UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 3, 2025

MEMORANDUM TO: Shaun Anderson, Branch Chief
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

FROM: Kathryn Robertson-DeMers
K DeMers
Signed by Robertson-DeMers, Kathryn on 02/03/25
Health Physicist
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

SUBJECT: SUMMARY OF JANUARY 15, 2025, DECOMMISSIONING LESSONS LEARNED PUBLIC MEETING WORKSHOP WITH INDUSTRY DECOMMISSIONING LICENSEES

On January 15, 2025, a hybrid public meeting was held at the U.S. Nuclear Regulatory Commission (NRC) with industry decommissioning licensees to discuss lessons learned from recent license termination plan (LTP) submittals and decommissioning projects. The objective of the meeting was to share good practices and lessons learned to improve the overall decommissioning process when transitioning from operations to decommissioning to license termination. In this public meeting, presentations were made by NRC staff, Nuclear Energy Institute (NEI), the Electric Power Research Institute (EPRI), Holtec Decommissioning International (HDI), Omaha Public Power District (OPPD), the Department of Transportation/Maritime Administration (MARAD), Northstar, Energy Solutions, and Southern California Edison.

The meeting notice and agenda, posted December 12, 2024, are available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML24347A022 and are posted on the NRC's public Web page at http://www.nrc.gov/reading-rm/adams.html. The NRC staff and licensee presentation material are available on the meeting notice. Persons who do not have access to ADAMS or who encounter problems in accessing the meeting materials located in ADAMS should contact the NRC Public Document Room reference staff by telephone at 1-800-397-4209 or by email to PDR.Resource@nrc.gov.

During the meeting, the NRC staff delivered seven presentations: (1) "NRC Perspectives on Decommissioning Lessons Learned: Historical and Future Perspectives," (2) "Consultation Under Section 106 of the National Historic Preservation Act During Decommissioning:

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Lessons Learned and Best Practices," (3) "Status of NRC ISG on MRCs and RDFAWG Completion," (4) "DUWP-ISG-03 Contamination Control, Radiological Survey, and Dose Modeling Considerations to Support License Termination at Sites with Environmental Discrete Radioactive Particle Contamination," (5) "NRC Guidance Updates," (6) "Site Characterization Lessons Learned," and (7) "Inspection Activities."

Industry emphasized the importance of benchmarking research throughout the industry, bringing in experienced companies as a method of gaining insight and expertise, and applying lessons learned from previous decommissioning projects to subsequent projects. Licensees mentioned the importance of maintaining a good safety culture and engaging workers in all phases, which leads to innovation and ensuring work is conducted safely. Oyster Creek conducted removal of control rod guide tubes from the vessel versus normal under-vessel disconnects resulting in substantial dose reduction to workers. Immediate approaches included transferring the nuclear fuel to dry storage, removing environmental hazards, and fire prevention decreasing the overall risk to workers.

Industry shared innovative approaches to eliminating or managing hazards with engineering solutions. Vermont Yankee found bringing equipment into the building and demolishing the building from the top down was the safest approach. Lateral loading in the structure was addressed by filling adjacent rooms to the Reactor Building with the plan to empty the rooms prior to final status survey.

Industry shared their approach to demolition of structures beginning with a surgical demolition of materials based on radiological characteristics and then moving to open air demolition. When removing the reactor vessel, Fort Calhoun Station initially underestimated the friction and found that using a second lift allowed them to break the vessel free, which subsequently allowed them to remove the reactor vessel. The steam generators were removed intact and size reduced at another structure.

Three Mile Island (TMI) Unit 2 has unique challenges with radiation distributed throughout the Reactor Building and portions of the Auxiliary and Fuel Handling Buildings. The licensee established a planning and preparation program, which includes performing mock-up of activities, procuring and training on specialized equipment, and the creation of a Robotics, Instrumentation, Systems, and Tooling Committee to investigate new technologies and ways of conducting chemical decontamination. Active training programs are underway concerning the unique radiological conditions and remote operation of robotic tools necessary to conduct the work.

Industry shared the keys to their success are effective contamination control programs. Containment structures and ventilation can be used as a controlled environment to manage materials going into and out of containment for contamination control. Fort Calhoun Station also established designated haul paths for radioactive waste that are monitored following shipments. When size reducing bulk material, they have implemented methods for segregation and control of small highly radioactivity pieces.

The Department of Transportation, Maritime Administration discussed the importance of getting the MARAD Contracting Officer involved as a part of benchmarking and planning to enable design of contract vehicles in conjunction with procedures and programs. Organization structure combined with roles and responsibilities ensured MARAD was fully involved in all project matters, and strong open two-way communication within the project was maintained. MARAD is

actively seeking preservation of the NS Savannah consistent with its designation as a National Historic Landmark.

Industry discussed engagement with the stakeholders to improve confidence in the decommissioning process, which has been successfully implemented across the country. Licensees have engaged with the stakeholders through Community Engagement Panels/Citizen Advisory Panels, public announcements, community speaking engagements, facility tours, and interaction with state agencies.

There is a path forward for major reactor component (MRC) disposal with the issuance of the NRC interim staff guidance on the use of decommissioning trust funds during these operations. The Reactor Decommissioning Financial Assurance Working Group (RDFAWG) published a report in 2020 (ML20121A188) evaluating the existing decommissioning financial assurance program and identifying potential enhancements to improve the efficiency, effectiveness, and transparency of the program. Industry shared when decommissioning multiple units simultaneously, work must be closely tracked to ensure proper correlation to the appropriate fund and compliance with the 10 CFR 50.2 definition of decommissioning. NRC staff also discussed lessons learned and best practices associated with Section 106 of the National Historical Preservation Act.

From May 2023 through December 2024, inspectors continued to see issues with radiation protection, transportation, fire protection, decommissioning trust funds usage, discouraging language in disclosure agreements, and industrial safety. San Onofre Nuclear Generation Station shared lessons learned from their two Severity Level IV non-cited violations involving shipment of a pressurizer for disposal, and the comprehensive actions taken to mitigate the situation. They emphasized the importance of verifying critical assumptions. A solid quality assurance program mitigates many transportation and other issues. Based on licensee experience, proactive reporting of low-level issues to regulators and communication with the public promotes confidence in the decommissioning project.

In the Electric Power Research Institute (EPRI) and the United States, there are challenges with locating construction crafts and training personnel new to the nuclear industry and decommissioning of nuclear facilities with its unique safety culture. Other areas require highly skilled technical staff (e.g., technical experts and technicians familiar with final status survey) during the license termination process. PreussenElektra is applying a fleet approach by using similar contractors that travel from one site to the next allowing transfer of lessoned learned, knowledge, and techniques, and shortening decommissioning duration and reducing operational costs. Where conducting first of kind operations, EPRI recommended working with the regulator early and anticipate regulatory challenges. An effort to capture the institutional knowledge from existing decommissioning sites is needed to support future decommissioning efforts, which may be years into the future.

European nuclear power plants have found that decontamination and characterization of buildings are critical to the recycling efforts, reduction of radioactive waste volume and associated costs, and the clearance of structures prior to demolition. Additionally, TMI Unit 2 reiterated the importance of early site characterization to define waste requirements and provide input to license termination plan development. Continuing characterization ensures the most up-to-date radiological information is available.

There were several areas for improvement noted by the NRC staff and industry concerning the license termination process and license termination submittals. The recently submitted

NEI 22-01, “License Termination Process,” was developed to institutionalize the license termination process and capture good practices proven acceptable to NRC staff. Industry proposed a phased submittal of license termination plans, which is under consideration by NRC staff. NRC staff discussed expectations for site characterization and defining risk significant dose modeling parameters and pointed industry to new guidance, which provides clarification on discrete radioactive particles, continuously collected data, and radiological surveys and dose modeling for land subsurfaces. Both industry and NRC staff agreed that during the license termination plan development process, site visits and engagement between the licensees and the reviewers improve the understanding of both the parties.

One member of the public inquired about major radioactive component (MRC) funding requests from the decontamination and decommissioning fund and available documentation related to applications and exemptions. The exemption request and approval package for PSEG Nuclear, LLC are found in the following:

- Request for Exemptions from 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) and Proposed Amendment to the Decommissioning Trust Agreement (ML24150A003)
- Hope Creek Generating Station, Salem Generating Station, Units 1 & 2, and Peach Bottom Atomic Station, Units 2 & 3 – Exemption from the Requirements of 10 CFR Part 50, Sections 50.82(a)(8)(1)(A) and 50.75(h)(1)(iv) (ML24324A335)

The exemption request submitted by Entergy Operations, Inc. is currently under review:

- Arkansas Nuclear One, Units 1 & 2 - Request for Exemptions from 10 CFR 50.82(a)(8)(i) and (ii) for use of Nuclear Decommissioning Trust Funds for Disposal of Major Radioactive Components During Operations (ML24318C273)

A second member of the public asked about the specific steps NRC staff is taking in response to failures by licensees to control airborne radioactivity, implement adequate controls in alpha level 3A areas, and prevent unauthorized access to locked high radiation areas. Staff responded by informing the individual that the licensee is responsible for documenting failures in the radiation protection program as a part of their Corrective Action Program and determining corrective actions. NRC Inspectors review these corrective actions and continued compliance with regulations.

Approximately 170 representatives from industry, state and federal government, international agencies, NRC and the public participated in the meeting. A list of the meeting attendees is enclosed. No public meeting feedback forms were received. No regulatory decisions were made during this meeting. Please direct any inquiries to me at (301) 415-5793 or Kathryn.Robertson-DeMers@nrc.gov.

Enclosure:
List of Attendees

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NAME	KRobertson-DeMers	BWatson	SAnderson	KRobertson-DeMers
DATE	1/27/2025	1/27/2025	1/31/2025	2/3/2025

OFFICIAL RECORD COPY

LIST OF ATTENDEES

JANUARY 15, 2025, DECOMMISSIONING LESSONS LEARNED

PUBLIC MEETING WORKSHOP

WITH INDUSTRY DECOMMISSIONING LICENSEES

Name[1]	Organization
Adam Schwartzman	U.S. Nuclear Regulatory Commission (NRC)
Alec Hillier	NRC
Amy Snyder	NRC
Andrew Taverna	NRC
Angela Coggins	NRC
Beau Goldstein	NRC
Bill Lin	NRC
Bill Von Till	NRC
Boby Abu-eid	NRC
Bruce Watson	NRC
Celimar Valentin-Rodriguez	NRC
Chris Allen	NRC
Chris McKenney	NRC
Christian Dennes	NRC
Christianne Ridge	NRC
Cynthia Barr	NRC
David Hills	NRC
Douglas Mandeville	NRC
Duane White	NRC
Elise Eve	NRC
Emil Tabakov	NRC
Emma Duncan	NRC
Fred Miller	NRC
Gehan Flanders	NRC
George Alexander	NRC
Gianni Nelson	NRC
Gregory Chapman	NRC
Harry Felsher	NRC
Jack Parrott	NRC
Jackson Barth	NRC
James Smith	NRC
Jane Marshall	NRC
Jen Whitman	NRC
Jennifer Davis	NRC
Jennifer Gutierrez	NRC

Enclosure

Name[1]	Organization
Jessica Moses-Arnone	NRC
Karen Pinkston	NRC
Katherine Warner	NRC
Kathryn Robertson-DeMers	NRC
Kenneth Kline	NRC
Kevin Hayes	NRC
Kosmas Lois	NRC
Lifeng Guo	NRC
Linda Gersey	NRC
Lisa Dimmick	NRC
Lisa Pope	NRC
Marlayna Doell	NRC
Martha Poston-Brown	NRC
Matthew Learn	NRC
Michael LaFranzo	NRC
Michelle Rome	NRC
Nachiketh Chandran	NRC
Nate Fuguet	NRC
Nick Eckhoff	NRC
Patricia Jehle	NRC
Randy Fedors	NRC
Richard Turtil	NRC
Riley Maynard	NRC
Rob Evans	NRC
Robert Sun	NRC
Ron Linton	NRC
Ron Rolph	NRC
Shaun Anderson	NRC
Shawn Harwell	NRC
Stacey Imboden	NRC
Stephanie Anderson	NRC
Steve McCarthy	NRC
Tanya Hood	NRC
Tiffany Rushing	NRC
Travis Jones	NRC
Steven Mannon	AECOM
Lawrence E. Boing	Argonne National Laboratory
Claude Wiblin	Chesapeake Nuclear Services, Inc.
J. Stewart Bland	Chesapeake Nuclear Services, Inc.
Hannah E. Pell	Constellation
Jeff Dunlap	Constellation
Kenneth M. Nicely	Constellation
Amanda Anderson	Department of Energy
Angela Wofford	Department of Energy

Name[1]	Organization
Joseph DeMers	Department of Energy
Mike Stewart	Department of Energy
Tom Carver	Department of Energy
Bradly J McMahon	Dominion Energy
Douglas B Moss	DTE Energy
Manuel Leal Gonzalez	Endesa
Martin Brandauer	Energy Power Research Institute
Rich McGrath	Energy Power Research Institute
Amy Hazelhoff	Energy Solutions
Barb Dotson	Energy Solutions
Joe Lynch	Energy Solutions
Mike Carpenter	Energy Solutions
Richard McIntosh	Energy Solutions
Robert F. Yetter	Energy Solutions
Tim Devik	Energy Solutions
Lori Glander	Entergy Nuclear
Michael Callahan	Government Strategies Incorporated
Gordon Madison	Holtec
Kristin Maddalo	Holtec
Mark Lawson	Holtec
Matthew Johnson	Holtec
William Noval	Holtec
Daniel J. Shannon	Kewaunee Solutions
Rick Adams	Kewaunee Solutions
Tom Schneider	Kewaunee Solutions
J. Blackburn NR	Naval Reactors-08R
Bryant Akins	Northstar
Corey Daniels	Northstar
John Jernigan	Northstar
Marshall Blake	Northstar
Bruce Montgomery	Nuclear Energy Institute
John Osborne	Nuclear Ship Savannah
Ben Pearson	Omaha Public Power District
Daniel R. Whisler	Omaha Public Power District
Randy Hugenroth	Omaha Public Power District
Timothy S. Uehling	Omaha Public Power District
John Mayer	Orano
Larry McDougal	Orano
Ricky Furr	Orano
Sebastien Guillot	Orano
Al Bates	Pacific Gas and Electric
George, Dylan	Pacific Gas and Electric
Coley Chappell	PSEG Nuclear
Eric Darois	Radiation Safety and Control Services

Name[1]	Organization
Krista Torda	Radiation Safety and Control Services
Marc Cyr	Radiation Safety and Control Services
Susan Strachan	San Luis Obispo County
Thomas Magnette	Severn Nuclear Services
Chad A Samples	Southern California Edison
Mark E Morgan	Southern California Edison
William H. Barley	Southern California Edison
Erhard Koehler	U.S. Department of Transportation, Maritime Administration
Steve Magill	Urenco
Jim Nuccio	Westinghouse
Maria Ines De Miguel Martinez	Westinghouse
Francisco Javier Castillo Tortosa	Consejo de Seguridad Nuclear
Inmaculada Simón	Consejo de Seguridad Nuclear
Juan Gonzalez Cadelo	Consejo de Seguridad Nuclear
Paloma Ozores Diez	Consejo de Seguridad Nuclear
Sofia Luque Heredia	Consejo de Seguridad Nuclear
Solis Sanz Susana	Consejo de Seguridad Nuclear
Boris Brendebach	German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)
Uwe Büttner	German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)
Alicia Gonzalez Fernandez-Conde	Iberdrola
Elvira Blazquez Arroyo	Iberdrola
Eva Salas Sanchez	Iberdrola
Lorea Aresti Allende	Iberdrola
Susana Gutierrez Martinez	Iberdrola
Haiyong Jung	Korea Institute of Nuclear Safety
Raúl Muñoz	Foro Nuclear
RJ	Public
Rafael Garcia-Bermejo	Public
Josie Piccone	Public
Holly Eve	Public
Jana Bergman	Public
James Byrne	Public
Joe Carignan	Public
Ed Goetchius	Public
Bill Horin	Public
Michael Empey	Public
Timothy P. Matthews	Public
Clifford Chapin	Public
Veena Gubbi	Public

Name[1]	Organization
Mark Kirshe	Public
Rita Macdonald	Public
Joy Jiang	Public
John Egdorf	Public

[1] An additional four individuals participated by phone without identifying their organization.