U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NRC WEBINAR

AUGUST 8, 2019

BEST PRACTICES FOR COMMUNITY ADVISORY BOARDS AT DECOMMISSIONING NUCLEAR POWER PLANTS

NEIMA SECTION 108

Today's Presenters

Bruce Watson

Kim Conway

Zahira Cruz

Neil Sheehan

Ted Smith

Nuclear Energy Innovation and Modernization Act (NEIMA) Section 108

- **January 14, 2019** – NEIMA legislation issued
- Section 108 requires a report identifying best practices for establishment and operation of local community advisory boards (CABs) for decommissioning nuclear power reactors, including lessons learned from such organizations
- **Report to Congress due by July 14, 2020**
- Assigned to the Reactor Decommissioning Branch in NMSS
- Federal Register Notice soliciting requests for public meetings to discuss CAB best practices issued on March 18, 2019
- Public meeting locations were determined in June 2019
- OMB clearance for a questionnaire associated with CAB best practices and lessons learned obtained in August 2019

Why a NEIMA Webinar?

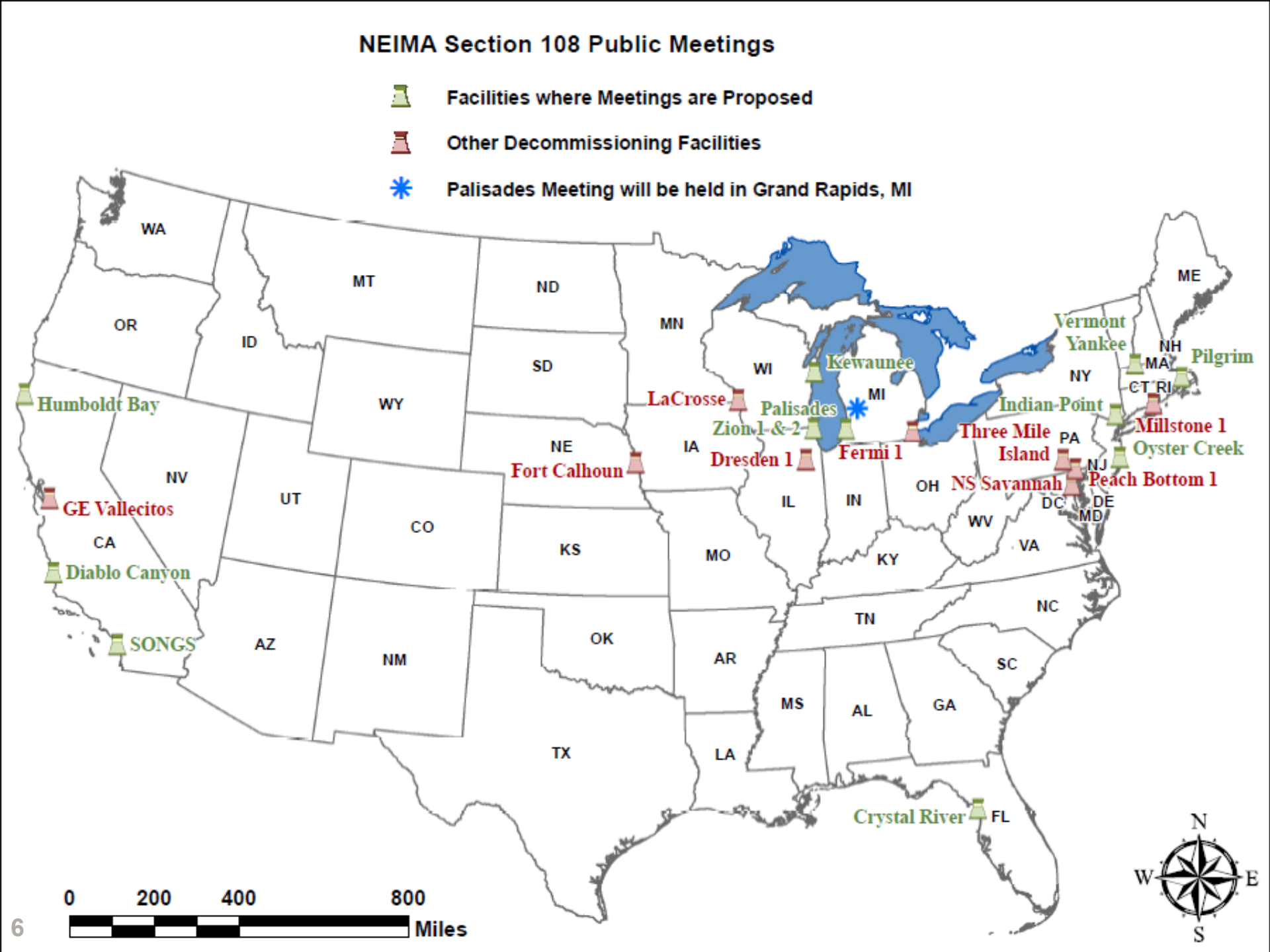
- Significant public interest in the topic of CABs
- Limited number of local public meetings can be held in the vicinity of decommissioning plants
- Webinar offers the opportunity to participate for those in areas where meetings will not be held
- Webinar also helps inform local communities in advance of the upcoming public meetings
- Additional means to gather feedback from stakeholders on CAB best practices

Other NEIMA Section 108 Meetings

- August 21 – Palisades (Michigan)
- August 26 – Humboldt Bay (California)
- August 27 – Diablo Canyon (California)
- August 29 – San Onofre (California)
- September 10 – Vermont Yankee (Vermont)
- September 11 – Pilgrim (Massachusetts)
- September 24 – Kewaunee (Wisconsin)
- September 26 – Zion (Illinois)
- October 3 – Oyster Creek (New Jersey)
- October 10 – Crystal River (Florida)
- TBD – Indian Point (New York)

- Additional information located on the web site:
  - https://www.nrc.gov/waste/decommissioning/ neima-section-108.html

NEIMA Section 108 Public Meetings



Reactor Decommissioning

The process of safely removing a nuclear facility from the operating mode, transitioning it to a permanently shutdown condition, and reducing the residual radioactivity to a level that permits the release of the property for unrestricted use and termination of the operating license.

Principles of Decommissioning

- Protection of the plant and decommissioning workers
- Protection of the public and the environment

- Communication with external stakeholders throughout the decommissioning and dismantlement process

Preliminary Activities

- While Operating:
  - Decommissioning Records
  - Radiological Environmental Monitoring Reports
  - End-of-Cycle Meetings
- After Shut-Down Decision:
  - Decommissioning Strategy
  - Site Characterization
  - Post-Shutdown Decommissioning Activities Report (PSDAR)

Initial Decommissioning Process

- Certification of permanent cessation of operations
- Certification of permanent removal of fuel from reactor
- Review of Post-Shutdown Decommissioning Activities Report (PSDAR)

PSDAR Requirements

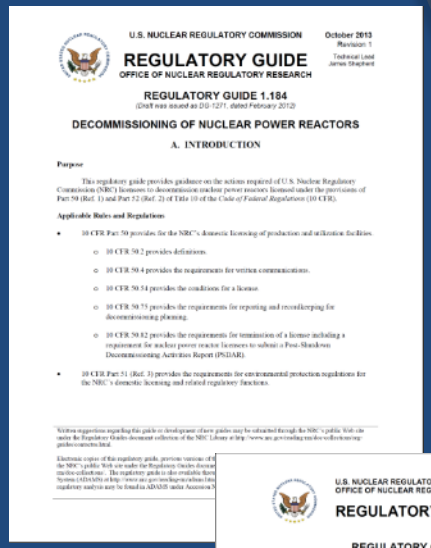
The report should contain:

- Description of planned decommissioning activities
- High-level schedule for planned activities
- Site-specific cost estimate for the decommissioning
- Environmental impacts of decommissioning

Key Information: Regulatory Guide 1.185
Standard Format and Content of PSDARs
http://www.nrc.gov/info-finder/reactor/oc.html

PSDAR Review Process

- The NRC notices receipt of the PSDAR in the *Federal Register* and requests public comments
- The NRC schedules a public meeting to discuss the PSDAR and solicit public comments
- The NRC staff considers public comments and other feedback
- Plant owner may begin major decommissioning work 90 days after NRC receives the PSDAR



U.S. NUCLEAR REGULATORY COMMISSION
October 2013
Revision 1
REGULATORY GUIDE
OFFICE OF NUCLEAR REGULATORY RESEARCH
Technical Lead
James Shepherd

REGULATORY GUIDE 1.184
(Draft was issued as DG-1271, dated February 2012)

DECOMMISSIONING OF NUCLEAR POWER REACTORS

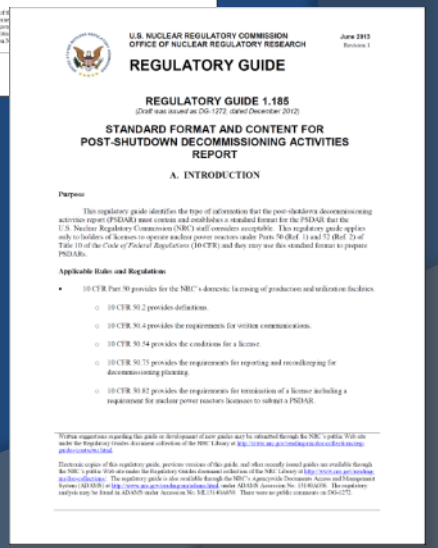
A. INTRODUCTION

Purpose

This regulatory guide provides guidance on the actions required of U.S. Nuclear Regulatory Commission (NRC) licensees to decommission nuclear power reactors licensed under the provisions of Part 50 (Ref. 1) and Part 52 (Ref. 2) of Title 10 of the *Code of Federal Regulations* (10 CFR).

Applicable Rules and Regulations

- 10 CFR Part 50 provides for the NRC's domestic licensing of production and utilization facilities.
  - 10 CFR 50.2 provides definitions.
  - 10 CFR 50.4 provides the requirements for written communications.
  - 10 CFR 50.54 provides the conditions for a license.
  - 10 CFR 50.75 provides the requirements for reporting and recordkeeping for decommissioning planning.
  - 10 CFR 50.82 provides the requirements for termination of a license including a requirement for nuclear power reactor licensees to submit a Post-Shutdown Decommissioning Activities Report (PSDAR).
- 10 CFR Part 51 (Ref. 3) provides the requirements for environmental protection regulations for the NRC's domestic licensing and related regulatory functions.



U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REGULATORY RESEARCH
June 2013
Revision 1
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

A. INTRODUCTION

Purpose

This regulatory guide identifies the type of information that the post-shutdown decommissioning activities report (PSDAR) must contain and establishes a standard format for the PSDAR that the U.S. Nuclear Regulatory Commission (NRC) staff considers acceptable. This regulatory guide applies only to holders of licenses to operate nuclear power reactors under Parts 50 (Ref. 1) and 52 (Ref. 2) of Title 10 of the *Code of Federal Regulations* (10 CFR) and they may use this standard format to prepare PSDARs.

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  - 10 CFR 50.82 provides the requirements for termination of a license including a requirement for nuclear power reactors licensees to submit a PSDAR.

Decommissioning Options

- **DECON** – Equipment, systems, structures, components, etc., are removed or decontaminated to a radiological level that permits unrestricted release
- **SAFSTOR** – Plant is placed in a safe, stable condition and maintained in this state until it is subsequently dismantled and decontaminated to levels that permit unrestricted release

Decommissioning Timeline

Under NRC regulations, the process must be completed within 60 years, unless permission is granted for a longer timeline

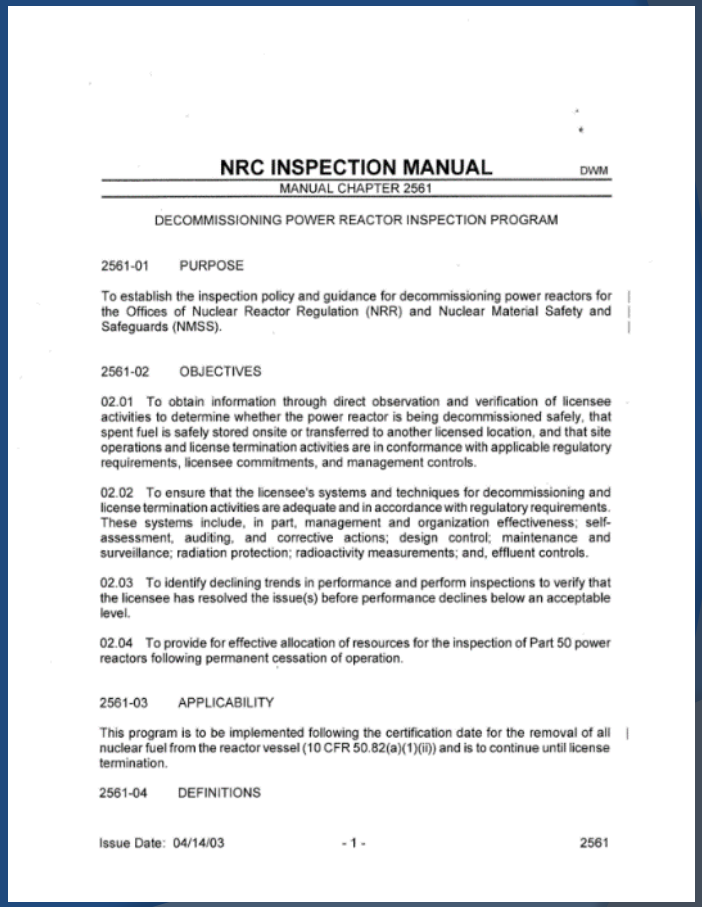
BEFORE

Maine Yankee

AFTER

Oversight After Shutdown

- Oversight and monitoring conducted over the entire decommissioning period
- Oversight program is described in NRC Inspection Manual Chapter (IMC) 2561 (power reactors) and 2690 (dry fuel storage)



NRC INSPECTION MANUAL DWM

MANUAL CHAPTER 2561

DECOMMISSIONING POWER REACTOR INSPECTION PROGRAM

2561-01 PURPOSE

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

2561-02 OBJECTIVES

02.01 To obtain information through direct observation and verification of licensee activities to determine whether the power reactor is being decommissioned safely, that spent fuel is safely stored onsite or transferred to another licensed location, and that site operations and license termination activities are in conformance with applicable regulatory requirements, licensee commitments, and management controls.

02.02 To ensure that the licensee's systems and techniques for decommissioning and license termination activities are adequate and in accordance with regulatory requirements. These systems include, in part, management and organization effectiveness; self-assessment, auditing, and corrective actions; design control; maintenance and surveillance; radiation protection; radioactivity measurements; and, effluent controls.

02.03 To identify declining trends in performance and perform inspections to verify that the licensee has resolved the issue(s) before performance declines below an acceptable level.

02.04 To provide for effective allocation of resources for the inspection of Part 50 power reactors following permanent cessation of operation.

2561-03 APPLICABILITY

This program is to be implemented following the certification date for the removal of all nuclear fuel from the reactor vessel (10 CFR 50.82(a)(1)(ii)) and is to continue until license termination.

2561-04 DEFINITIONS

Issue Date: 04/14/03 - 1 - 2561

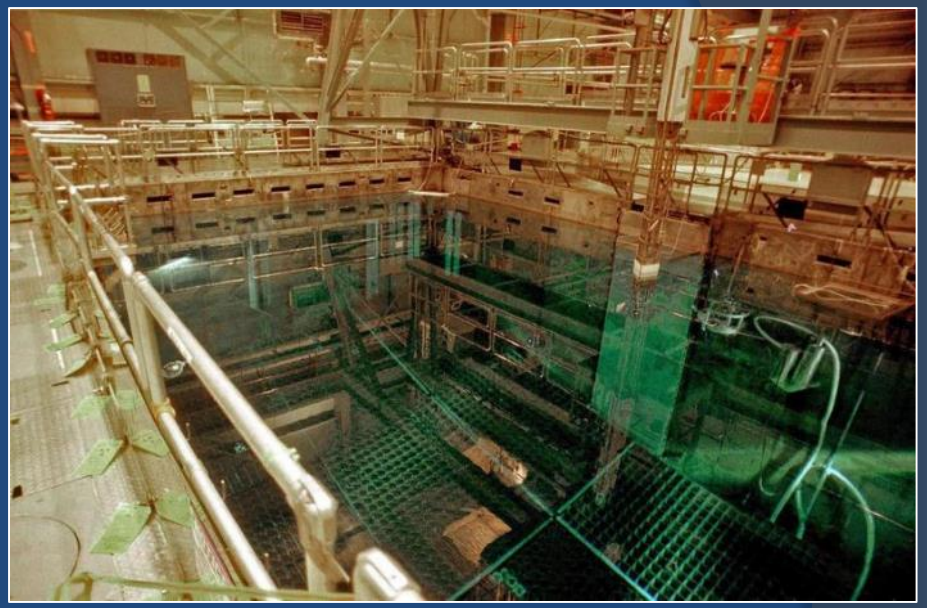
Oversight After Shutdown

- The NRC inspection and oversight program continues until the license is terminated (or shrunk to just the ISFSI)
- IMC 2561 includes both core and discretionary inspection procedures
- Implementation depends on activities being planned or performed:
  - Post-operation transition phase
  - Spent fuel transfer to dry storage
  - Active decommissioning
  - SAFSTOR
  - Final surveys underway

Spent Fuel Management

- Removed from spent fuel pool after cooling
- Stored on site in dry cask storage systems
- Safety and security programs remain until fuel removed from site

Spent Fuel Pool Safety

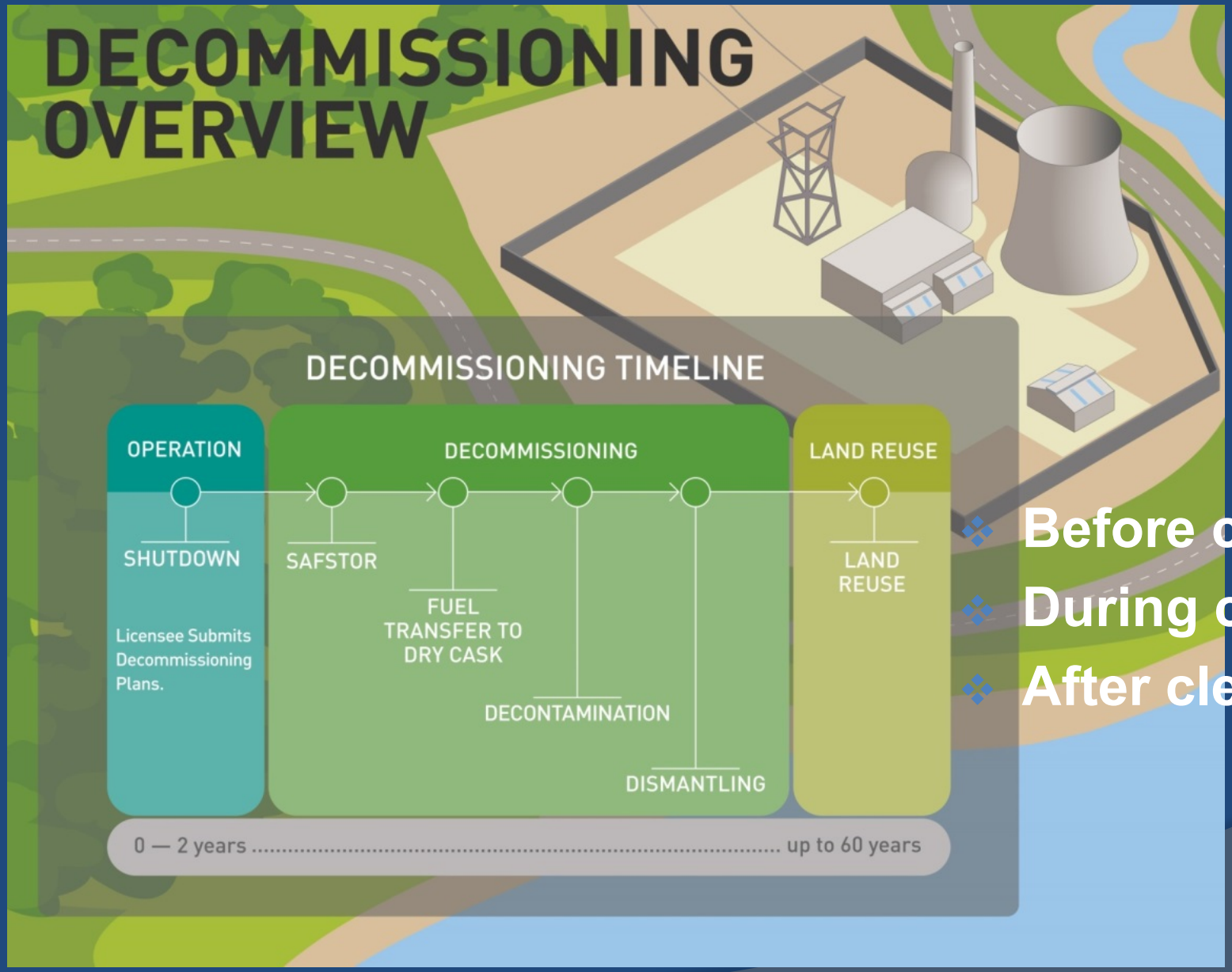


- Robust structures
- Designed to withstand severe natural events
- Regulated design features and operational practices implemented to maintain fuel in safe condition

Other Decommissioning Changes

Licensing Actions

Rulemaking Activities



- Before cleanup
- During cleanup
- After cleanup

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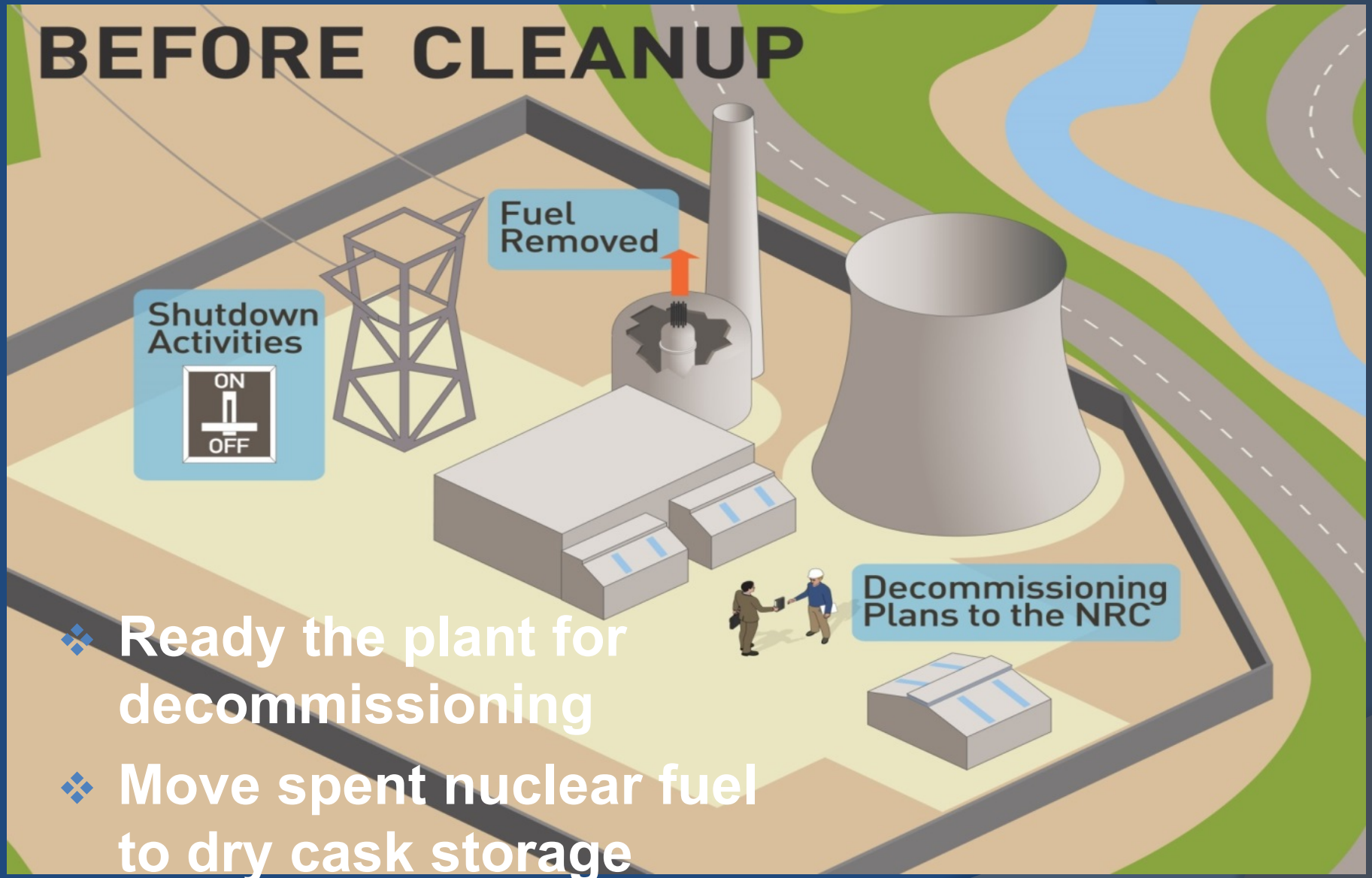
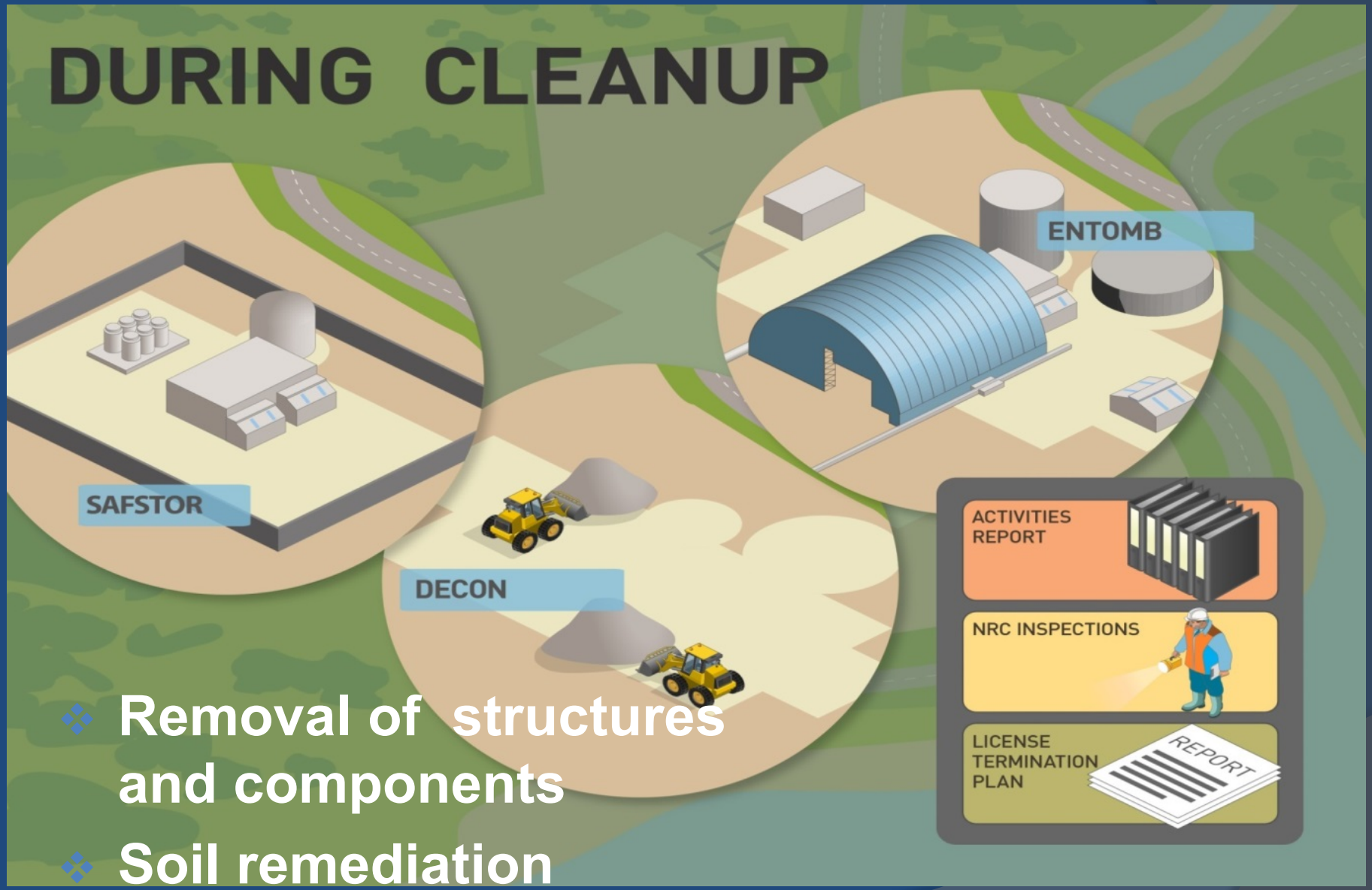


- Ready the plant for decommissioning
- Move spent nuclear fuel to dry cask storage
- Submit and update PSDAR



- Removal of structures and components
- Soil remediation
- Radioactive waste shipments

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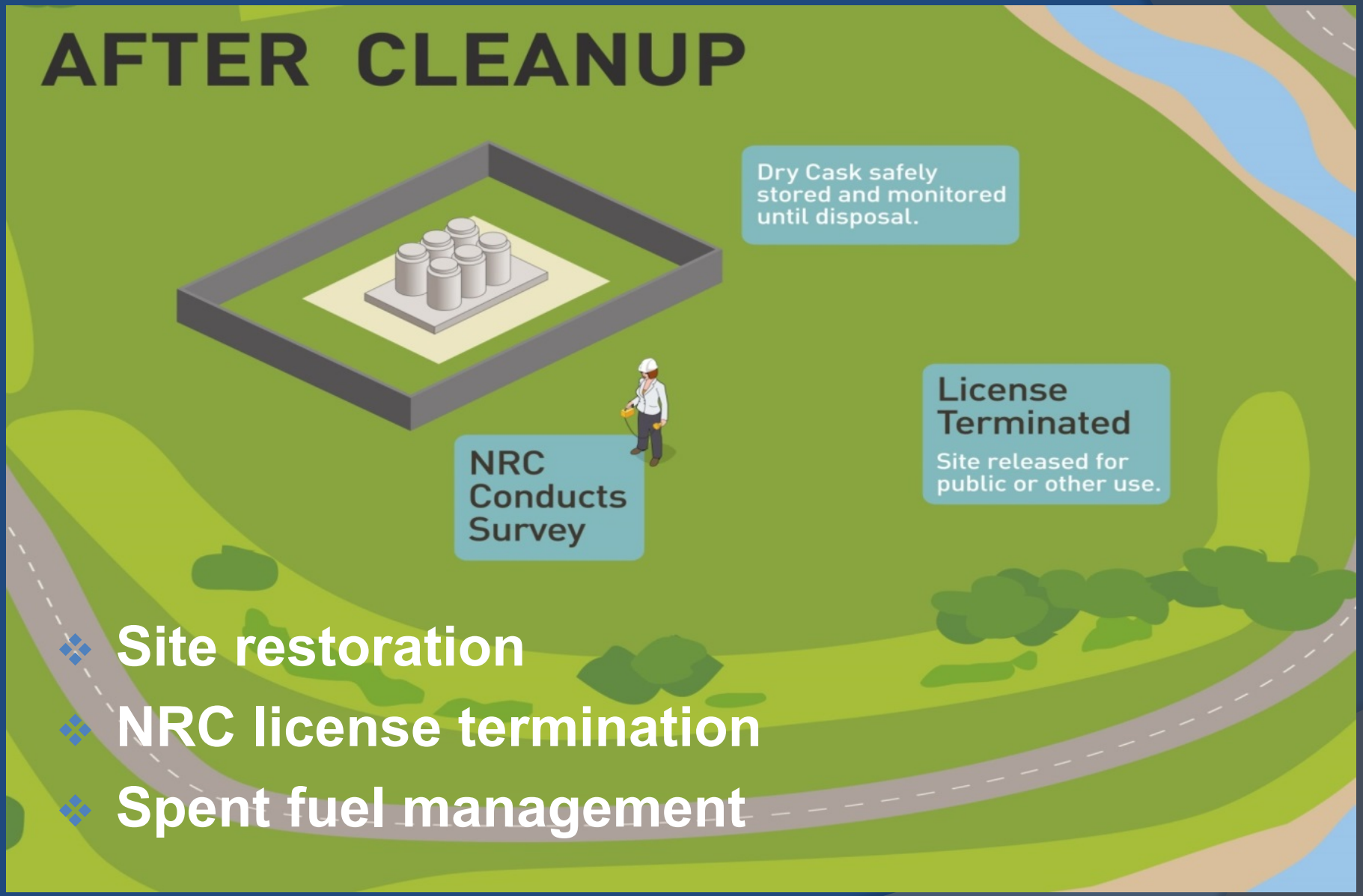
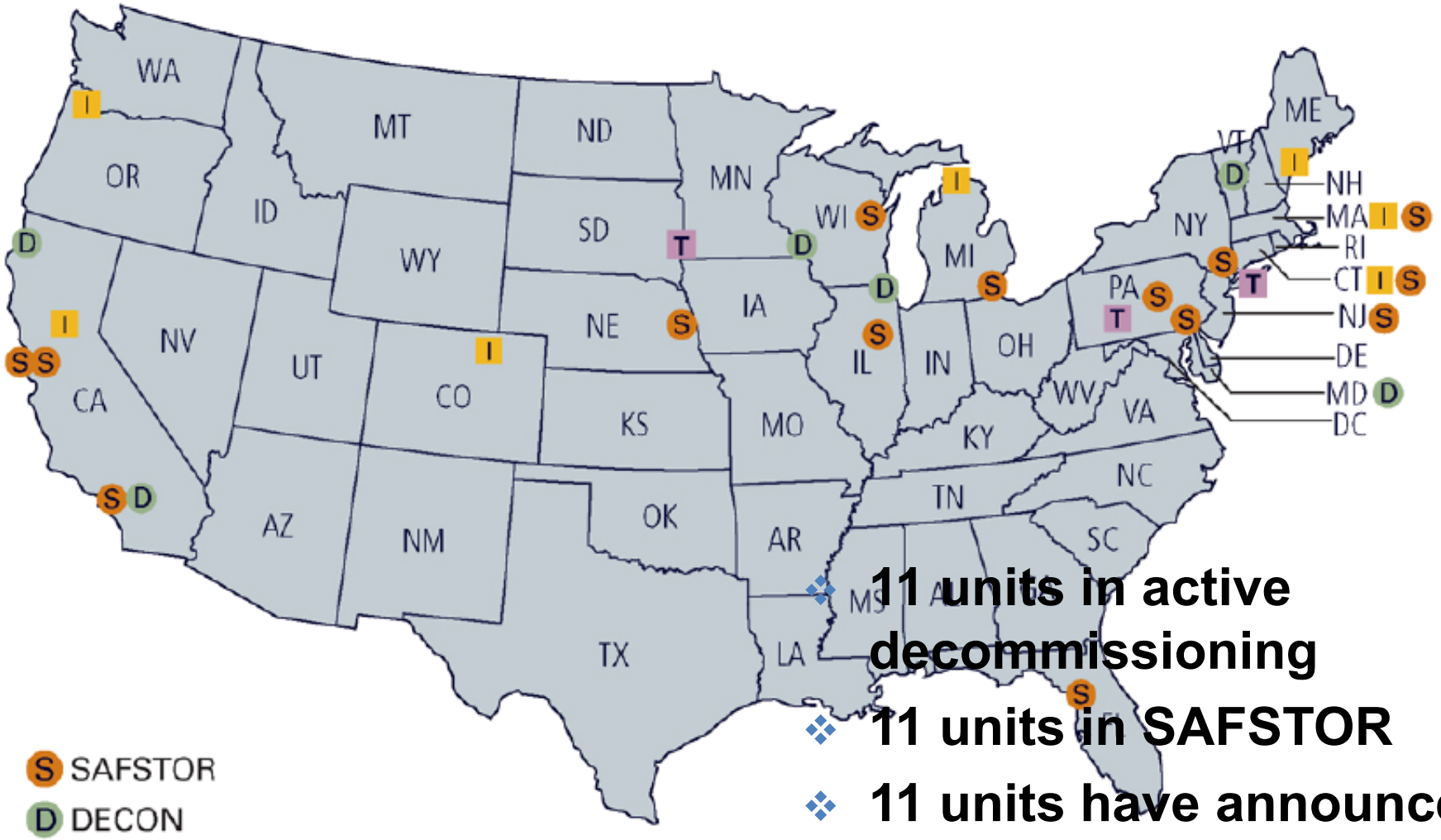


- Site restoration
- NRC license termination
- Spent fuel management

Power Reactors Decommissioning Status



- 11 units in active decommissioning
- 11 units in SAFSTOR
- 11 units have announced shutdowns thru 2025

Decommissioning Business Model

- Utility self performs – manages decommissioning contractor (ex: Humboldt Bay and San Onofre)
- Utility transfers license to a decommissioning company and the land and spent fuel are transferred back (ex: Zion and La Crosse)
- Utility sells the plant to a company who will decommission the plant and manage the spent fuel (ex: Vermont Yankee, Oyster Creek, Pilgrim and others have announced similar plans)

NRC License Transfer Process

- Financial review - to validate the decommissioning company is qualified to be a 10 CFR Part 50 license holder
- Technical qualifications - to ensure the company is fully capable to perform the decommissioning and manage the spent fuel
- The decommissioning funding levels are also reviewed to ensure the company has sufficient capital to complete license termination

Public Involvement Opportunities

- Public meeting to discuss the decommissioning process and the plant's PSDAR
- NRC staff typically provide briefings at meetings of state/citizen decommissioning advisory panels
- Hearing and comment opportunity on most licensing actions reviewed by the NRC
- Public meeting on License Termination Plan

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Community Advisory Boards

- An organized group of citizens interested in safe decommissioning practices and spent fuel management at a decommissioning facility
- Sponsor is usually the local licensee (utility) or mandated by the State legislature
- Composition typically includes local community leaders and elected officials, State representatives, and members of licensee staff
- Most CABs have a governing charter to establish roles and responsibilities

CAB Responsibilities

- Reviews licensee strategy and plans
- Feedback mechanism to the licensee
- Provides insight into the licensee's planned activities' potential impact on the local community
- Forum for public education on decommissioning
- Makes recommendations to State officials
- Provides input on site restoration decisions
- Considers plans for future reuse of the site
- Considers economic development concerns

Historical CAB Activities

- Maine Yankee, Connecticut Yankee, and Yankee Rowe – licensee sponsored CABs
- No CABs, but other outreach activities during decommissioning:
  - Big Rock Point
  - Fort St. Vrain
  - Pathfinder
  - Rancho Seco
  - Shoreham
  - Saxton
  - Trojan

Decommissioning Outreach

- **State Mandated CAB**
  - Pilgrim
  - Vermont Yankee
- **Licensee Sponsored CAB**
  - Diablo Canyon
  - Humboldt Bay
  - San Onofre
  - Zion
  - La Crosse
- **Other Licensee Outreach Programs**
  - Fort Calhoun
  - Crystal River
  - Kewaunee
  - Oyster Creek

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NEIMA 108 Report to Congress

- (A) [what are] the topics that could be brought before a local community advisory board
- (B) how such a board's input could be used to inform the decision making processes of stakeholders for various decommissioning activities
- (C) what interactions such a board could have with the Commission and other Federal regulatory bodies to support the board members' overall understanding of the decommissioning process and promote dialogue between the affected stakeholders and the licensee involved in decommissioning activities
- (D) how such a board could offer opportunities for public engagement throughout all phases of the decommissioning process

Questions for the Public to Inform the Report to Congress

- Why was the local CAB established?
- How and when was the local CAB established?
- Is there a charter for the CAB?
- What is the historical and current frequency of CAB meetings?
- What is the historical and current composition of the local CAB?
- What is the selection process for board members?
- What are the terms of board members?
- Are there any specific rules or protocols followed by the CAB?
- Are there any specific logistics required to support the board's meetings and other routine activities?
- How is the board's input used to inform the decision-making processes of stakeholders for decommissioning activities?

Questions for the Public to Inform the Report to Congress

- Who sponsors (funds) the CAB expenses? What kinds of activities are included in the CAB budget (e.g., transcription service, audio/visual support, meeting venues, meals and per diem for CAB members)?
- What topics have been (or could be) brought before a CAB?
- What other topics could be useful to stakeholders' understanding of the decommissioning process?
- What interactions does the local CAB have with the NRC and other Federal regulatory bodies?
- How does the CAB offer opportunities for public engagement throughout all phases of the decommissioning process?
- In general, what are the advantages of having a local CAB?
- In general, what are the disadvantages of having a local CAB?

Questions for the Public to Inform the Report to Congress

- Please share any additional best practices or other lessons learned related to having a local CAB

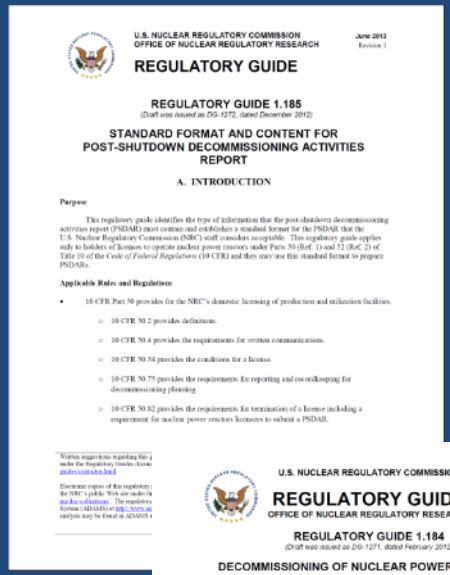
For decommissioning plants without an established CAB:

- Has the licensee or State ever considered the establishment of a local CAB? When was it considered?
- What are the reasons for not establishing a local CAB?
- How does the licensee or State provide opportunities for public engagement throughout the decommissioning process?
- In general, what are the advantages of not having a local CAB?
- In general, what are the disadvantages of having a local CAB?

Methods to Submit Comments

- Fill out the NEIMA questionnaire online here:
  - Coming soon! Check the web site for details!
- Scan completed questionnaires and send to:
  - NEIMA108.Resource@nrc.gov
- Mail completed questionnaires to:
  - Kim Conway, U.S. NRC
  - 11545 Rockville Pike, Mail Stop T 5 A 10
  - Rockville, MD 20852
- Additional information located on the web site:
  - https://www.nrc.gov/waste/decommissioning/ neima-section-108.html

NRC References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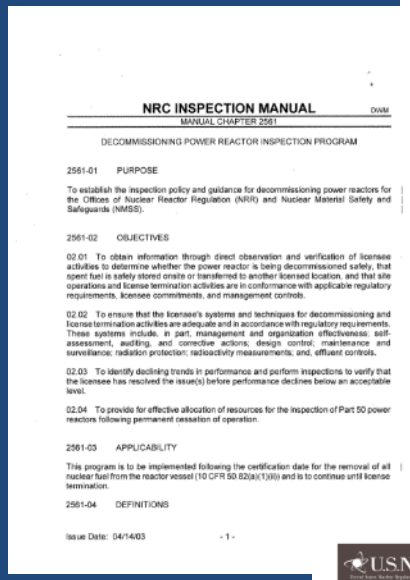
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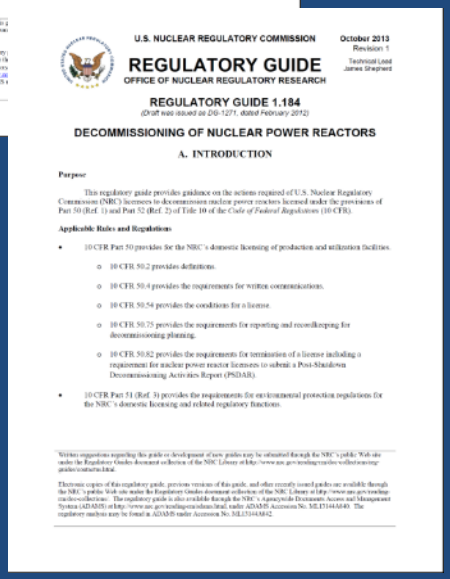
2561-04 DEFINITIONS

Issue Date: 04/14/03 - 1 -


NRC INSPECTION MANUAL
NMSS/FST
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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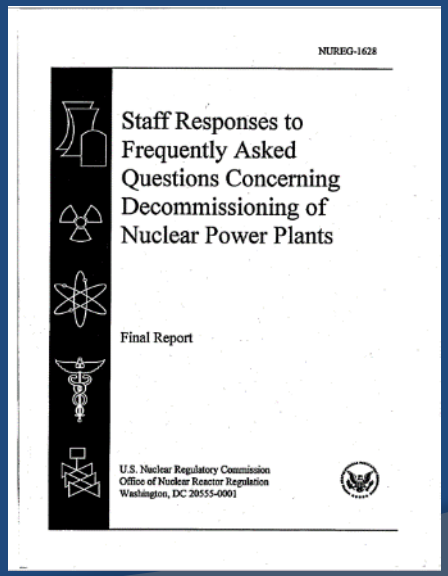
NUREG-1628

Staff Responses to Frequently Asked Questions Concerning Decommissioning of Nuclear Power Plants

Final Report

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


U.S.NRC
Office of Public Affairs

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

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 encased 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 NRC-licensed facilities have requested this option.

Demolition of a Reactor Containment Building

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.

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.

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Links for NRC References

- IMC 2561: Decommissioning Power Reactor Inspection Program
- RG 1.184: Decommissioning of Nuclear Power Reactors
- RG 1.185: PSDAR Format and Contents
- NUREG 1628: Staff Responses to FAQs Concerning Decommissioning of Nuclear Power Reactors
- NRC Backgrounder: Decommissioning of Nuclear Power Plants
- NRC YouTube Video on Decommissioning

Webinar Questions

- David McIntyre, Office of Public Affairs
- Phone: 301-415-8206
- Email: NEIMA108.Resource@nrc.gov

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QUESTIONS!
FEEDBACK!

BEST PRACTICES FOR COMMUNITY ADVISORY BOARDS AT DECOMMISSIONING NUCLEAR POWER PLANTS

NEIMA SECTION 108