23 square miles)
- Licensed by Texas Commission on Environmental Quality as an Agreement State
- Includes Rail access for large components, and large scale D&D projects

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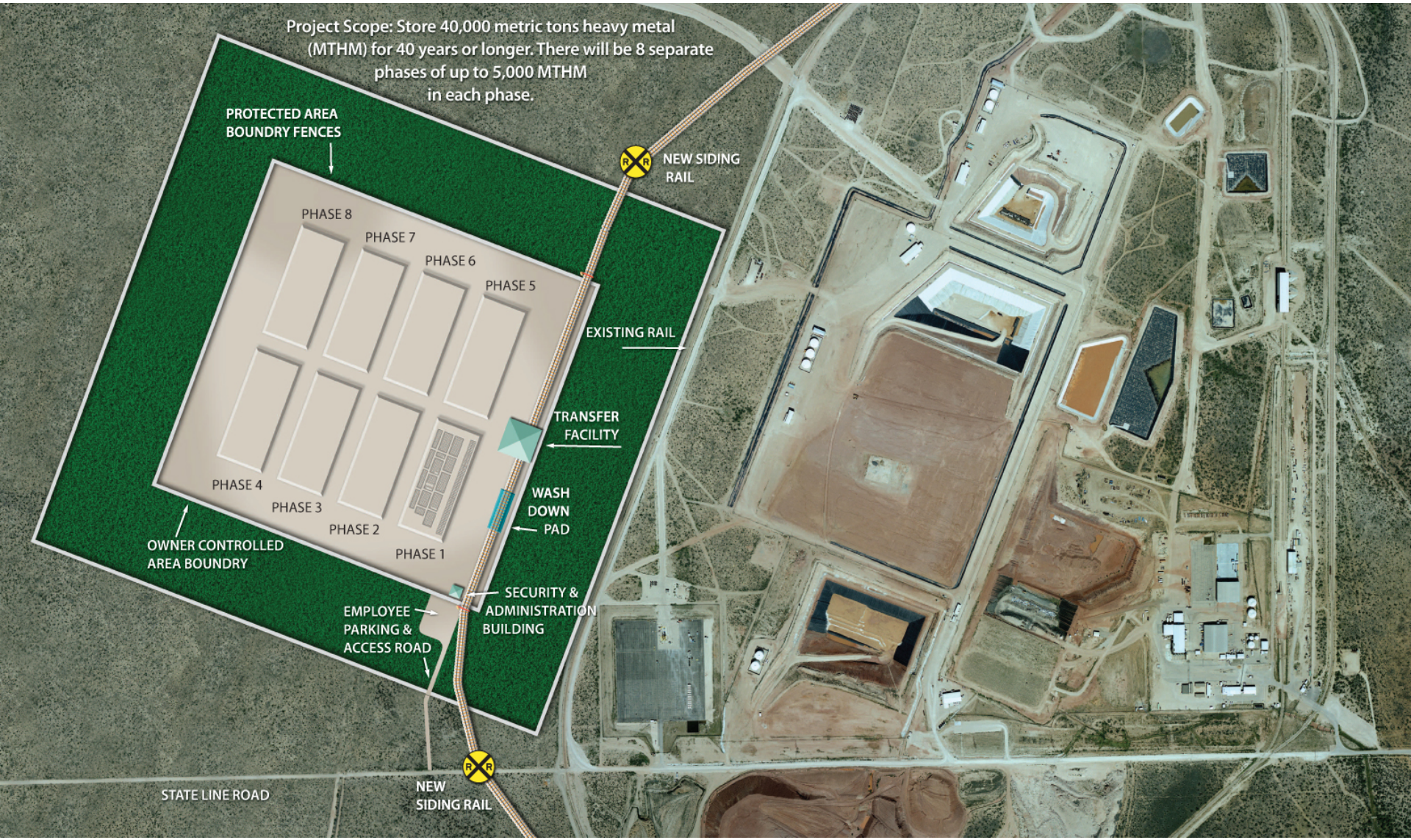
WCS in Andrews County

- An Established Site with ongoing nuclear operations
- Currently operating the most robust LLRW disposal facilities in the U.S.
  - Texas Compact and Federal Waste Facilities
  - Intermediate Depth Disposal
  - Atop ridge of 600 feet of Red Bed Clay
  - LLRW placed Modular Concrete Canisters, grouted and precisely positioned in disposal cell
  - RCRA Cell – Exempt Waste Disposal

WCS in Andrews County

- Operations include Irradiated Hardware
  - Dose rates as high as 20,000 rem/hr on contact,
  - Collective dose of only 50 mrem for receipt to disposal
- Radiation safety, environmental monitoring, security and other functions are ongoing
- Strong community support

CISF Layout at WCS Site



CISF Scope

- Environmental impacts have been analyzed with storage of 40,000 MTHM for 40 years
  - 8 separate phases; storage of up to 5,000 MTHM in each phase
- Designed for our partners' storage systems
  - AREVA NUHOMS®
  - NAC International

CISF Scope

- Continuing to have discussions with DOE on how CISF intersects with their UNF strategy
- Prioritizing shutdown sites
  - Additional systems and sites to be added in future License Amendments
  - Phase 1: Storage of UNF from over 9 shutdown/decommissioned NPPs

Focus of CISF Phase 1 UNF & GTCC from …

NAC International

- Maine Yankee (PWR)
- Connecticut Yankee (PWR)
- Yankee Rowe (PWR)
- La Crosse (BWR)
- Zion (PWR)

AREVA NUHOMS

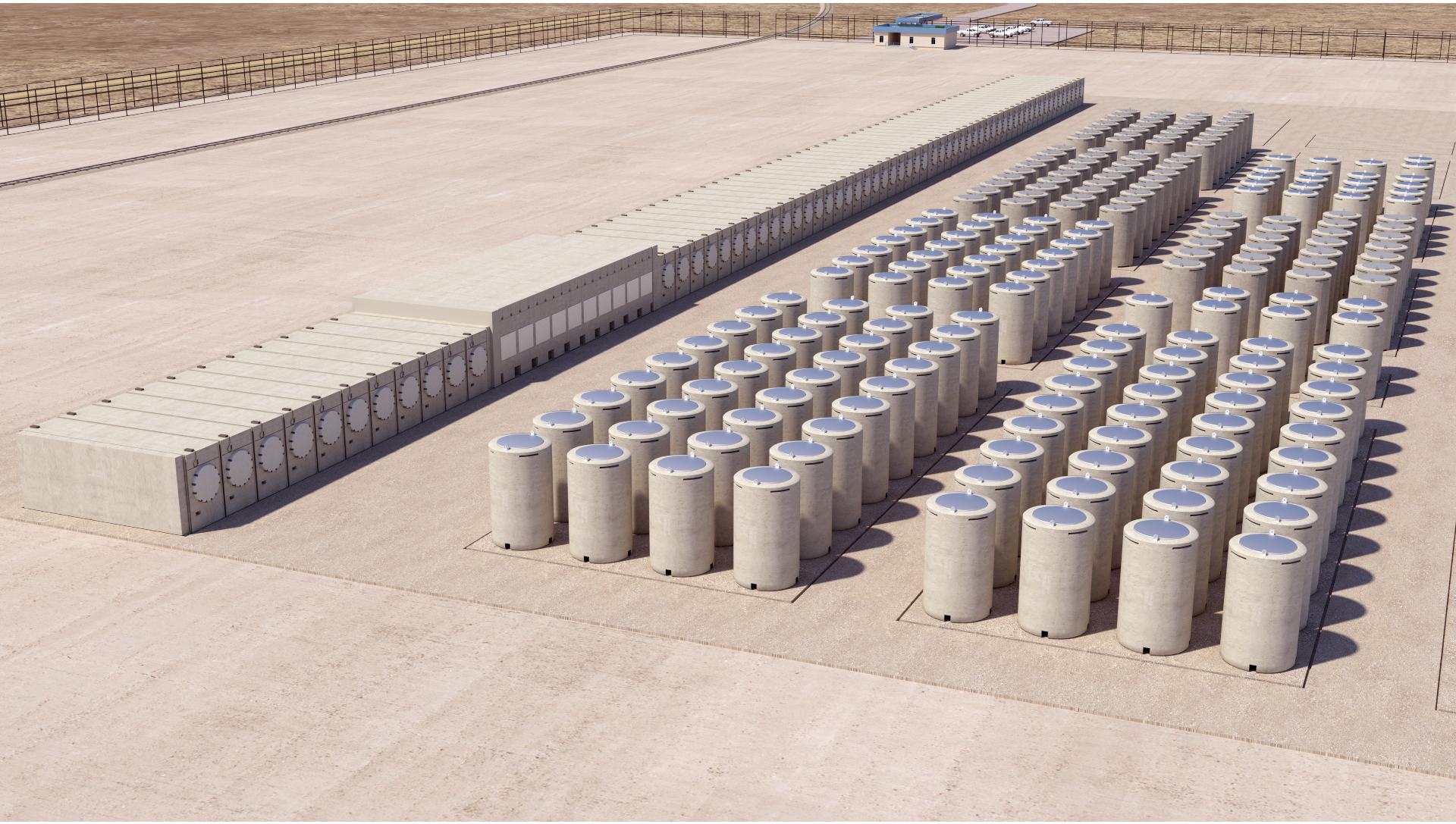
- Rancho Seco (PWR)
- SONGS Unit 1 (PWR)
- Millstone Unit 1 (BWR)
- Oyster Creek (BWR)
  - S/D sched. 2019
    - Fuel BU < 45 GWd/MTU

- Red = stranded (ISFSI only) site from 2012 BRC report

Focus of CISF Phase 1

- Initial License Application will address 80% of UNF and GTCC waste at BRC "Stranded" Sites
- AREVA Cask Systems
  - NUHOMS MP 187
  - Standardized NUHOMS
  - Standardized Advanced NUHOMS
- NAC International Cask Systems
  - NAC-MPC
  - NAC-UMS
  - MAGNASTOR

View of Deployed Systems for Phase 1



Application Status Update

- Revision 1 to the Application
  - To Be Submitted 15 March
- Changes to the SAR based on RSI responses
  - Principal effort directed toward facility descriptions.
  - Additional work on referencing
    - 72.18, “clear & specific”
- Aside from RSI-related changes, only editorial or corrections made.

Current Timeline

- April 2016 – License application submitted
- November 2016 – Commencement of ER
- January 2017 – LA accepted by NRC for docketing
- May (mid) 2017 – ER RAIs issued; responses mid-July
- July 2017 – SAR RAIs issued; response mid-Sept
- Mid 2019 – Licensing Decision
- 2021 – Operations commence*

Current Timeline

- The reason for the "*"
  - WCS LA specifies DOE takes title of SNF at the commercial nuclear reactor sites and responsible for its transport to the CISF.
  - WCS proposed LC – DOE would be contractually obligated to fund the operations of the CISF.
  - LC stipulates that the contract must be in place prior to commencement of operations at the CISF.
- Comply with statutory requirements

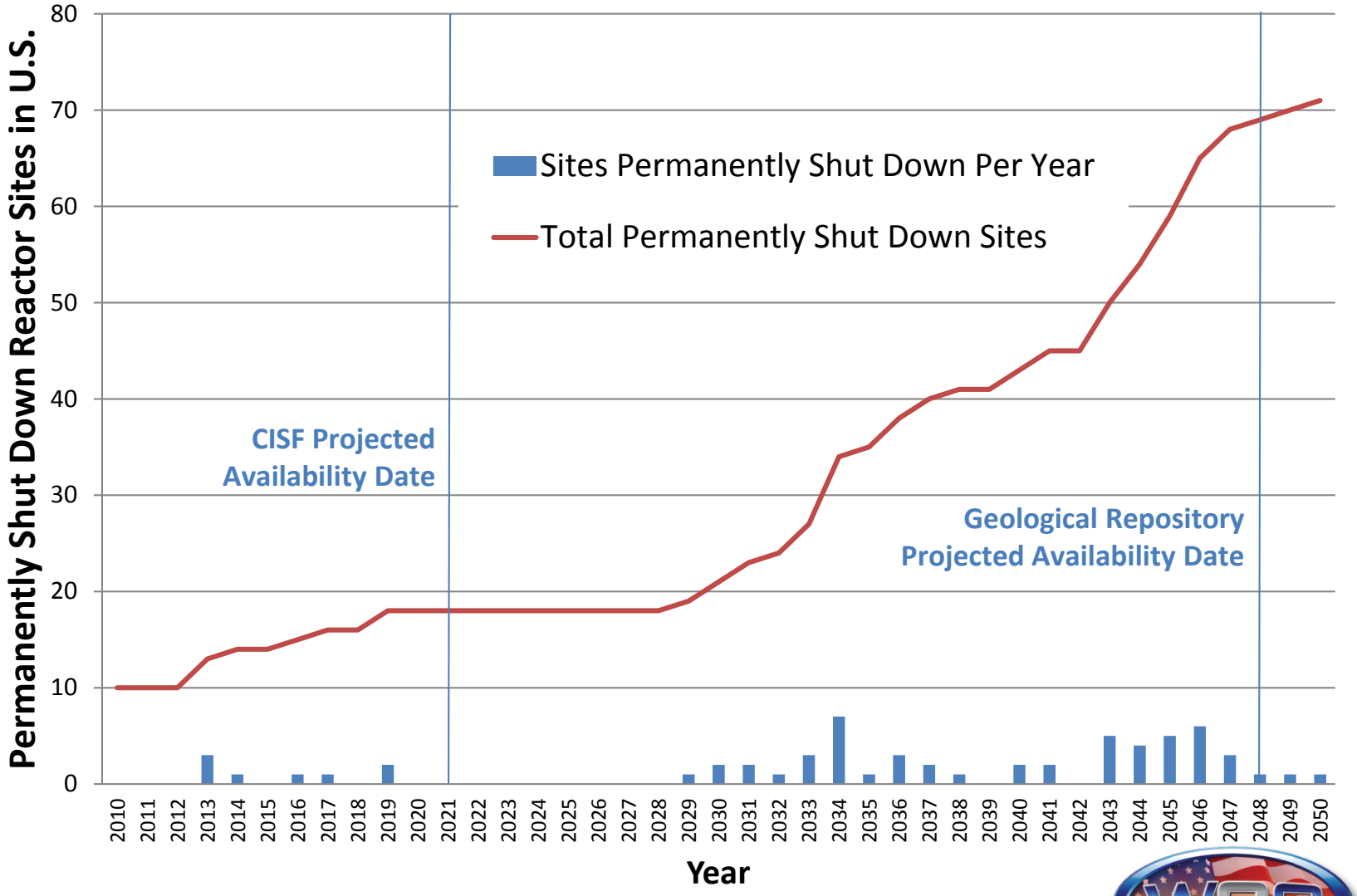
Advantages of a Private Entity

- Focus on benefits of taking fuel from shutdown sites
  - 10 “stranded” sites cited by BRC in 2012
  - 14 stranded sites in 2016
    - SONGS, Kewaunee, Crystal River 3, Vermont Yankee
  - 18 stranded sites by 2019
    - when CISF License decision will be made
  - 71 stranded sites by 2048
    - Repository availability date from 2013 DOE *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste*

Advantages of a Private Entity

- Assumptions
  - CISF begins operations in 2021
  - Geological repository not available before 2048
  - No additional “early” shutdowns due to financial hardships
  - Except as announced, all currently operating reactors run for 60 years
  - Minimum 10 year cooling time between S/D and final fuel removal
  - Average cost of $6.5M/year per shutdown site

Permanently Shuttered US NPPs 2010-50



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Advantages of a Private Entity

- Analysis results
  - 40,000 MTHM CISF can de-inventory approx. 51 shutdown sites
  - Significant “bow wave” of plant closures starting in 2029
  - Cost-effective solution that reduces overall Federal Government expenditure by billions of dollars
  - Reduces U.S. Taxpayer liability by **$5.4B+?**
  - **$1B+** benefit to communities hosting shutdown sites

Advantages of a Private Entity

- Conservative Economic Assumptions
  - Annual shutdown site cost likely to escalate
    - AMP
    - Increased security
    - Incentive payments to host communities
  - No credit taken for reuse of transportation assets in geological repository program
    - Hidden savings

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QUESTIONS?