

Nuclear Waste Redux: Could this be a new movie?

70th Annual NECPUC Symposium



THE SLOW

AND THE FURIOUS

Installments 1-∞

Starring . . .

THE SLOW

Federal Government

THE FURIOUS

State Leaders (e.g.,
Governors, AGs,
Legislators, PUCs,
Consumer Advocates)
Tribal Governments
Local Governments
Energy Companies
Electric Consumers
US Taxpayers

Outline

1. About the Nuclear Waste Strategy Coalition (NWSC)
2. Spent Nuclear Fuel (SNF) & Other Nuclear Waste
3. SNF Policy in US – Nuclear Waste Policy Act (NWPA)
4. NWPA Implementation
5. SNF Storage
6. Implications of Extended On-Site Storage
7. Recent Activities – Executive & Legislative Branches
8. NWSC Key Positions
9. Closing Thoughts & Contact Info

NWSC Overview

- Formation – 1993 by entities in 3 states (MI, MN, FL)
- Purpose – to urge timely removal of commercial nuclear waste by federal gov't and protect electric consumers
- Outreach to federal gov't w/o physical presence in DC
- Member-driven
- Member meetings in DC at least annually with Hill visits; regular conference calls
- Non-partisan and not pro- or anti-nuclear

NWSC Membership

- State utility commissions
- State consumer advocates
- State energy officials
- State radiation control officials
- Tribal government
- Local government
- Nuclear-generating utilities & utilities with shutdown plants
- Other subject matter experts

NWSC Leadership

➤ Executive Committee

➤ 3 State utility commissioners

➤ Hon. Sarah Hofmann, VT PSB (Chair)

➤ Hon. Bubba McDonald, GA PSC (Communications Officer)

➤ Hon. Julie Brown, FL PSC (Membership Officer)

➤ 2 Utility Reps

➤ Mr. Renze Hoeksema, DTE Energy (Vice Chair)

➤ Mr. Bob Capstick, 3 Yankee Companies (Finance Officer)

➤ 1 Ex-Officio

➤ David Wright, former Chair of NWSC & SC PSC

➤ Staff

➤ Katrina McMurrian (Executive Director)

NWSC Value

- Develop strong, cohesive messages on behalf of diverse and credible coalition
- Coordinate with other key stakeholder organizations like NARUC, NEI, NIC, DPC, ANS, NCSL, ECA, BPC, etc.
- Communicate messages to Congress, federal agencies, stakeholders, the media
 - Hill visits, letters, comments, press releases
- Inform members about relevant issues and events and provide opportunity for quick and effective input

SNF & Other Nuclear Waste

- **Spent (or used) nuclear fuel (SNF)** – A form of high-level radioactive waste, commercial or defense SNF “used” in reactor but not reprocessed (most commercial waste hasn’t been). To be disposed in repository.
- **Other high-level waste (HLW)** – Produced by defense reprocessing at DOE facilities (WA, SC) & former commercial reprocessing (NY). Generally DOE-managed & not NRC-regulated. Also destined for repository disposal.
- **Transuranic (TRU) waste** – Primarily from recycling SNF or using plutonium to fabricate nuclear weapons. Disposed at Waste Isolation Pilot Project (WIPP).
- **Low-level waste (LLW)** – Items contaminated with or exposed to radioactive material in range of applications (electricity generation, medical, research). Depending on classification, stored on-site until decayed and disposed of as trash, or until amounts large enough to ship to 4 state-regulated, near-surface disposal sites (WA, UT, SC, TX).
- **Uranium mill tailings** – Residues from milling certain ores to extract uranium & thorium. NRC-regulated disposal.

SNF Policy in US – NWPA



- **Nuclear Waste Policy Act (NWPA) of 1982**
 - Called for repository site search to result in 2 sites (1 in East & 1 in West assumed)
 - Limited 1st repository to 70,000 metric tons until 2nd repository open
 - Created office in DOE to focus on waste (OCRWM)
 - **Authorized DOE to contract with utilities for DOE removal of SNF starting in 1998 in return for fees**
 - Directed DOE to propose site & design for MRS
 - Assigned licensing to NRC using EPA standards

SNF Policy in US – NWPA (*cont.*)

➤ 1987 NWPA Amendments

- Named Yucca Mountain (YM) as sole repository site; eliminated 2nd repository program
- Rescinded MRS site selection and tied future operation to repository progress
- Offered incentives to host states & tribes
- Established Nuclear Waste Negotiator to find voluntary repository or MRS sites (*expired*)
- Established Nuclear Waste Technical Review Board to increase oversight of OCRWM
- If YM found unsuitable, studies to be stopped, site restored, and DOE to report to Congress in 6 mos. on course of action

NWPA Implementation

➤ Milestones Achieved

➤ 2002 –

- Sec. of Energy recommended Yucca Mountain (YM) for the only repository & Pres. Bush approved
- Nevada exercised state veto in April
- Veto overridden by Congress by mid-July

➤ 2008 –

- DOE submitted license application for YM repository to NRC

NWPA Implementation *(cont.)*

➤ Political Intervention Sidetracks Program

➤ 2010 –

- Administration zeroed out YM funding
- DOE moved to withdraw YM license app
- President created Blue Ribbon Commission (BRC) to “recommend a new strategy” because YM “unworkable”
- DOE’s OCRWM closed

➤ 2011 –

- NRC discontinued technical review of YM license app

➤ 2012

- BRC on America’s Nuclear Future Report to DOE

NWPA Implementation *(cont.)*

➤ Accomplishments through 2016

➤ 2013 –

- NRC restarts review of YM license app as directed by USCA-DC writ of mandamus (as long as appropriated funds last)

➤ 2015 –

- NRC completion of Safety Evaluation Report (SER)

➤ 2016 –

- NRC completion of Supplemental EIS
- Remaining YM license app review work will require additional funding by Congress

NWPA Implementation *(cont.)*

Nuclear Waste Fund (NWF) Payment Info as of Sept. 30, 2016 (Million Dollars)

	Total NWF Contributions	1-Time Fee Outstanding	Allocation of Interest on NWF	Total Liabilities
US Total	21,191.0	3,084.1	22,427.8	46,703.0

- Payments based on nuclear plant generation
- Source: DOE; Updated: 2/17 by NEI
- Note: DOE suspended collection of fee in May 2014 as a result of a Nov. 2013 USCA-DC decision in NARUC fee suspension case.

SNF Storage

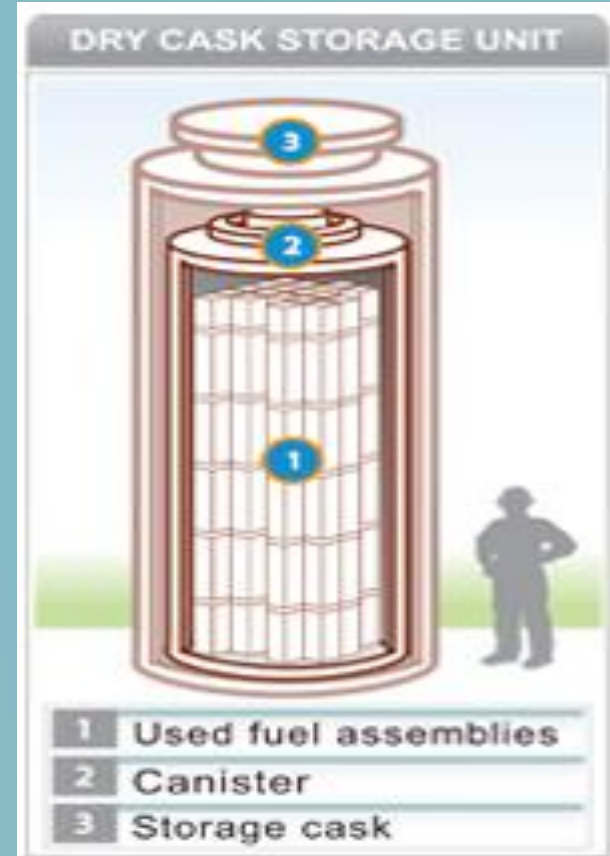
➤ SNF Pool Storage

- Water typically about 40 feet deep. Shields radiation & cools rods.
- Usually cooled at least 5 years in pool before transfer to dry cask.



SNF Storage (cont.)

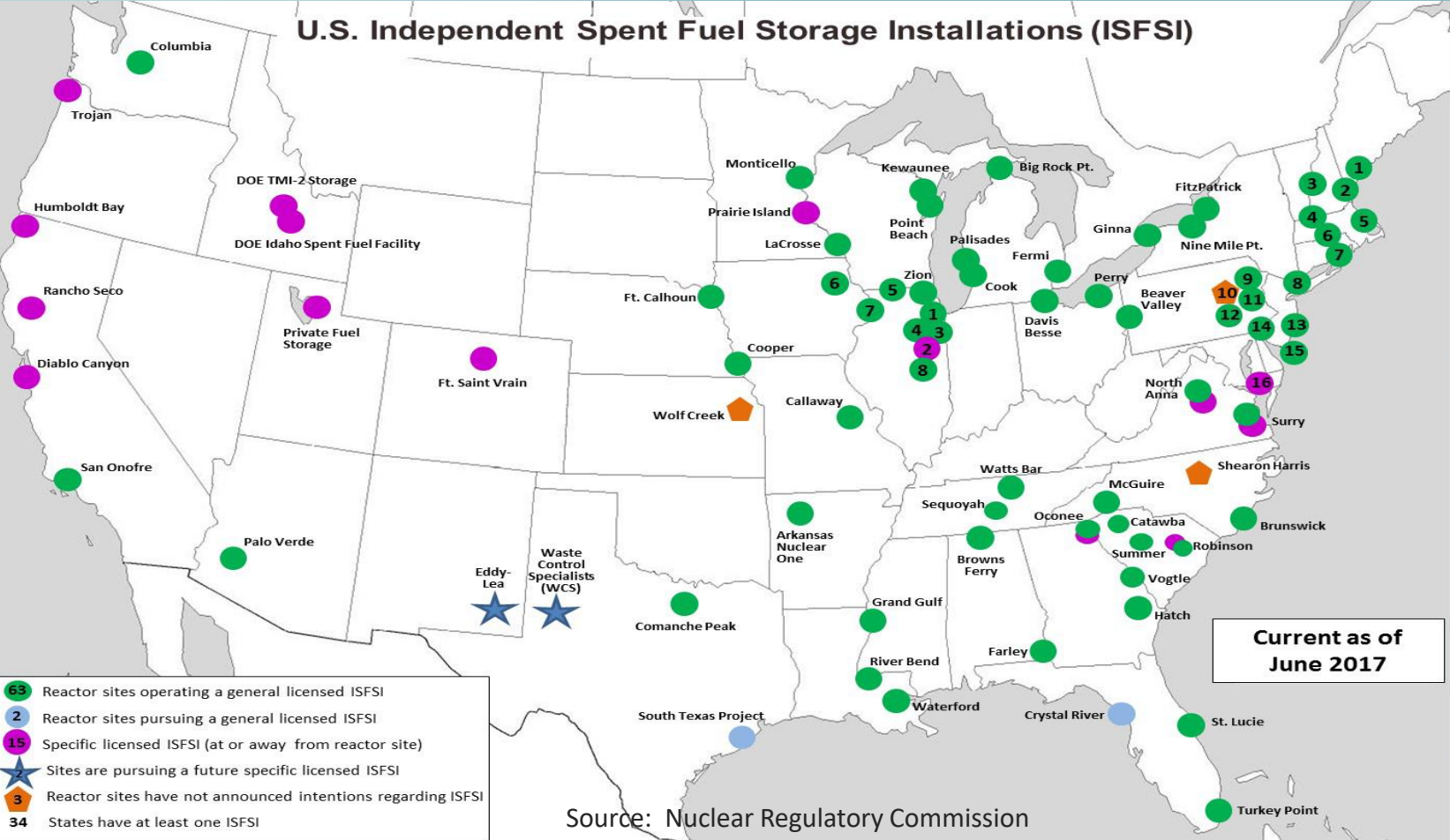
- Dry Cask Storage
 - As pools near capacity, utilities move older SNF into “dry casks.”
 - ISFSIs licensed in 34 states.



SNF Storage

U.S. Independent Spent Fuel Storage Installations (ISFSI)

- Midwest**
- 1 Dresden
 - 2 GE Morris (wet)
 - 3 Braidwood
 - 4 LaSalle
 - 5 Byron
 - 6 Duane Arnold
 - 7 Quad Cities
 - 8 Clinton
- Northeast**
- 1 Maine Yankee
 - 2 Seabrook
 - 3 Vermont Yankee
 - 4 Yankee Rowe
 - 5 Pilgrim
 - 6 Haddam Neck
 - 7 Millstone
 - 8 Indian Point
 - 9 Susquehanna
 - 10 Three Mile Island
 - 11 Limerick
 - 12 Peach Bottom
 - 13 Oyster Creek
 - 14 Hope Creek
 - 15 Salem
 - 16 Calvert Cliffs



Implications of Extended On-Site Storage



➤ On Electric Consumers

- Through May 2014, paid \$.001/kWh of nuclear-generated electricity into NWF (about \$750 M per year). With accumulated interest, NWF receipts now exceed \$40 B, but little in return (most used for purposes other than disposal as intended) .
- Additional costs for utility dry cask storage, security, and work-arounds.

➤ On Taxpayers

- Damages for unmet obligation (breach of contract) paid out of US Treasury's Judgment Fund – over \$6.1 B paid as of 9/30/16.
- Estimated remaining future liability – \$24.7 B through 2023 and approx. \$500 M per year after.

Implications of Extended On-Site Storage *(cont.)*

- **On Communities**
 - Increasing concern SNF won't be removed and dry casks not originally licensed for indefinite storage (e.g., Prairie Island)
 - In case of shutdown units (e.g., Maine Yankee), dry cask storage may be only thing preventing other economic uses of property



Recent Activities – Executive Branch

➤ Department of Energy (DOE)

- “Strategy” for Integrated Waste Management, Jan. 2013
- Defense-Only Repository, Mar. 2015 – no longer pursuing 2017
- Deep Boreholes (for specific waste forms) – canceled 2017
- Consent-Based Siting for repository & CIS road show 2016 – no longer pursuing 2017
- Reorg Office of Nuclear Energy 2016 – re-establish OCRWM 2017?
- FY 2018 Budget Request: \$120 M for Yucca Mtn. & Interim Storage (YMIS)
- Transportation matters ongoing

Recent Activities – Exec. Branch *(cont.)*

➤ Nuclear Regulatory Commission (NRC)

- YM Safety Evaluation Report completed in 2015
 - confirmed YM repository can dispose of SNF and HLW for over 1 million years while protecting public health, safety, and the environment
- YM Supplemental Environmental Impact Statement (concerning groundwater impacts) completed in 2016
- FY 2018 Budget Request: \$30 M to support activities for proposed Yucca Mountain repository
- Transportation, decommissioning, and other SNF-related matters ongoing

Recent Activities – Legislative Branch

- Energy & Water Appropriations in both chambers
- Comprehensive bills:
 - House E&C 2017 Discussion Draft (IL Rep. Shimkus) – Yucca Mtn. licensing, funding reforms, CIS with linkage, host incentives, etc.
 - Senate NW Administration Act of 2015 (Sens. Murkowski, Cantwell, Alexander, Feinstein) – CIS, consent-based siting, funding reforms, NW Administrator, etc.
- Interim Consolidated Storage bill:
 - H.R. 474 (CA Rep. Issa + 23 cosponsors) – introduced & referred E&C 1/12/17
- Consent-related bills:
 - S.95 (both NV Sens.) – introduced & referred EPW 1/11/17
 - H.R. 456 (3 NV Reps.) – introduced & referred E&C 1/11/17

NWSC Key Positions

➤ Permanent Disposal / Yucca Mountain –

- NRC should complete independent review of YM repository license app (re-start proceeding before ASLB).
- DOE should re-establish OCRWM, re-engage in NRC's review, and support its YM license app.
- Congress should fund these activities and hold agencies accountable.
- Repository needed – whether or not CIS is used prior to disposal and whether or not SNF reprocessed.
- Congress should consider benefits agreement with Nevada and affected units of local government that goes beyond NWPA.

NWSC Key Positions *(cont.)*

- **Consolidated Interim Storage (CIS) –**
 - Congress should authorize and fund a *pilot* CIS facility for SNF (and any GTCC waste) stranded at permanently shutdown commercial nuclear power plant sites as part of an integrated waste management program leading to permanent disposal.
 - DOE should use the authority afforded it under the Standard Contract to first remove and store SNF from shutdown sites with no operating reactors.
 - DOE should engage with private CIS initiatives that are pursuing NRC licenses for SNF storage and with other potential public or private hosts.

NWSC Key Positions *(cont.)*

➤ **Transportation –**

- Congress should provide DOE with resources to timely test, certify, and procure rail cars, as well as licensed transportation casks and components, in sufficient quantities.
- Congress should provide increased financial and technical assistance to tribal, state, and local governments for transportation and related emergency preparedness activities.
- These actions are beneficial regardless of whether SNF destined for CIS or a permanent repository or both.

NWSC Key Positions *(cont.)*

➤ Funding Reform –

- Ensure timely access to entire NWF (contributions + interest) for its intended purpose (integrated NW management program leading to disposal), *without* reliance on the annual appropriations process but *with* appropriate Congressional oversight.

➤ Governance Reform –

- Congress should establish independent waste management organization (e.g., federal corporation) to manage NW program.
- In meantime, DOE should re-establish OCRWM, a single-purpose organization to manage program and implement NWPA.

Closing Thoughts

- Timely resolution of NW disposal problem is in public interest, is achievable, and helps preserve nuclear option.
- NWPA still law, and future liability can be avoided. Proceed with Yucca Mountain review.
- Support Yucca and consolidated interim storage.
- Public awareness of issues lacking.
- Often, *crisis or consensus* needed to spur

Please join NWSC in pursuing consensus!



For More Info



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