

The NRC Reactor Decommissioning Process – Post Shutdown Decommissioning Activities Report (PSDAR) License Termination Plan (LTP)

Nuclear Decommissioning Citizens Advisory Panel for Vermont Yankee

January 28, 2015

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Agenda

- Opening Remarks – Andrew Persinko, Deputy Division Director - DUWP
 - Meeting Announcements
 - Reactor Decommissioning Process
 - Regulatory Basis
 - Decommissioning Experience
 - Post Shutdown Decommissioning Activities Report
 - License Termination Plan
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Mission

- The NRC licenses and regulates the Nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment.



Meeting Announcements

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- February 5th 3 - 4:30 PM – Webinar on the Reactor Decommissioning Process and Vermont Yankee. To register, <https://attendee.gotowebinar.com/register/5535875383432936961>
 - February 19th 6 – 9 PM – Public Meeting on the Vermont Yankee Post Shutdown Decommissioning Activities Report. Brattleboro Quality Inn
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Power Reactor Decommissioning Regulations

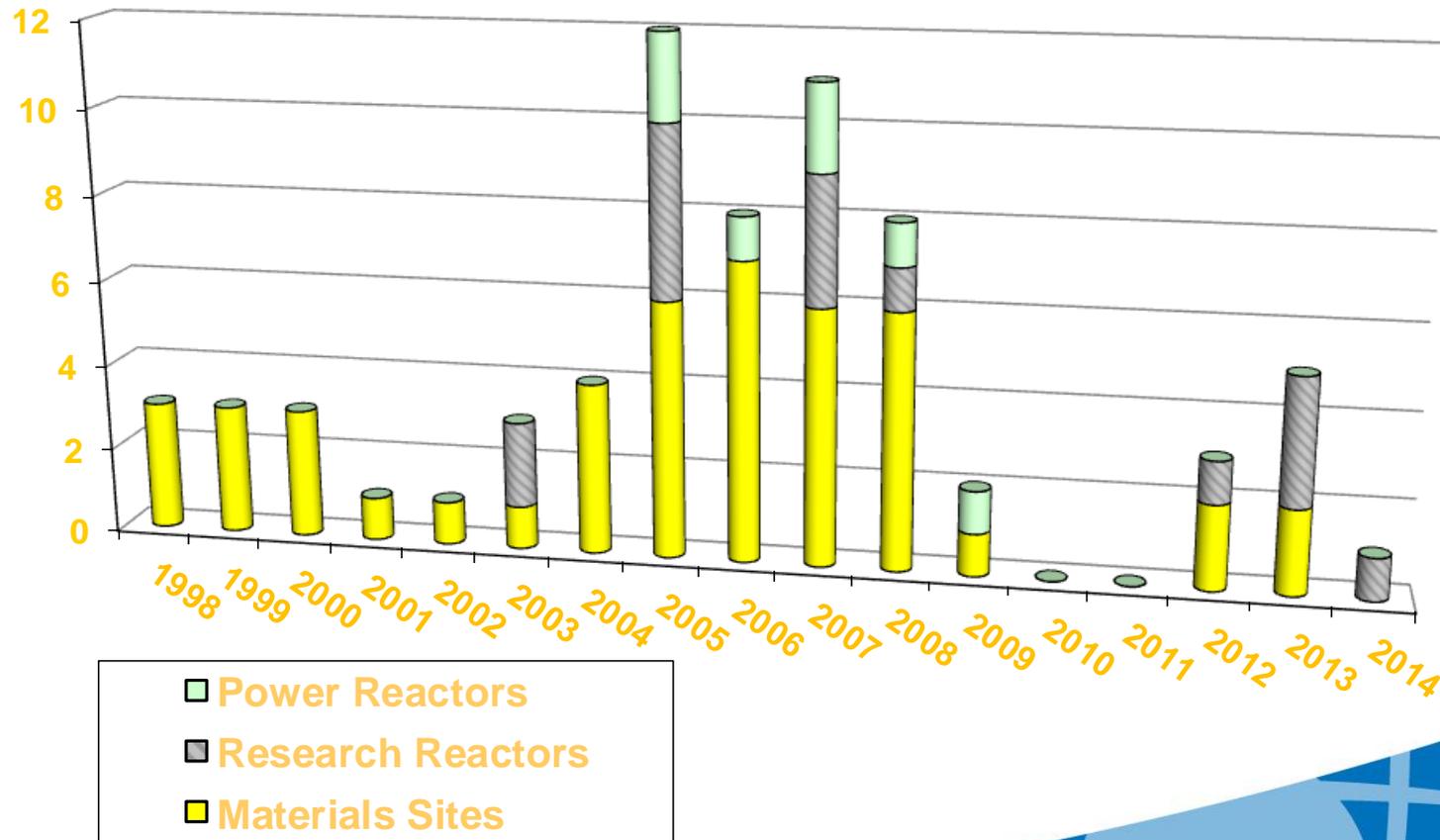
Atomic Energy Act of 1954, as Amended

- 10 CFR Part 20 Subpart E “License Termination Rule” was implemented in 1997
- 10 CFR Part 50 – Operating License
- 10 CFR 50.75 Planning for Decommissioning
- 10 CFR 50.82 - Termination of License

10 CFR 50.82 License Termination

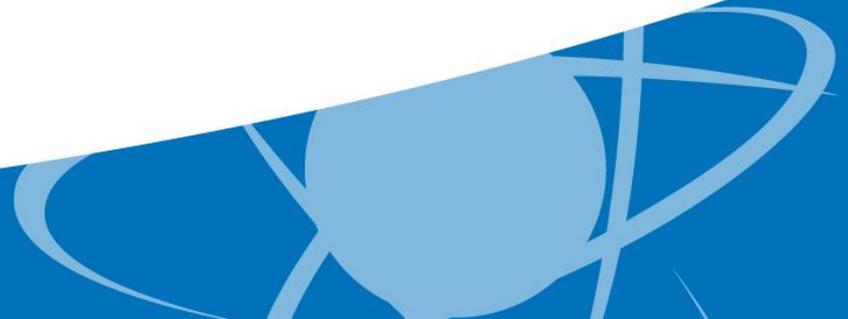
- Certifies Permanently Shutdown
- Certifies Permanent Reactor Defueling
- Post Shutdown Decommissioning Activities Report required within 2 years of permanent cessation of operations to NRC and affected States
- License Termination Plan

NRC Decommissioning Experience



NRC Decommissioning Experience Since 1997

- 7 Power Reactor Licenses Terminated
- 45 plus Complex Material Sites Licenses Terminated
- 14 Research Reactor Licenses Terminated



Decommissioning

As defined in 10 CFR 50.2 “Decommission” means **to remove a facility or site safely from service and reduce residual radioactivity** to levels that permits either:

- Release of the property for unrestricted use and termination of the license;

or

- Release of the property for restricted conditions and termination of the license.

10 CFR 20 Release Criteria

- Unrestricted Release
 - Total Effective Dose Equivalent (TEDE) ≤ 25 mrem (0.25 mSv/a) and As Low As is Reasonably Achievable (ALARA)
 - Average member of the critical group
 - All pathways
 - Period of performance - 1000 years
- Restricted release
 - ≤ 25 mrem (0.25 mSv/a) TEDE and ALARA, with institutional controls in effect
 - Legally enforceable institutional controls
 - If institutional controls fail, doses do not exceed 1 mSv/a, or 5 mSv/a, under specific circumstances
 - Financial assurance - independent third party
 - Licensee and NRC public input/outreach requirements

Reactor Decommissioning

Performance Based Risk-Informed Regulations

- Reactor Decommissioning is required to be completed in 60 years.
- Bases: 50 y in SAFSTOR + 10 y DECON
- Radiation Dose Rates reduced to 1-2 %
- Radioactive Waste Volumes reduced to 10%
- Allows Decommissioning Fund to increase
- Regulatory Guide 1.184 “Decommissioning of Nuclear Power Reactors”



Post Shutdown Decommissioning

Activities Report - Why 2 Years?

- Purpose of the PSDAR
- Decommissioning Planning Strategy – DECON Prompt Dismantlement, SAFSTOR Deferred Dismantlement or Entomb?
- Many factors to consider in the decision-making process



Post Shutdown Decommissioning Activities Report

PSDAR Content:

- A description and schedule for the planned decommissioning activities
- An estimate of the expected decommissioning costs
- A discussion that provides the means for concluding that the environmental impacts associated with the decommissioning activities will be bounded by appropriately issued Environmental Impact Statements.

Post Shutdown Decommissioning Activities Report

NRC Actions:

- Notices receipt of the PSDAR in the *Federal Register*
- Makes the PSDAR publically available at <http://www.nrc.gov> and Public Document Room
- NRC holds a Public Meeting in the vicinity of the licensee's facility to discuss the PSDAR and solicit public comments

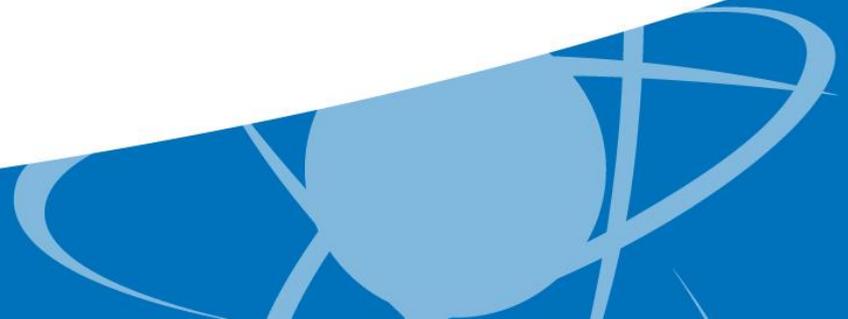
Post Shutdown Decommissioning Activities Report

NRC Public Meeting Actions:

- Host a public meeting to obtain public comments on the PSDAR
 - Publish Meeting Notice in the Federal Register and local newspapers/media
 - During the informational meeting, invite Licensee, State and Local Officials, and general public to comment on the PSDAR
 - A written transcript will be made publically available
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NRC's PSDAR Review Process

- Content Requirements are in 10 CFR 50.82(a)(4)(i)
- Staff uses Regulatory Guide 1.185 to ensure the document meets requirements
- Project Manager coordinates the PSDAR technical reviews
- Requests for Additional Information may be developed



NRC's PSDAR Review Process

Decommissioning Activities

- Planned Decommissioning Activities and Schedule
 - Activities Unique to the Facility
 - NRC Safety Review
 - Determine NRC Oversight/Inspection
 - Determine NRC Licensing Activities



NRC's PSDAR Review Process- Decommissioning Cost Estimate

- Site Specific Decommissioning Cost Estimate
 - Ensure **reasonable assurance that** funds are there to perform the radiological cleanup
 - If decommissioning is delayed, ensure the licensee has a means of adjusting the cost estimate and funding over the storage period
 - Annually Update!



NRC's PSDAR Review Process – NEPA

- Reasons for concluding that Environmental Impacts associated with the decommissioning activities are bounded by the previously issued EISs.
 - NUREG 0586, “Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities”
 - Inspection Program



NRC's PSDAR Review Process

- After no additional information is required, NRC will notify the Licensee.
- NRC does not approve the PSDAR
- Licensee may begin major decommissioning activities 90 days after NRC receives the PSDAR



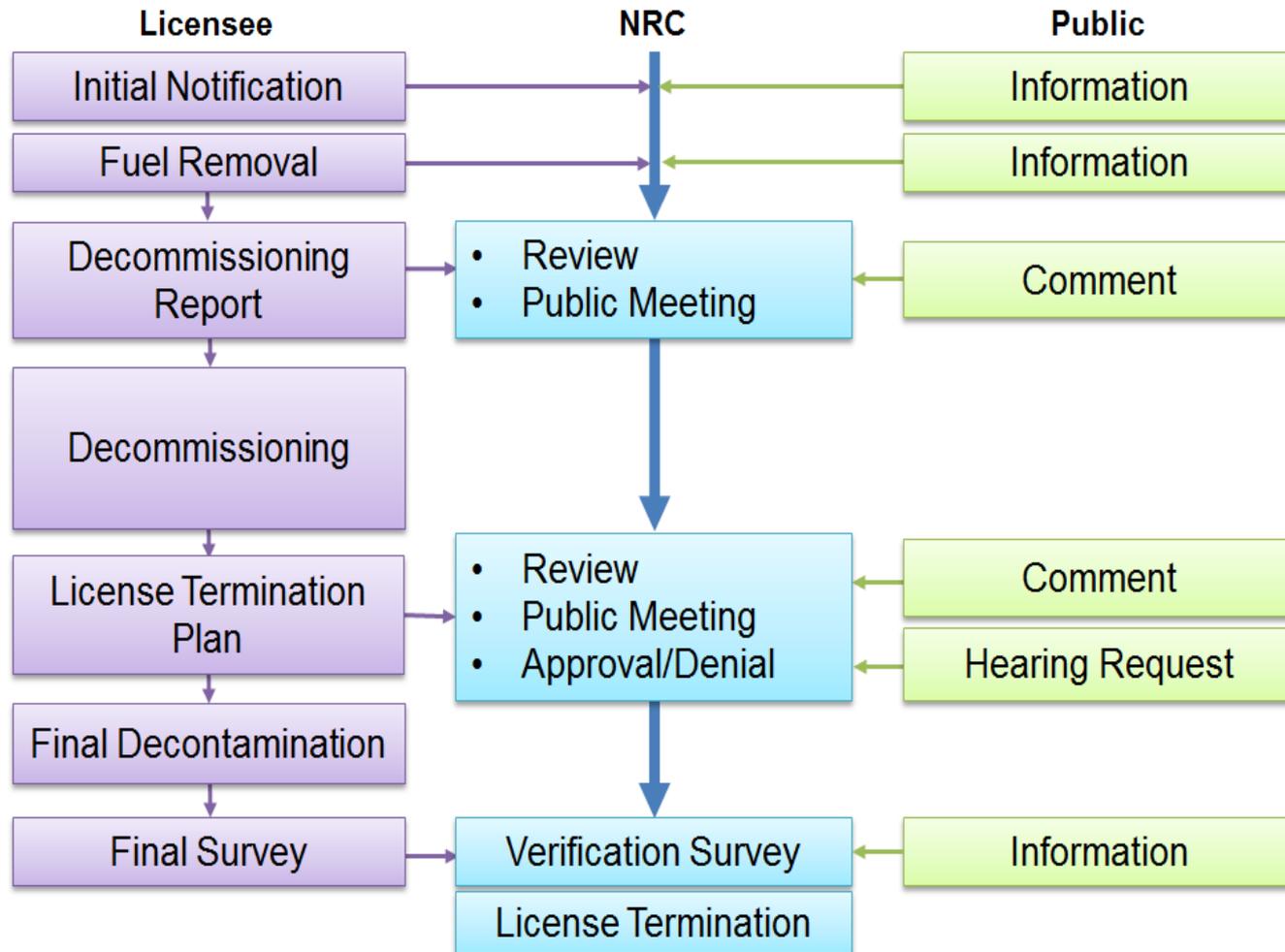
License Termination Plans (LTP)

- Licensee conducts decommissioning in accordance with the license and technical specifications
- NRC continues on-site inspections
- Licensee submits the LTP at least 2 years prior to requesting license termination
- NRC notices the LTP in the Federal Register
- NRC holds a Public Meeting to discuss the LTP

License Termination Plan

- NRC will perform an acceptance and technical review
- Request additional information, if necessary
- Public Meeting and Opportunity for Hearing
- NRC approves the LTP by license amendment
 - Safety Evaluation Report
 - Environmental Assessment
- License is terminated upon demonstration by the licensee and NRC confirmatory survey that the site meets the unrestricted release criteria.

Reactor Decommissioning Process



NRC's Regulatory Oversight Continues

Decommissioning Inspection Program

- Inspection Manual Chapter 2561
- ~ 40 Inspection Procedures
- 12 Core Inspection Procedures
- 28 Discretionary Inspection Procedures
- Inspection Program is adjusted to site activities

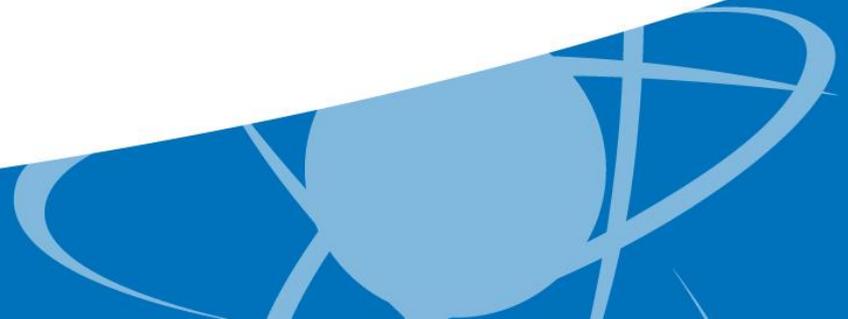


Reactor Decommissioning Program

- 19 Power Reactors in Decommissioning
 - ✓ 5 Active DECON
 - ✓ 14 in SAFSTOR
 - ✓ 1 in Transition to SAFSTOR
- 7 Research Reactors in Decommissioning
 - ✓ 3 Active DECON
 - ✓ 4 in SAFSTOR
 - ✓ 1 expected to cease operations in 2015

Thank You!!!

Questions?



- **OPTIONAL SLIDES**



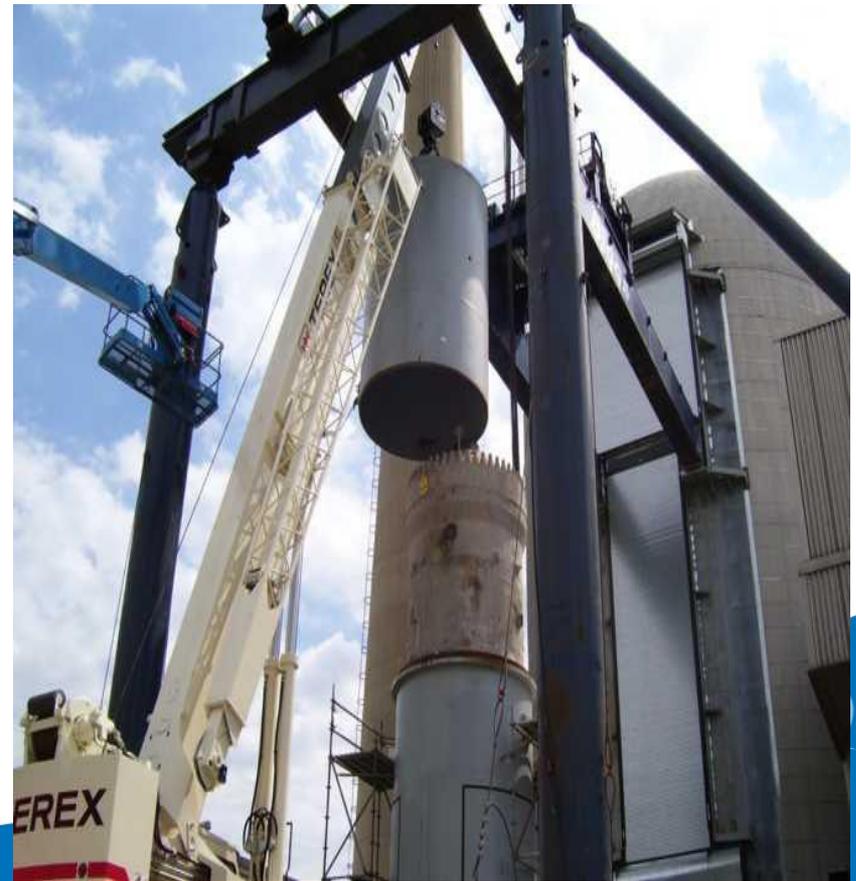
Rancho Seco



Fermi 1



LaCrosse BWR



Humboldt Bay Site



Maine Yankee



Reactors in Decommissioning Status

- 5 Reactor Sites have new or additional generation plants
- 6 Reactor Sites are at multi-unit nuclear sites
- 8 Reactor Sites are “Greenfield” but 6 have ISFSIs
- 3 New Reactor Sites – TBD, San Onofre has a 3rd party agreement with US Navy

Reactor Decommissioning Decision-Making Factors

- Multi-Unit Site Safety
- Financial – Decommissioning Funds Availability
- Access to Radioactive Waste Disposal Capacity
- Future use of the Site
- Stakeholders
 - State Public Utility Commissions
 - Local Communities
 - Members of the Public/Rate Payers
- New Business Model
- Special Circumstances



