



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

June 26, 2024

MEMORANDUM TO: Stephen Philpott, Chief (Acting)
Advanced Reactor Licensing Branch 2
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

FROM: Maggie Chauhan, Project Manager
Advanced Reactor Licensing Branch 2
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE MAY 14, 2024, PUBLIC MEETING WITH NOV SHEPHERD
POWER, BWX TECHNOLOGIES, INC., AND NUCLEAR ENERGY INSTITUTE
TO DISCUSS REGULATORY AND POLICY TOPICS RELATED TO LICENSING
AND DEPLOYMENT MODELS FOR MICRO-REACTOR INDUSTRIAL
APPLICATIONS

Meeting Information:

External Participants: NOV Shepherd Power, BWX Technologies, Inc., (BWXT), and Nuclear Energy Institute (NEI)

Public Meeting Notice Agencywide Documents Access and Management System (ADAMS)
Accession No.: ML24135A033

Meeting Presentation Slides ADAMS Accession Nos.: ML24131A078, ML24130A197,
ML24131A014, and ML24130A196

Meeting Attendees: See the enclosure for a list of meeting attendees.

Meeting Summary:

The U.S. Nuclear Regulatory Commission (NRC) staff conducted the meeting in accordance with NRC Management Directive 3.5, "Attendance at NRC Staff-Sponsored Meetings" (ADAMS Accession No. [ML21180A271](#)).

CONTACT: Maggie Chauhan, NRR/DANU
301-415-0365

The purpose of this observation meeting was to discuss regulatory and policy topics related to NOV Shepherd Power's licensing and deployment models for micro-reactor industrial applications.

The main points of the discussion included:

- The NRC staff's discussion regarding enhancing clarity, reliability, and efficiency for licensing and regulation of micro-reactors. This discussion included strategies for licensing multiple micro-reactors using standard design (Nth-of-a-Kind) licensing considerations and success strategies optimizing licensing reviews such as proactive stakeholder engagement and robust preapplication activities. The NRC staff also provided details regarding micro-reactor licensing considerations that are discussed in the documents listed below:
 - SECY-24-0008 "Micro-Reactor Licensing and Deployment Considerations: Fuel Loading and Operational Testing at a Factory" ([ML23207A252](#)).
 - "Micro-reactors Licensing Strategies" White Paper ([ML21235A418](#)).
 - SECY-20-0093: "Policy and Licensing Considerations Related to Micro-Reactors" ([ML20254A363](#)).
- NOV Shepherd Power's presentation regarding its business model and plans for micro-reactor industrial applications in correlation with NRC Safety and Environmental review timelines from the point of site selection and licensing costs.
- BWXT's overview of the BWXT's Advanced Nuclear Reactor (BANR) development and the consumer's need for clean energy. Its perspective regarding micro-reactor Deployment Models regarding Products, Projects, and Regulatory Frameworks and potential licensing pathways. The future of BANR commercial deployment to meet end-user project constraints through opportunities to address micro-reactor regulatory topics, time, and level of detail beyond the current advanced regulatory framework.
- NEI's discussion regarding regulatory approaches for rapid and large-scale micro-reactor deployments for remote industrial applications in which design features and applications and/or use cases are leveraged to support alternative regulatory approaches contributing to an accelerated review schedule. NEI proposed schedule objectives beginning from specific site identification to operations and regulatory cost goals for the licensing functions associated with the project. NEI also examined regulatory topics potentially requiring alternative approaches to accommodate the requested accelerated review schedules. Next steps were proposed to consist of continued stakeholder engagements with a future NEI submittal addressing regulatory topics and alternative approaches establishing a basis for consideration of regulatory changes.

S. Philpott

- 3 -

- Public comments were received from the US Nuclear Industry Council, Union of Concerned Scientists, and NuScale. The staff will consider these viewpoints as licensing strategies are evaluated.

No regulatory decisions were made as a result of this meeting.

Enclosure: List of Meeting Attendees

cc: NOV Shepherd Power, BWX Technologies, INC (BWXT), Nuclear Energy Institute (NEI) via GovDelivery

S. Philpott

- 4 -

SUBJECT: SUMMARY OF THE MAY 14, 2024, PUBLIC MEETING WITH NOV SHEPHERD POWER, BWX TECHNOLOGIES, INC., AND NUCLEAR ENERGY INSTITUTE TO DISCUSS REGULATORY AND POLICY TOPICS RELATED TO LICENSING AND DEPLOYMENT MODELS FOR MICRO-REACTOR INDUSTRIAL APPLICATIONS DATED: JUNE 26, 2024

DISTRIBUTION:

PUBLIC

RidsNrrDanuUal1 Resource

RidsNrrDanuUal2 Resource

RidsNrrDanu Resource

RidsNrrDanuUarp Resource

RidsOcaMailCenter Resource

RidsOcaaMailCenter Resource

RidsOpaMailCenter Resource

MWentzel, NRR

SPhilpott, NRR

KRoche, NRR

SLynch, NRR

JHarvey, NRR

MChauhan, NRR

PMouring, NRR

KMott, NSIR

ROber, NRR

GBowman, NSIR

BChen, OCIO

TRivera, NSIR

TLeach, NSIR

GOberson, NRR

JPetrucelli, NSIR

RSubbaratnam, NRR

JSegala, NRR

STonsfeldt, NRR

NDenney, NRR

ADAMS Accession Number: ML24177A143

NRC-001

OFFICE	NRR/DANU/UAL2:PM	NRR/DANU/UAL2:LA	NRR/DANU/UAL2:BC(A)	NRR/DANU/UAL2:PM
NAME	MChauhan	CSmith	SPhilpott	MChauhan
DATE	05/30/2024	06/25/2024	06/25/2024	06/26/2024

OFFICIAL RECORD COPY

List of Meeting Attendees

PUBLIC MEETING WITH NOV SHEPHERD POWER, BWX TECHNOLOGIES, INC., AND
NUCLEAR ENERGY INSTITUTE TO DISCUSS REGULATORY AND POLICY TOPICS
RELATED TO LICENSING AND DEPLOYMENT MODELS FOR MICRO-REACTOR
INDUSTRIAL APPLICATIONS

May 14, 2024

Name	Organization
Mohamed Shams	U.S. Nuclear Regulatory Commission (NRC)
Rob Taylor	NRC
Jeremy Bowen	NRC
Michael Wentzel	NRC
Stephen Philpott	NRC
Kevin Roche	NRC
Steven Lynch	NRC
Jackie Harvey	NRC
Maggie Chauhan	NRC
Paul Mouring	NRC
Amy Cabbage	NRC
Kenneth Mott	NRC
Rebecca Ober	NRC
Greg Bowman	NRC
Peter Lowry	NRC
Ben Chen	NRC
Tammie Rivera	NRC
Travis Leach	NRC
Greg Oberson	NRC
Eric Bowman	NRC
Judy Petrucelli	NRC
Ramachandran Subbaratnam	NRC
Jon Segala	NRC
Julie Ezell	NRC
Tony Nakanishi	NRC
Scott Tonsfeldt	NRC
Nathan Denney	NRC
Tim Williamson	NOV Shepherd Power
Nicholas Morriss	NOV Shepherd Power
William Jessup	NOV Shepherd Power
Jon Walters	NOV Shepherd Power
Travis Chapman	BWXT
Mike Frassica	BWXT
Neil Herman	BWXT
Marc Nichol	NEI
David Young	NEI
John Butler	NEI

Enclosure

Kati Austgen	NEI
James Slider	NEI
Jon Facemire	NEI
Stew Yuen	NEI
Micheal Smith	NEI
Martin O'Neill	NEI
Tony Brown	NEI
Julianne Mccallum	NEI
Ben Chen	Argonne National Laboratory
Dave Grabaskas	Argonne National Laboratory
Christorpher P. Chwasz	Idaho National Laboratory
Jason A. Christensen	Idaho National Laboratory
Kenneth L. Fossum	Idaho National Laboratory
Steven E. Aumeier	Idaho National Laboratory
Stephen J. Burdick	Idaho National Laboratory
Kenneth M Thomas	Pacific Northwest National Laboratory
Peter Lowry	Pacific Northwest National Laboratory
Alyse Huffman	Energy Senate
Andrew Zach	EPW Senate
Jeffrey Morris	Accenture
Adam Stein	Breakthrough Institute
Leigh Lloveras	Breakthrough Institute
Jack Ridilla	ClearPath
Natalie Houghtalen	ClearPath
Niko McMurray	ClearPath
Brittany M. Lutz	Nuclear Innovation Alliance
Michael Mayfield	Talisman International
Cyril Draffin	U.S. Nuclear Industry Council
Joseph L. White	INPO
Thomas E. Giebelhausen	INPO
Aurora Young	Cenovus
Stephanie Bailey	Cenovus
Greg Schulze	Exxon Mobil
Alex Renner	MRPW
Ross Moore	MRPW
Leonardo Spanu	SIEP-PTX/E - Shell
Brent Sawyer	Vistra Corp
Matt Ballew	Vistra Corp
Steven J. Burdick	Vistra Corp
Rob Burg	EMP INC
Farshid Shahrokhi	FRA-CORP Framatome
Steven Pope	Information Systems Laboratories
Jeff Gromatzky	Enercon
Raheem Rashid	MPR
Chet Austin Sigmon	Duke Energy
Tim Polich	RoPower

Micheal Scott DeFilippis	TVA
Derick Botha	NuScale
Elliott Korb	Radiant Nuclear
Chanson Yang	Radiant Nuclear
Mike Montecalvo	TerraPower, MCFR
Amanda Spalding	Westinghouse
Michael Dudek	X-Energy
Edwin Lyman	Union of Concerned Scientists