



NRC PUBLIC MEETING

PALISADES NUCLEAR PLANT

POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT

SEPTEMBER 22, 2022

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

PALISADES NUCLEAR PLANT POST SHUT DOWN DECOMMISSIONING ACTIVITIES REPORT PUBLIC MEETING

September 22, 2022

The purpose of tonight's meeting is to:

Provide awareness to the community of the plans and schedule for decommissioning the Palisades Nuclear Plant

Seek public comment and feedback on the Palisades Nuclear Plant Post-Shutdown Decommissioning Activities Report (PSDAR)

Answer questions about the NRC's decommissioning process and method for reviewing the Palisades PSDAR

Hear any community concerns related to the plan for decommissioning Palisades



MEETING AGENDA

- Meeting Purpose: Obtain Public Comments on the Holtec Decommissioning International (HDI) Post-Shutdown Decommissioning Activities Report (PSDAR) for the Palisades Nuclear Plant
- Introductions
- Decommissioning Program
- Palisades Status and PSDAR Content
- PSDAR Review and Public Comment Process
- Public Comments
- Close Meeting by 8:00 p.m.



NRC OPERATING AND DECOMMISSIONING STAFF





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RHEX EDWARDS

Decommissioning Inspector

Material Control, ISFSI, and Decommissioning Branch

Division of Nuclear Materials Safety in Region III

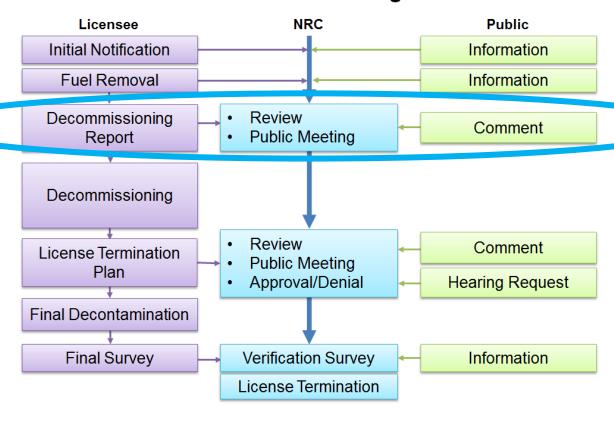
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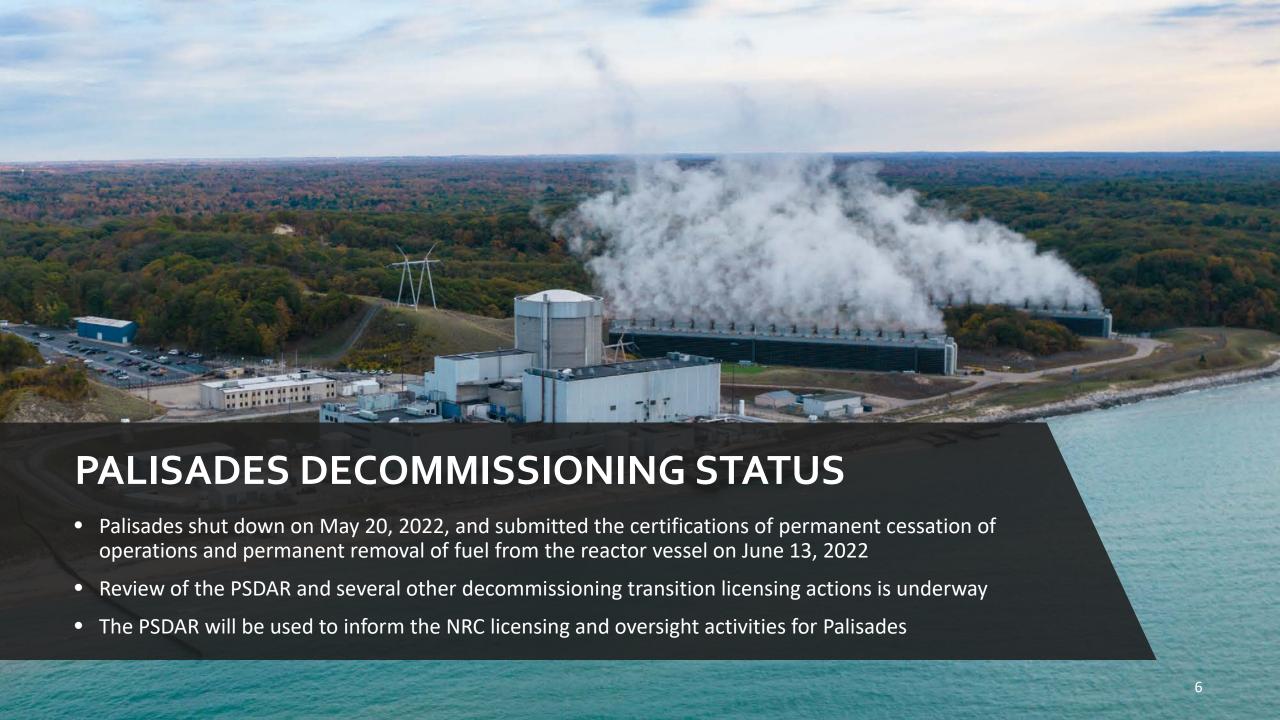
Phone: 630-829-9722

DECOMMISSIONING PROGRAM

- Comprehensive regulations include:
 - radiological cleanup criteria
 - public involvement opportunities
 - financial assurance requirements
- Effective decommissioning guidance
- Appropriate levels of oversight throughout decommissioning
- Extensive NRC experience in decommissioning radiological sites

Reactor Decommissioning Process





PSDAR REQUIREMENTS

The PSDAR must contain:

- Description of planned activities
- High-level schedule considerations
- Site-specific cost estimate for decommissioning
- Projected costs of managing irradiated fuel
- Discussion of potential environmental impacts of decommissioning



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10 CFR 50.82(a)(4)

December 23, 2020

U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, DC 20555-0001

> Palisades Nuclear Plant Docket Nos. 50-255 and 72-007 Renewed Facility Operating License No. DPR-20

Subject: Post Shutdown Decommissioning Activities Report including Site-Specific

Decommissioning Cost Estimate for Palisades Nuclear Plant

Reference: [1] Letter from ENOI to US NRC, "Certification of Permanent Cessation of Power Operations, Palisades Nuclear Plant, Docket No. 50-255," dated September 28, 2017, (ADAMS Accession No. ML17271A233).

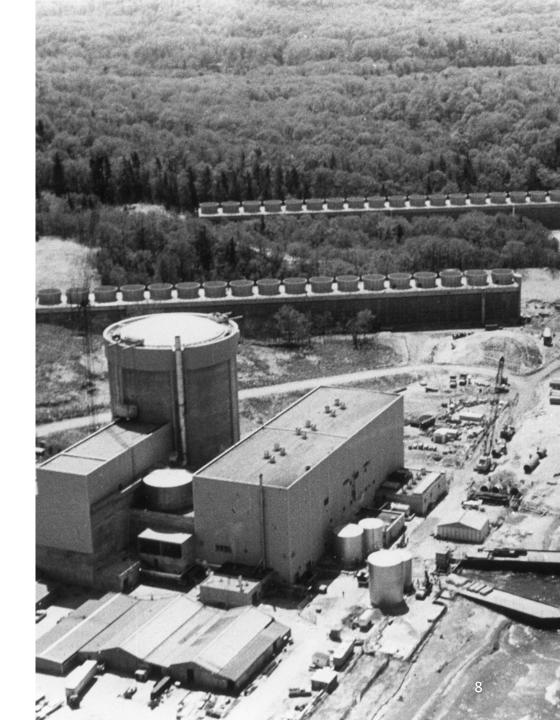
- [2] Letter from ENOI to US NRC, "Supplement to Certification of Permanent Cessation of Power Operations, Palisades Nuclear Plant, Docket No. 50-255," dated October 19, 2017, (ADAMS Accession No. ML17292A032).
- [3] Letter from ENOI to US NRC, "Application for Order Consenting to Transfers of Control of Licenses and Approving Conforming License Amendments, Palisades Nuclear Plant Docket Nos. 50-255 and 72-007, and Renewed Facility Operating License No. DPR-20 and Big Rock Point Docket Nos. 50-155 and 72-043, License No. DPR-6," dated December 23, 2020.
- [4] Letter from Holtec Decommissioning International, LLC to US NRC, "Request for Exemptions from 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv)," dated December 23, 2020.

Pursuant to 10 CFR 50.82(a)(4), Holtec Decommissioning International, LLC (HDI) is submitting a Post Shutdown Decommissioning Activities Report (PSDAR) for the Palisades Nuclear Plant (Palisades). By letters dated September 28, 2017 and October 19, 2017, Entergy Nuclear Operations, Inc. (ENOI) notified the Nuclear Regulatory Commission (NRC) that it would permanently cease power operations at Palisades no later than May 31, 2022 (References 1 and 2).

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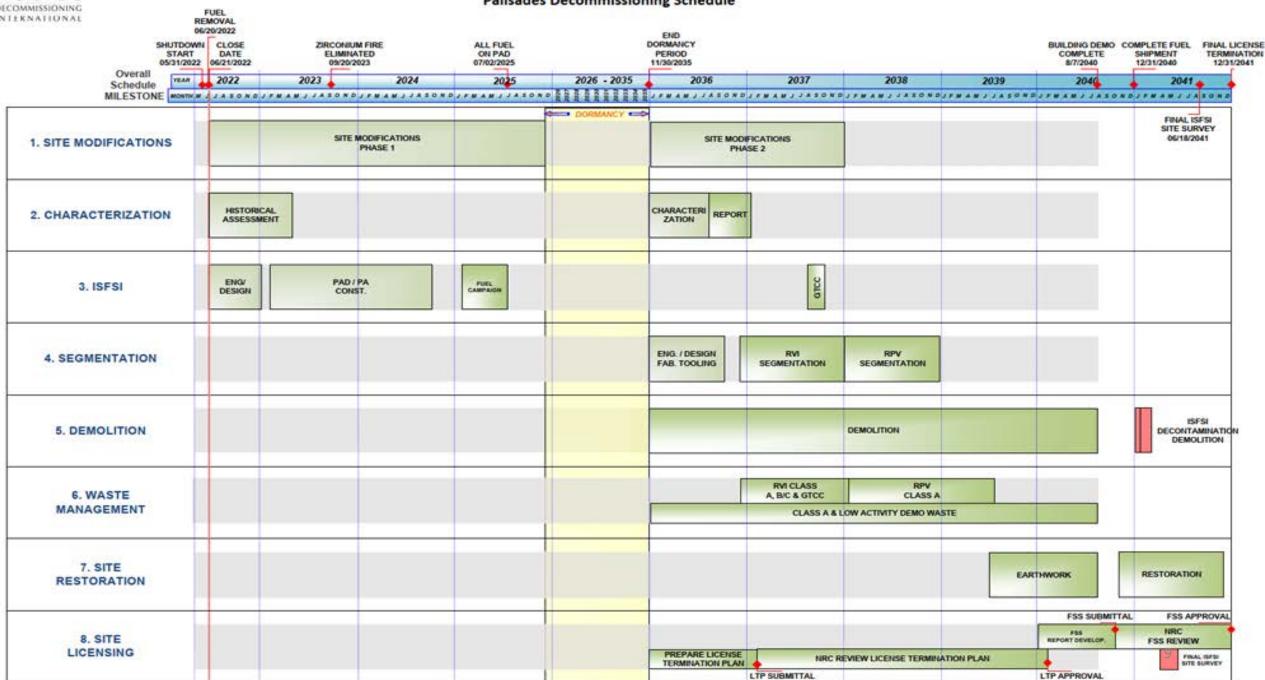
PALISADES PSDAR CONTENT AND COST ESTIMATE

- HDI is preparing the plant for decommissioning and transfer of spent fuel to dry storage by 2025
- Safe storage (a period of low activity) from 2026 to 2035
- Complete radiological decommissioning by 2041
- The 2022 decommissioning trust fund balance at license transfer to HDI was \$552 million, and estimated cost to complete radiological decommissioning and terminate the Palisades license is \$443 million (in 2020 dollars)
- The PSDAR states that no decommissioning activities will be performed that result in significant environmental impacts not previously reviewed for the site



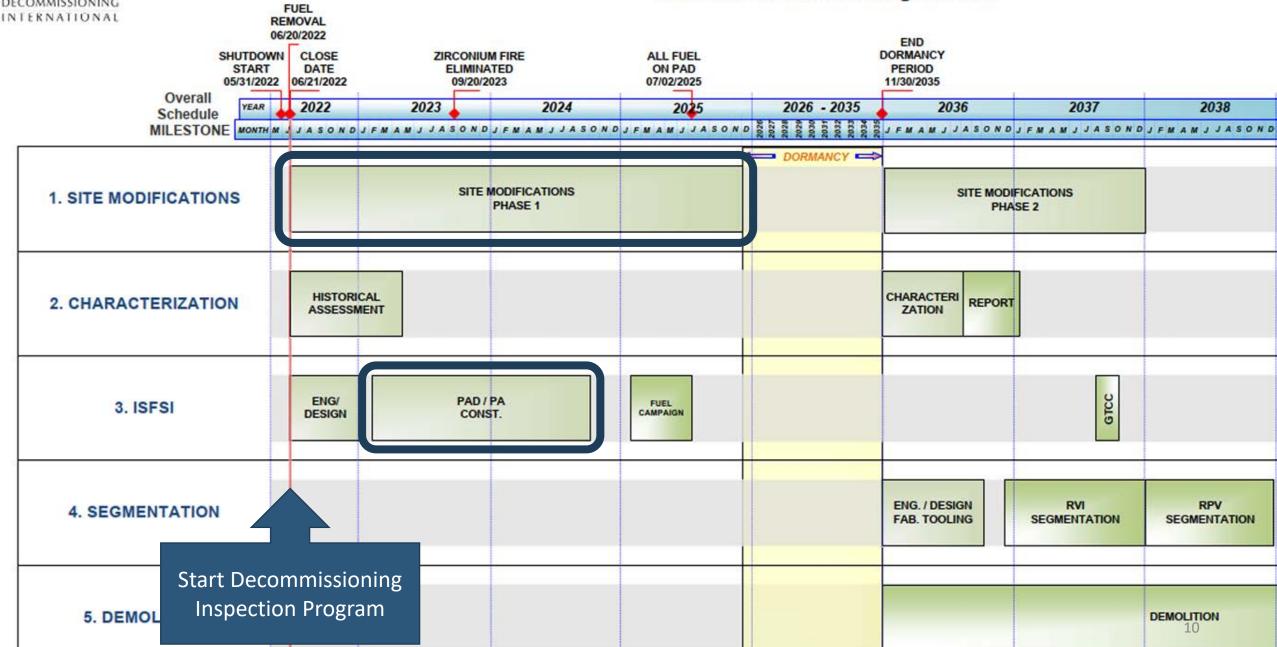


Palisades Decommissioning Schedule





Palisades Decommissioning Schedule



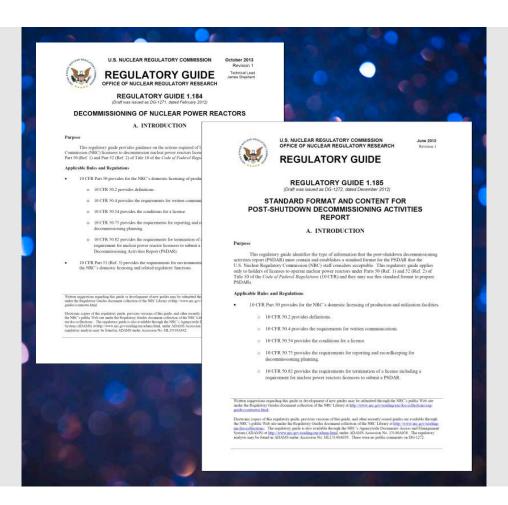
PSDAR REVIEW PROCESS



PUBLIC OUTREACH

The NRC notices receipt of the PSDAR in the *Federal Register* and requests public comments

The NRC also schedules a public meeting in the vicinity of the plant to discuss the PSDAR and solicit public comments





TECHNICAL REVIEW

Technical review of the decommissioning strategy and overall schedule

Financial review of the decommissioning and spent fuel management funding

Environmental review for decommissioning the site



PSDAR PUBLIC COMMENT METHODS

During this meeting, which is being transcribed

By mail: Office of Administration

Mail Stop: TWFN-7-A60M

U.S. Nuclear Regulatory Commission

Washington, DC 20555-0001 ATTN: Program Management,

Announcements and Editing Staff

- Federal Rulemaking website: http://www.regulations.gov
 - Search for Docket ID NRC-2022-0158
- Comments due by December 27, 2022





THANKYOU!



OPA.RESOURCE@NRC.GOV



HTTPS://WWW.NRC.GOV

MAKING COMMENTS VIA TEAMS CONNECTION

CALL IN LINE: 301-576-2978

Phone Conference ID: 770 089 805#

Please consider calling in via audio only if you are having trouble making comments via the MS Teams connection

Raise your hand to speak

- If you have joined via your computer, please raise your hand to speak by selecting the "raise hand" icon
- If you have joined via phone, please press *5 to raise your hand
- Once the Teams facilitator sees a raised hand, your name will be called and your microphone enabled
- If you have joined via phone, it will take about 4 seconds please stand by for the system to instruct you to press *6 to unmute your microphone
- Please introduce yourself and clearly state your name for the transcript
- After you are done with the allotted time for comments your microphone will be disabled



BACKUP SLIDES

MANUAL CHAPTER 2690

INSPECTION PROGRAM FOR DRY STORAGE OF SPENT REACTOR FUEL AT INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS AND FOR 10 CFR PART 71 TRANSPORTATION PACKAGINGS

NRC DECOMMISSIONING REFERENCES



U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR REGULATORY RESEARCH June 2013 Revision I

REGULATORY GUIDE

REGULATORY GUIDE 1.185 (Draft was issued as DG-1272, dated December 2012)

STANDARD FORMAT AND CONTENT FOR POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT

Purpose

This regulatory guide iden activities report (PSDAR) must ex U.S. Nuclear Regulatory Commis only to holders of licenses to oper Title 10 of the Code of Federal Ro

Applicable Rules and Regulation

- 10 CFR Part 50 provides 1
 - 10 CFR 50.2 prov
 - o 10 CFR 50.4 pro
 - o 10 CFR 50.54 pro
 - o 10 CFR 50.75 pr decommissionin
 - o 10 CFR 50.82 pr requirement for n

Written suggestions regarding this guide under the Regulatory Guides document guides contactus html

Electronic copies of this regulatory guid the NRC's public Web site under the Res mi dec-collections. The regulatory grid stem (ADAMS) at http://www.ncc.go analysis may be found in ADAMS und

United States Nuclear Regulatory Commission

Protecting People and the Environment

U.S. NUCLEAR REGULATORY COMMISSION

REGULATORY GUIDE

REGULATORY GUIDE 1.184

DECOMMISSIONING OF NUCLEAR POWER REACTORS

Applicable Rules and Regulation

- - o 10 CFR 50.4 prov

 - o 10 CFR 50.82 pro

regulatory analysis may be found in AD



Staff Responses to

Frequently Asked

Questions Concerning

Decommissioning of

Nuclear Power Plants

OFFICE OF NUCLEAR REGULATORY RESEARCH

This regulatory guide pro Part 50 (Ref. 1) and Part 52 (Ref.

- 10 CFR Part 50 provides
 - o 10 CFR 50.2 prov

 - o 10 CFR 50.54 pp
 - o 10 CFR 50.75 pro
- requirement for n
- 10 CFR Part 51 (Ref. 3) p

Electronic copies of this regulatory guide, the NRC's public Web site under the Reg rm/doc-collections. The regulatory guide System (ADAMS) at http://www.nrc.gov



U.S. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation Washington, DC 20555-0001

Final Report



NUREG-1628



2021-2022 **Information Digest**















Demolition of a Reactor Containment Building

Decommissioning must be completed within 60 years of the plant ceasing operations. A time beyond that would be considered only when necessary to protect public health and safety in accordance with NRC regulations.

NRC INSPECTION MANUAL

DWM

verification of licensee

commissioned safely, that

sed location, and that site

with applicable regulatory

for decommissioning and th regulatory requirements.

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introl; maintenance and

inspections to verify that

lines below an acceptable

nspection of Part 50 power

date for the removal of all

is to continue until license

2561

and, effluent controls.

MANUAL CHAPTER 2561

DECOMMISSIONING POWER REACTOR INSPECTION PROGRAM

PURPOSE 2561-01

To establish the inspection policy and guidance for decommissioning power reactors for the Offices of Nuclear Reactor Regulation (NRR) and Nuclear Material Safety and

BACKGROUNDER

Decommissioning Nuclear Power Plants

When a power company decides to close a nuclear power plant permanently, the facility must be decommissioned by safely removing it from service and reducing residual radioactivity to a level that permits release of the property and termination of the operating license. The Nuclear Regulatory Commission has strict rules governing nuclear power plant decommissioning, involving cleanup of radioactively contaminated plant systems and structures, and removal of the radioactive fuel. These requirements protect workers and the public during the entire decommissioning process and the public after the license is terminated.

Discussion

US.NRC

Licensees may choose from three decommissioning strategies: DECON, SAFSTOR, or ENTOMB.

Under DECON (immediate dismantling), soon after the nuclear facility closes, equipment, structures, and portions of the facility containing radioactive contaminants are removed or decontaminated to a level that permits release of the property and termination of the NRC license

Under SAFSTOR, often considered "deferred dismantling," a nuclear facility is maintained and monitored in a condition that allows the radioactivity to decay; afterwards, the plant is dismantled and the property decontaminated.

Under ENTOMB, radioactive contaminants are permanently eneased on site in structurally sound material such as concrete. The facility is maintained and monitored until the radioactivity decays to a level permitting restricted release of the property. To date, no NRCicensed facilities have requested this option.

The licensee may also choose to adopt a combination of the first two choices in which some portions of the facility are dismantled or decontaminated while other parts of the facility are left in SAFSTOR. The decision may be based on factors besides radioactive decay, such as availability of waste disposal sites.

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LINKS FOR PSDAR AND NRC REFERENCES



- ► Palisades Post-Shutdown Decommissioning Report (December 2020)
- Regulatory Guide 1.184: Decommissioning of Nuclear Power Reactors
- Regulatory Guide 1.185: Standard Format and Content for the PSDAR
- ► IMC 2561: Decommissioning Power Reactor Inspection Program
- ► IMC 2600: Fuel Cycle Facility Operational Safety and Safeguards Inspection Program
- ➤ NRC Information Digest for 2021-2022
- NUREG-1628: NRC Staff Responses to Frequently Asked Questions Concerning Decommissioning of Nuclear Power Reactors
- NRC Backgrounder: Decommissioning of Nuclear Power Plants
- ➤ NRC YouTube Video on Decommissioning

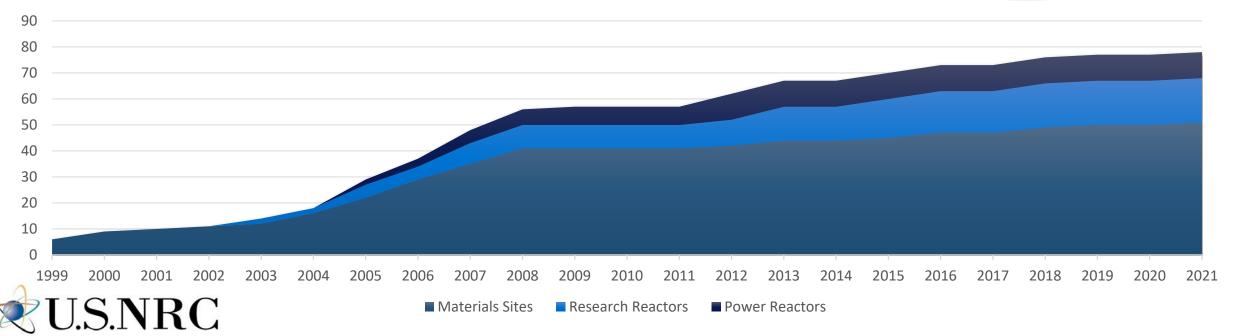
DECOMMISSIONING EXPERIENCE

United States Nuclear Regulatory Commission

Protecting People and the Environment

- The NRC's current decommissioning regulations are performance-based and risk-informed
- Extensive decommissioning experience
- A total of eleven power reactor sites have completed decommissioning and had the reactor licenses terminated for unrestricted use outside of the dry fuel storage facility

Completion of Decommissioning by Facility Type (1998-2021)



POWER REACTORS IN DECOMMISSIONING

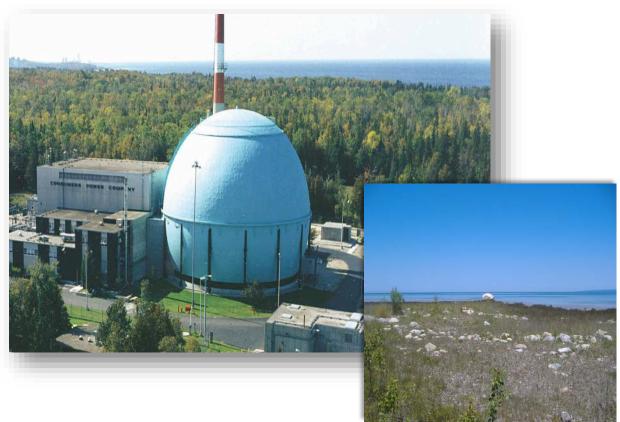
- 17 reactor units in active decommissioning (DECON)
- 9 reactor units in delayed dismantlement (SAFSTOR)
- 60 years allowed by regulation to complete radiological decommissioning



REACTOR DECOMMISSIONING PROJECTS IN MICHIGAN

BIG ROCK POINT (License Terminated in 2006)









ENRICO FERMI UNIT 1

(Permanently Shutdown Since 1972)

PSDAR QUESTION AND UPDATE PROCESS

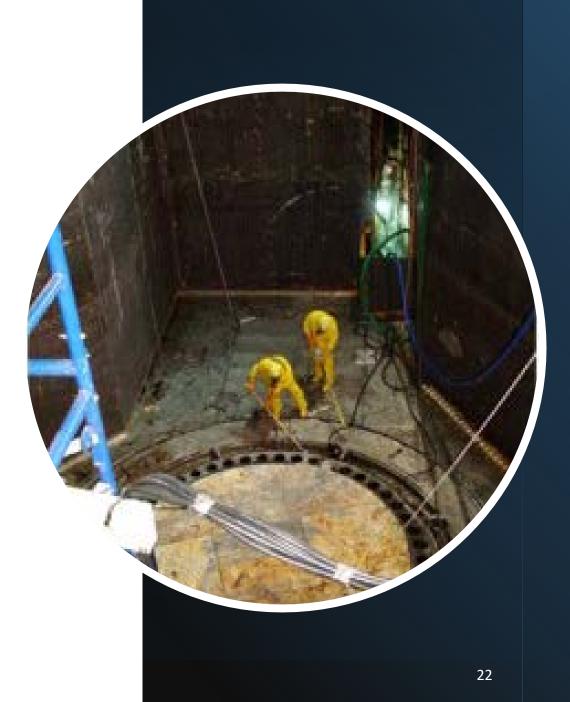
- The NRC staff is reviewing the Palisades PSDAR and will request any additional information needed to conclude that the PSDAR contains the required information
- The PSDAR may be updated as part of the initial review process and will become part of the staff's PSDAR acceptance letter
- Subsequent updates to the PSDAR will be publicly available and provided to the State, but do not require additional acceptance





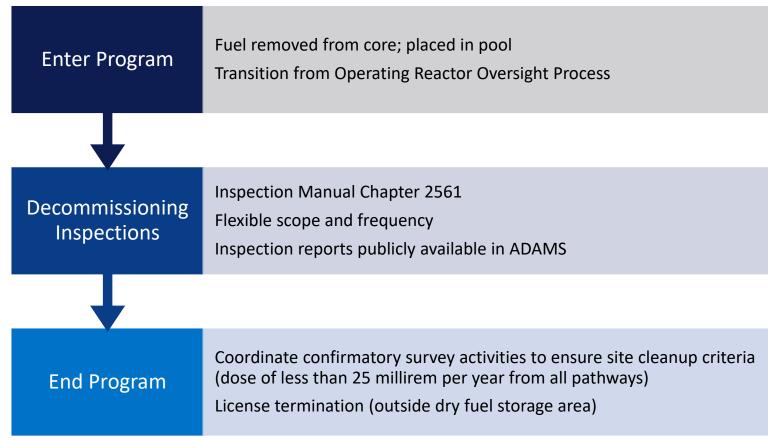
OBJECTIVES OF THE DECOMMISSIONING INSPECTION PROGRAM

- Oversight and monitoring conducted over the entire period of the decommissioning process
- Objectively verify the safe conduct of decommissioning activities, including dismantlement and decontamination
- Verify adequacy of licensee procedures and controls
- Ensure safety problems and violations are promptly identified and corrected, and effective actions are taken to prevent recurrence
- Examine and address trends in safety performance





REACTOR DECOMMISSIONING INSPECTIONS



NRC INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) INSPECTION PROGRAM

 Inspections at the manufacturing facility where the ISFSI components are fabricated

 Inspectors onsite during the construction of the concrete pad that will house the storage casks

 Knowledgeable NRC staff assess the readiness of the licensee to use the system before operation



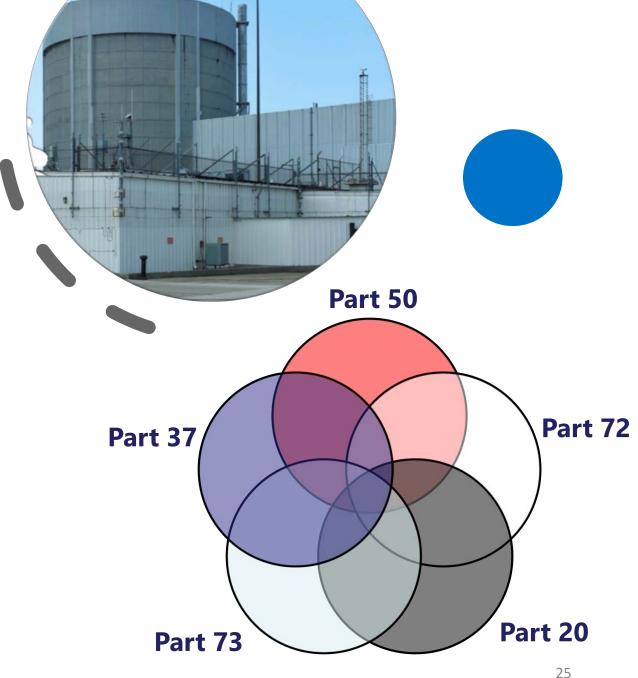


SPENT FUEL STORAGE **FACILITY INSPECTIONS**

IMC 2690 – Inspection Program for Dry Storage of Spent Reactor Fuel at Independent Spent Fuel **Storage Installations**

NRC inspections performed during:

- onsite fabrication and construction of the ISFSI
- preoperational testing (i.e., dry runs)
- initial fuel loading campaign
- routine ISFSI inspections
- any significant evolutions involving the ISFSI



HOW DOES EMERGENCY PLANNING CHANGE?

- Emergency preparedness remains
- 'All hazards' approach utilized instead of formal pre-planned offsite radiological response plans
- Based on changes in risks and consequences as the power reactor undergoes decommissioning







HOW DOES FACILITY SECURITY CHANGE?

- Security controls remain in place
- Some key features include:
 - intrusion detection and response
 - assessment of alarms
 - off-site assistance, when necessary
- A security plan is also required for the ISFSI