Retired with New Ownership:

What Happens to Closed Nuclear Plants that are Purchased by New Companies?

Juliann Edwards, VP, Business Development

Energy*Solutions*, Charlotte N.C.

Manage 90% of the nation's nuclear waste

Own 100% of the assets required for decommissioning

Executing 50% of the current decommissioning projects

Attained 100% of the commercial contract models

ENERGYSOLUTIONS

Commercial D&D Models

D&D MANAGEMENT MODEL 1

Owner-led with Integrated Decommissioning Contractor

The utility staff fills most of the positions while the contractor fills positions commensurate with the specialized skill sets needed for nuclear decommissioning. The utility gets the full benefit of the contractor’s know-how and has access to its intellectual property.

- Utility interfaces with regulators and stakeholders
- Job creation for existing employees
- Cost savings are retained by utility and ratepayers

D&D MANAGEMENT MODEL 2

Utility-owned with Decommissioning General Contractor (DGC)

The utility continues to own the license and maintains responsibility for the overall project and management of spent fuel. Major D&D work is awarded to an experienced contractor responsible for execution, cost, and schedule.

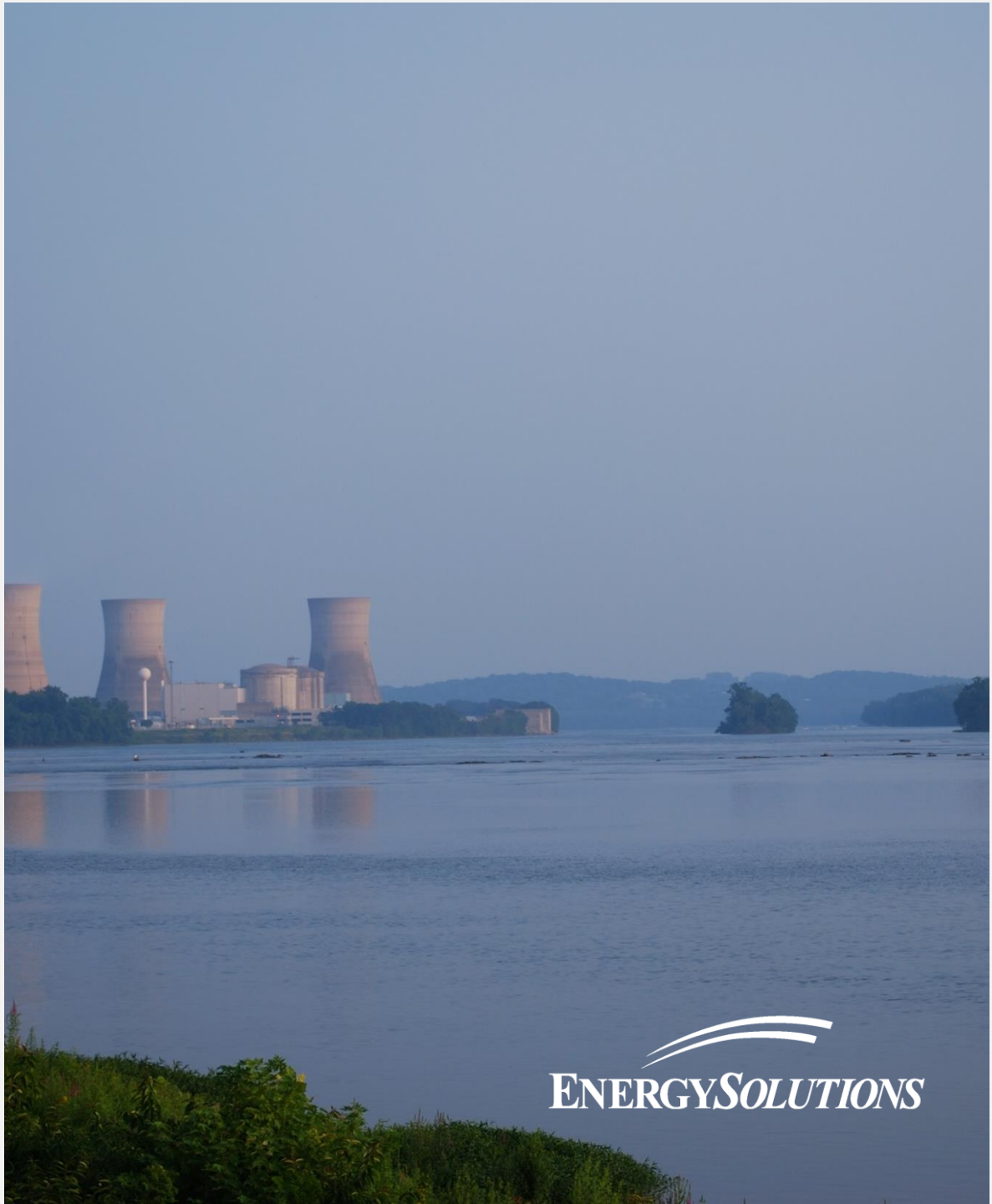
- Performance risk to DGC through target/fixed-price terms
- Job creation for some existing utility employees
- Cost savings retained by utility and ratepayers

D&D MANAGEMENT MODEL 3

Asset Transfer

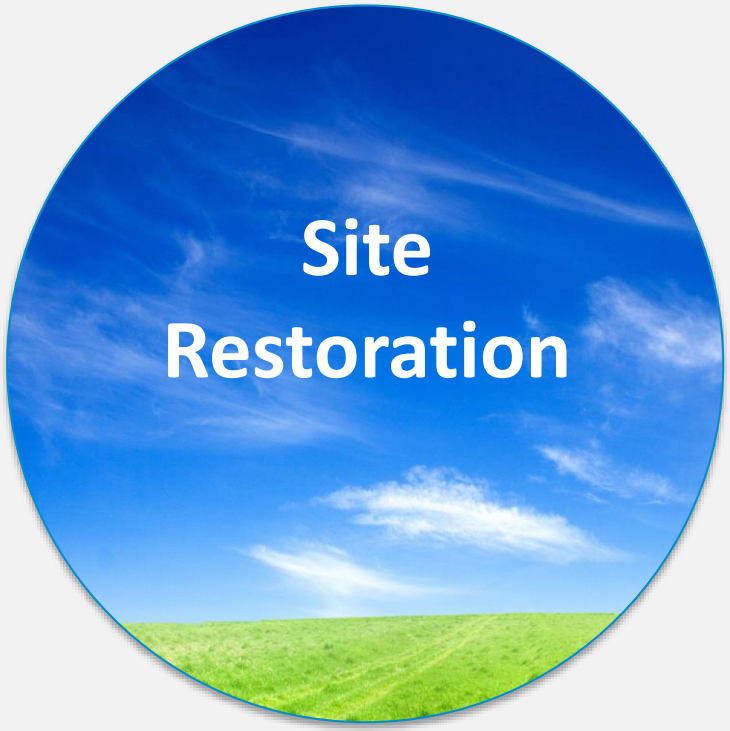
This model the utility owner transfers all licensee liabilities to the contractor. There have been varying examples of this model which may or may not include the transfer of property and spent fuel in exchange for NDT funds.

- SPE assumes full responsibility, performance, and cost risks for all decommissioning and licensing activities
- SPE takes ownership and accountability of nuclear decommissioning fund (NDT)
- SPE takes ownership and responsibility for spent nuclear fuel



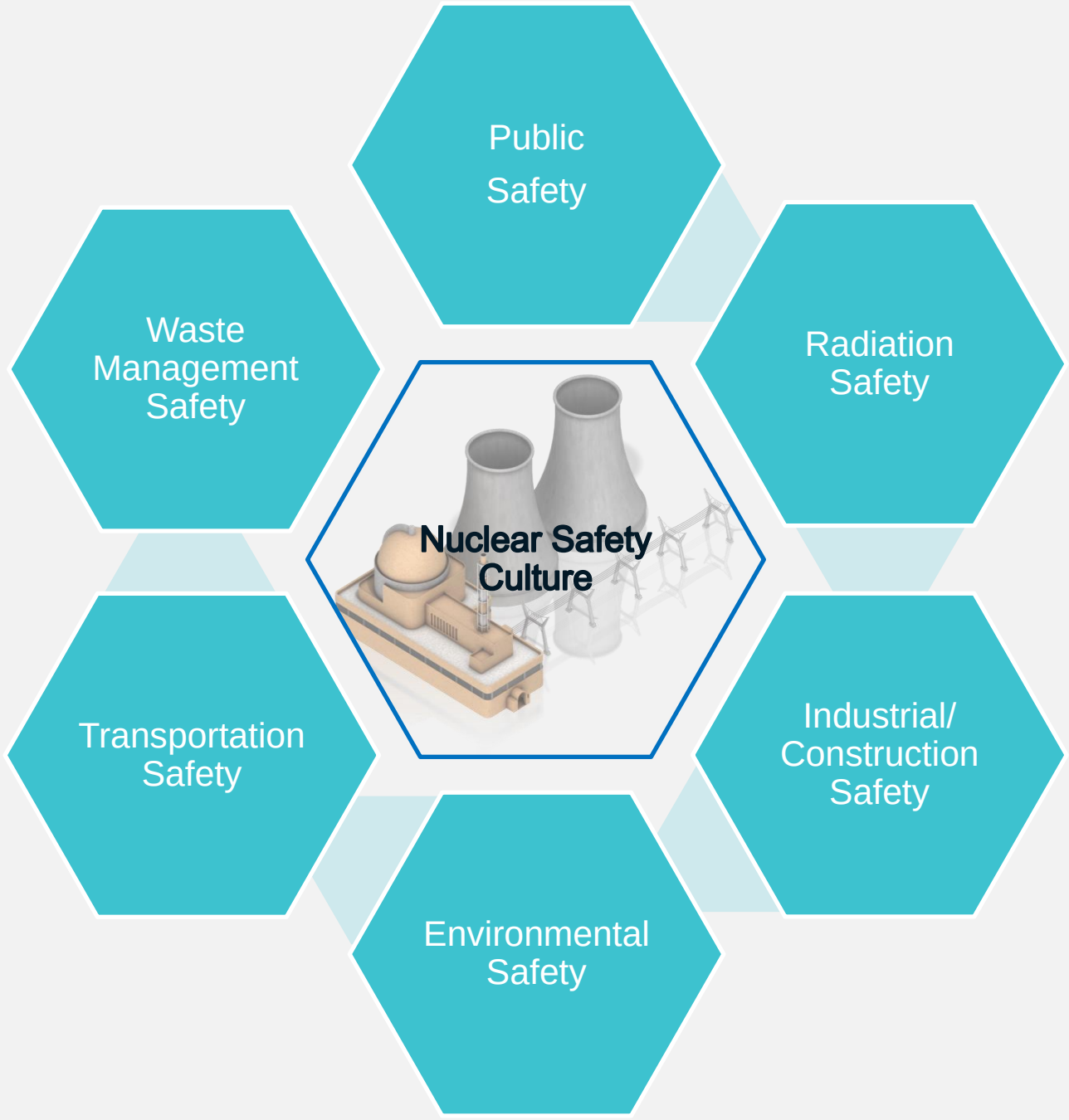
External Stakeholder Focus

Major D&D Milestones



ENERGYSOLUTIONS

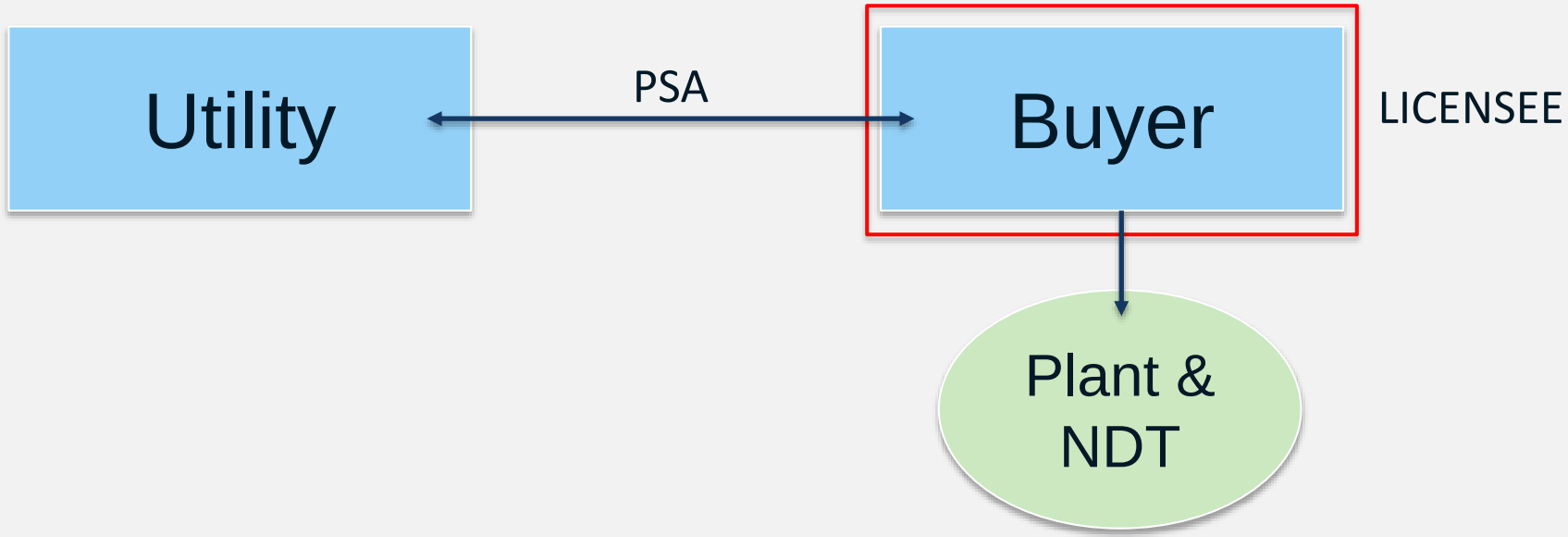
Safety


Public Safety
Radiation Safety
Industrial/ Construction Safety
Environmental Safety
Transportation Safety
Waste Management Safety
Nuclear Safety Culture

Financial Assurance

Asset Transfer Example

- VY, Oyster, Pilgrim, IPEC, Palisades, TMI-2
- License transferred
- NDT funds transferred along plant assets/ equity interests
- Funding risks addressed in sale diligence and negotiations
- New owner ultimately responsible to regulators



Community Engagement Panel (CEP)

Purpose	Keep the public and community stakeholders informed on project progress, major progress events and allow the community to be involved
When	Quarterly for the duration of the project from license transfer through project completion
Who	General public, elected officials, regulators, environmental agencies and the press
Topics	Project updates including schedule, major milestones safety updates Q&A

Thank You

Retired with New Ownership

NARUC Winter Policy Summit

February 10, 2020

Sarah Hofmann, Commissioner

VERMONT

PUBLIC UTILITY COMMISSION

The Annoying Disclaimer Slide

ANYTHING I SAY WHETHER BRILLIANT OR INCREDIBLY STUPID IS MINE ALONE AND NOT THAT OF MY COMMISSION OR THE STATE OF VERMONT.

Our New Reality

Permanently & Announced Shutdown Nuclear Plant Sites

1. Big Rock
Charlevoix, MI

2. Beaver Valley
Shippingport, PA
Announced Shutdown, 2021

3. Connecticut Yankee
Haddam Neck, CT

4. Crystal River
Crystal River, FL

5. Diablo Canyon
Avila Beach, CA
Announced Shutdown, 2025

6. Duane Arnold
Palo, IA
Announced Shutdown, 2020

7. Fort Calhoun
Blair, NE

8. Humboldt Bay
Eureka, CA

9. Indian Point
Buchanan, NY
Announced Shutdown, 2021

10. Kewaunee
Kewaunee, WI

11. La Crosse
La Crosse, WI

12. Maine Yankee
Wiscasset, ME

13. Oyster Creek
Leeds Point, NJ

14. Palisades
Covert, MI
Announced Shutdown, 2022

15. Pilgrim
Plymouth, MA

16. Rancho Seco
Herald, CA

17. San Onofre
Pendleton, CA

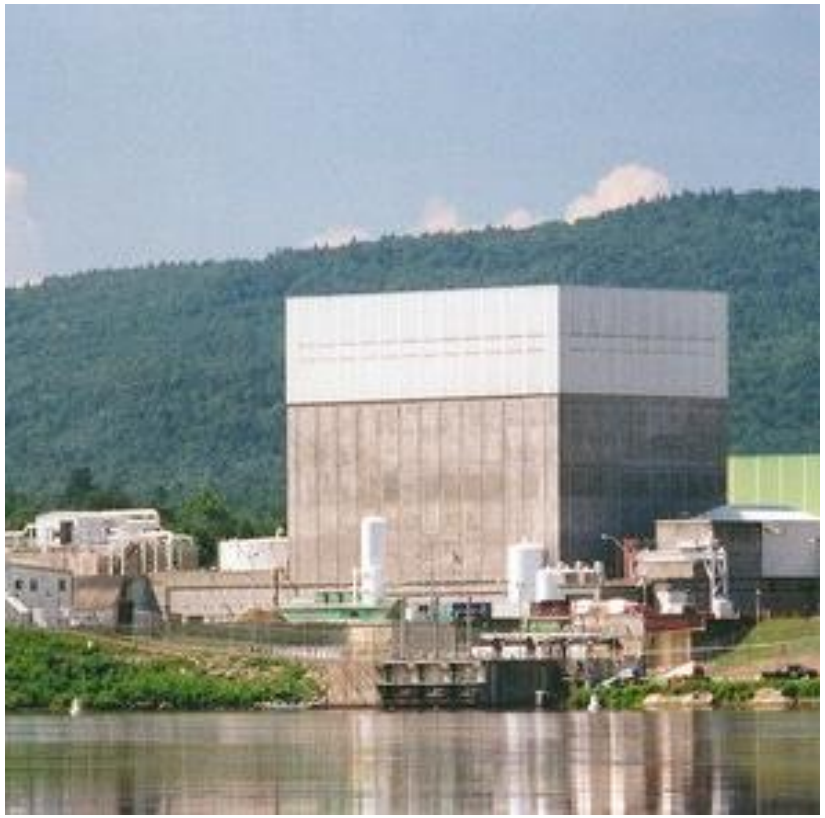
18. Three Mile Island
Middletown, PA

19. Trojan
Ranier, OR

20. Vermont Yankee
Vernon, VT

21. Yankee Rowe
Rowe, MA

22. Zion
Zion, IL



VERMONT YANKEE

- BWR began operations in 1972
- An Entergy sub. bought all the assets in 2002, including a decom fund of ≈ $310 M
- Permanent shut down on January 12, 2015
- The Entergy PSDAR estimated license termination by 2075

ENTER NORTHSTAR

- In February of 2017 Entergy and NorthStar Group Service, Inc. asked to transfer the VY station to North Star
- As of March 2018, the nuclear decommissioning trust had a balance of $559.7 M and a site restoration trust of $30.9 M.
- NorthStar had decommissioning experience related to four research reactors and also with DOE sites but not with a commercial reactor
- NorthStar committed to advancing the decommissioning of VY by more than 30 years

What's a State to do??????

KEY FACTORS IN APPROVAL

- Financial protections and risk-management provisions agreed to by the parties including enhanced financial assurances for decommissioning and site restoration
- Extensive oversight by Vermont agencies throughout the cleanup process
- U.S. NRC determination that NorthStar is financially and technically qualified to complete the decommissioning according to the proposed schedule
- Broad support of the public and the parties (including State, regional, and local governmental authorities) for the transfer

HIGHLIGHTS OF THE DEAL

- NorthStar within 12 years will remove most above-ground structures, and underground structures (to a depth of 4'), and the site will be regraded and seeded.
- Entergy contribution to the site restoration trust fund to bring it to $60 M
- NorthStar performance bond of approximately $400 M
- NorthStar parent support agreement of $140 M
- NorthStar provides $30 M of pollution legal liability insurance
- NorthStar contributes $10 M of proceeds from Round 3 of DOE claims

The Final Order and MOU

https://puc.vermont.gov/sites/psbnew/files/doc_library/8880%20Final%20Order.pdf

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

REACTOR DECOMMISSIONING FINANCIAL ASSURANCE WORKING GROUP

February 10, 2020

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

WG Charter

In September 2019, the Reactor Decommissioning Financial Assurance Working Group was formed and directed to:

1. Review the current decommissioning financial assurance processes
2. Identify potential regulatory gaps or policy issues
3. Identify potential program enhancements
4. Identify planning or resource considerations
5. Make recommendations

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

Regulations Governing Decommissioning Financial Assurance

1988, "General Requirements for Decommissioning Nuclear Facilities"

- 10 CFR 50.75

1996 "Decommissioning of Nuclear Power Reactors"

- 10 CFR 50.82

1998 "Financial Assurance Requirements for Decommissioning Nuclear Power Reactors"

- 10 CFR 50.75 (f)(1) and (2)

2002 "Decommissioning Trust Provisions"

- Corrected in 2003
- Additional financial assurance requirements for licensees that are not traditional regulated electric utilities

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

NRC Perspective

The risk of a licensee not having adequate decommissioning resources is low because:

1. Extensive regulations
2. Transfer requires NRC approval of financial resources
3. NRC inspection program
4. Atomic Energy Act authority

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

WG Progress Summary

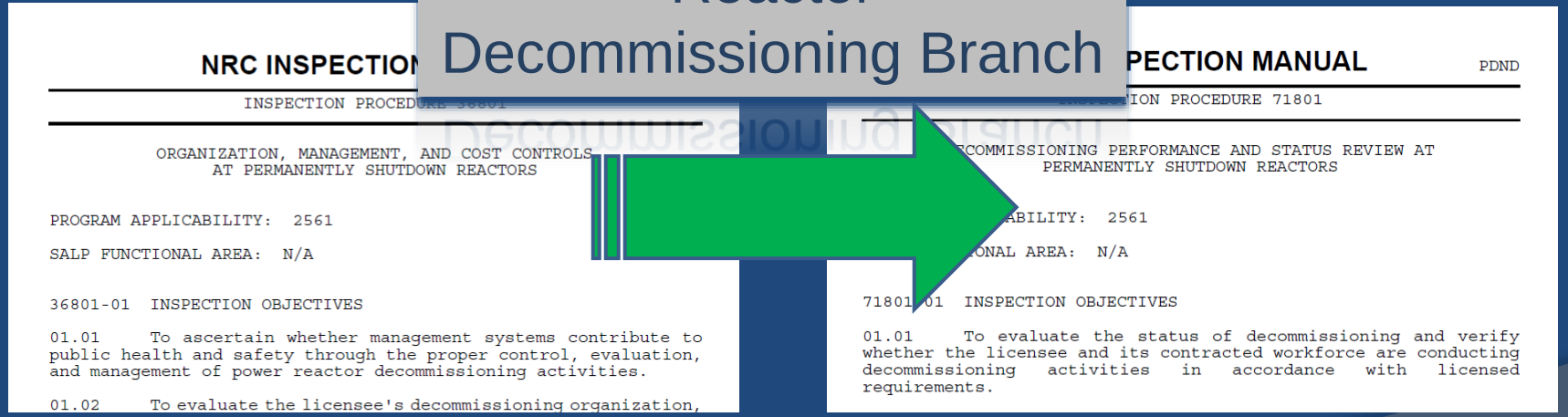
- No regulatory gaps or policy issues have been identified
- Recommendations developed to improve FA licensing and oversight processes
  - Four guidance initiatives
  - Training for inspectors, program office and financial analysts

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

Recommended Guidance Initiatives

1. Revise Inspection Procedures
   - Integrate decommissioning activity inspections with the program office and financial analysts activities

Reactor Decommissioning Branch



NRC INSPECTION MANUAL

INSPECTION PROCEDURE 36801

ORGANIZATION, MANAGEMENT, AND COST CONTROLS AT PERMANENTLY SHUTDOWN REACTORS

PROGRAM APPLICABILITY: 2561

SALP FUNCTIONAL AREA: N/A

36801-01 INSPECTION OBJECTIVES

01.01 To ascertain whether management systems contribute to public health and safety through the proper control, evaluation, and management of power reactor decommissioning activities.

01.02 To evaluate the licensee's decommissioning organization,

PECTION MANUAL PDND

ION PROCEDURE 71801

COMMISSIONING PERFORMANCE AND STATUS REVIEW AT PERMANENTLY SHUTDOWN REACTORS

ABILITY: 2561

ONAL AREA: N/A

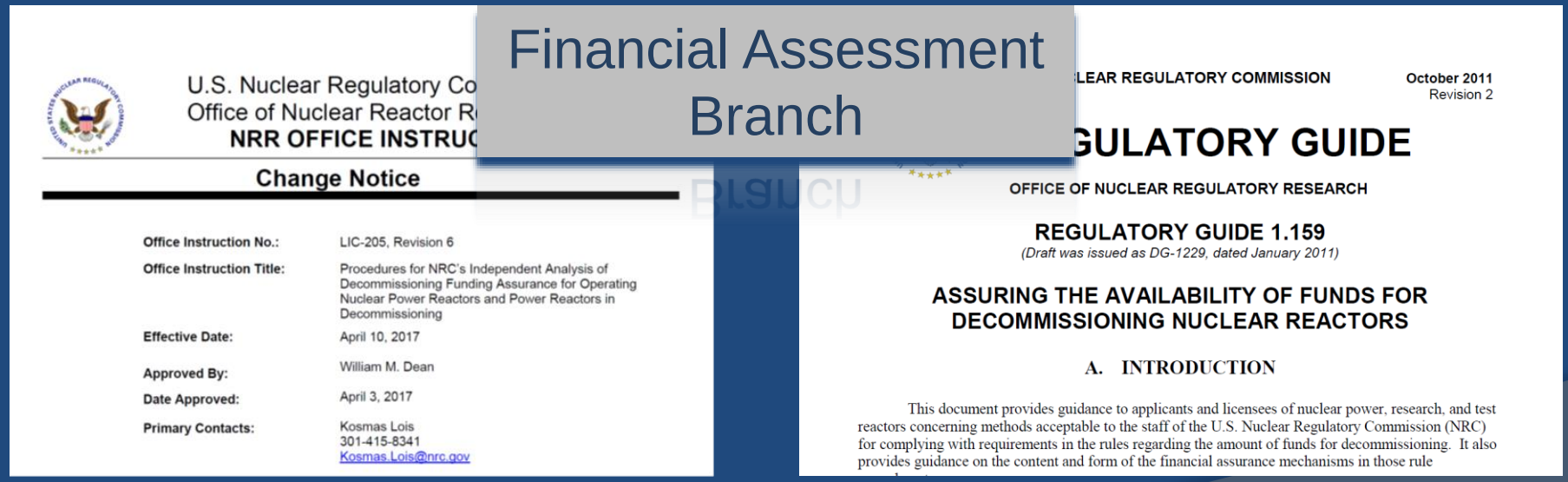
71801-01 INSPECTION OBJECTIVES

01.01 To evaluate the status of decommissioning and verify whether the licensee and its contracted workforce are conducting decommissioning activities in accordance with licensed requirements.

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

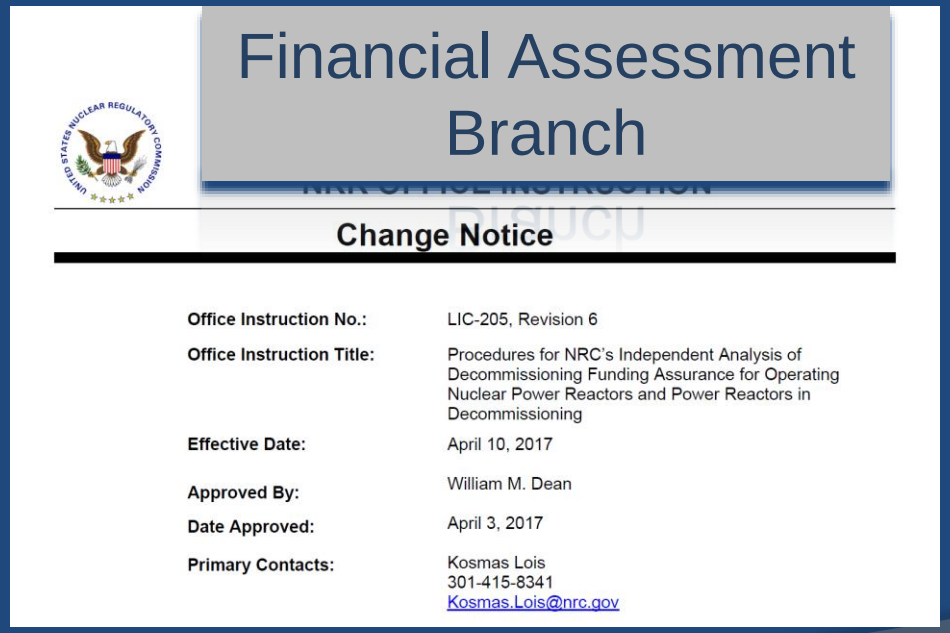
Recommended Guidance Initiatives

2. Revise Reporting Guidance to allow more detail in annual reports for improved oversight of DTF expenditures



Recommended Guidance Initiatives

3. Revise Reporting Guidance to allow more detail in the 30-day pre-withdrawal notices for improved oversight of DTF expenditures



Financial Assessment Branch

Change Notice

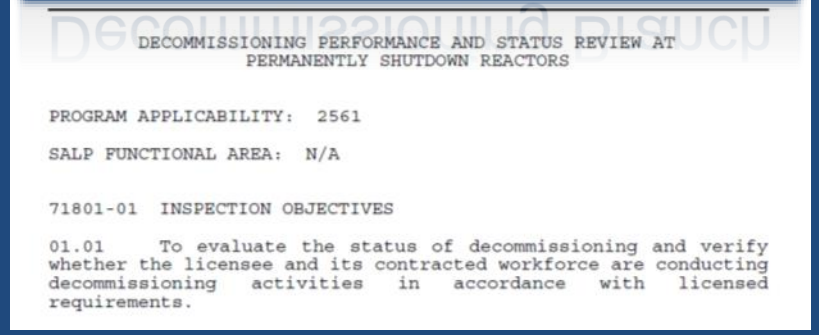
Office Instruction No.:	LIC-205, Revision 6
Office Instruction Title:	Procedures for NRC's Independent Analysis of Decommissioning Funding Assurance for Operating Nuclear Power Reactors and Power Reactors in Decommissioning
Effective Date:	April 10, 2017
Approved By:	William M. Dean
Date Approved:	April 3, 2017
Primary Contacts:	Kosmas Lois 301-415-8341 Kosmas.Lois@nrc.gov

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

Recommended Guidance Initiatives

4. Develop guidance for a spot check program for power reactors in decommissioning

Reactor Decommissioning Branch



DECOMMISSIONING PERFORMANCE AND STATUS REVIEW AT PERMANENTLY SHUTDOWN REACTORS

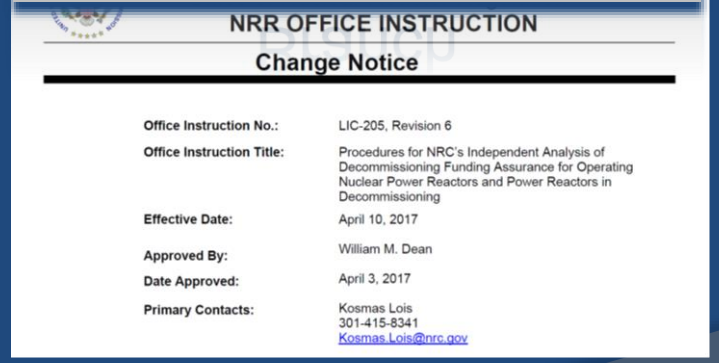
PROGRAM APPLICABILITY: 2561

SALP FUNCTIONAL AREA: N/A

71801-01 INSPECTION OBJECTIVES

01.01 To evaluate the status of decommissioning and verify whether the licensee and its contracted workforce are conducting decommissioning activities in accordance with licensed requirements.

Financial Assessment Branch



NRR OFFICE INSTRUCTION

Change Notice

Office Instruction No.:	LIC-205, Revision 6
Office Instruction Title:	Procedures for NRC's Independent Analysis of Decommissioning Funding Assurance for Operating Nuclear Power Reactors and Power Reactors in Decommissioning
Effective Date:	April 10, 2017
Approved By:	William M. Dean
Date Approved:	April 3, 2017
Primary Contacts:	Kosmas Lois 301-415-8341 Kosmas.Lois@nrc.gov

Training

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

Applicable Guidance

- NUREG-1307, Rev 17
  - ML19037A405
- Regulatory Guide 1.159
  - ML112160012
- Regulatory Guide 1.202
  - ML050230008
- NRR Office Instruction LIC-205
  - ML17075A095
- Inspection Procedure 36801/71801
  - https://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/

Thank you

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

Backup slides

Decommissioning Business Models

- Historically, decommissioning has been managed by former operator
- Recently, plants have been transferred for decommissioning
- Transfers require a financial qualification evaluation

Working Group

Organizations

- Office of Nuclear Material Safety and Safeguards
  - Division of Decommissioning, Uranium Recovery and Waste Programs
  - Division of Rulemaking, Environmental and Financial Support
- Office of Nuclear Reactor Regulation
  - Division of Operating Reactor Licensing
- Region I - Division of Nuclear Materials Safety
- Region III - Division of Nuclear Materials Safety
- Region IV – Division of Nuclear Materials Safety
- Office of General Counsel

Chairman: Ted Smith, Reactor Decommissioning Branch

Summary of Decommissioning Financial Assurance Requirements (1 of 3)

Assurance of sufficient funding for decommissioning is provided by:

1. Calculated decommissioning cost estimate cost updated annually
2. Decommissioning cost must be covered
3. Trustee manages the decommissioning trust fund (DTF) with NRC oversight

Summary of Decommissioning Financial Assurance Requirements (2 of 3)

Assurance of sufficient funding for decommissioning is provided by:

4. Withdrawal notification requirements while operating
5. Withdrawals limited to radiological decommissioning
6. Periodic reports with obligation to make up shortfalls

Summary of Decommissioning Financial Assurance Requirements (3 of 3)

Assurance of sufficient funding for decommissioning is provided by:

7. Preliminary and site-specific decommissioning cost estimates
8. Obligation to make up shortfalls immediately when in decommissioning
9. 60 years to complete decommissioning
10. Ability to revoke exemptions for other use of DTFs