



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

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October 30, 2023

MEMORANDUM TO: Michael Wentzel, Chief
Advanced Reactor Licensing Branch 2
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

FROM: Michael Orenak, Project Manager */RA/*
Advanced Reactor Licensing Branch 1
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE OCTOBER 24, 2023, PARTIALLY CLOSED
MEETING BETWEEN THE U.S. NUCLEAR REGULATORY
COMMISSION STAFF AND BWXT ADVANCED
TECHNOLOGIES, INC. TO PROVIDE AN UPDATE ON THE
BWXT ADVANCED NUCLEAR REACTOR AND DISCUSS THE
FUEL QUALIFICATION WHITE PAPER

Meeting Information:

Applicant: BWXT Advanced Technologies, Inc. (BWXT)

Docket/Project No. 99901469

EPID: L-2022-LRM-0069

Meeting Title: Meeting with BWXT on the ARDP Fuel Qualification White Paper and BANR
Project Update

Meeting Type: Partially Closed

Public Meeting Notice Agencywide Documents Access and Management System (ADAMS):
ML23157A017

Open Portion Industry Slides: ML23293A296

Closed Portion Non-proprietary Slides: ML23284A182

Closed Portion Proprietary Slides: ML23282A016

Meeting Attendees: See Enclosure for list of meeting attendees.

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~~OFFICIAL USE ONLY PROPRIETARY INFORMATION~~**Meeting Summary:**

The U.S. Nuclear Regulatory Commission (NRC) staff held a partially closed in-person meeting with representatives from BWXT Advanced Technologies, Inc. (BWXT). This meeting was for BWXT to provide to provide an update on the BWXT advanced nuclear reactor (BANR) and discuss the fuel qualification white paper.

During the open portion of meeting, BWXT representatives presented their slides that described the progress in the development of the BANR reactor and their forthcoming white paper on fuel qualification.

The first discussion occurred on Slide 9 regarding the testing of TRISO fuel to failure. The NRC staff asked BWXT what their plans were for testing fuel – whether fuel would be tested to the expected reactor conditions or beyond that, potentially to failure. BWXT responded they planned to test beyond the operating conditions and acknowledged the value of an expanded test scope beyond operating conditions.

For slide 11, the NRC asked at what manufacturing scale BWXT is currently producing their TRISO fuel. BWXT responded that they are currently making small batches in a laboratory and not at production scale.

For slide 13, the NRC staff asked if the fuel to be tested in the Advanced Test Reactor at Idaho National Labs is going to be in representative form of that to be used in the BANR. BWXT replied that yes, it mostly will be.

For slide 15, the NRC asked if the fuel problem identification and resolution table exercise (PIRT) will be completed internally, or if external entities will be engaged. BWXT responded that they will be using external review.

At the end of the presentation, the NRC staff asked if BWXT intends to use the NUREG-2246, “Fuel Qualification for Advanced Reactors” (ML22063A131) process for fuel development and qualification. BWXT responded that they do intend to use NUREG-2246.

The NRC staff also suggested at the end that BWXT could consider requesting limits on the number of hours and the length of time allotted for the review of the fuel qualification white paper. The NRC staff stated that the greater the hours and time available for the staff, the more thorough the review. Since a white paper review is just for feedback and not licensing, the NRC is flexible in its depth and length of the review, depending on BWXT’s priorities.

There was one comment provided during the public comment period by Dr. Edwin Lyman. Dr. Lyman asked about additive manufacturing and is there are any issues with the technology that could arise with production testing. The NRC staff replied that the NRC has limited experience with additive manufacturing in fuel technologies. NRC will be reviewing the use of additive manufacturing technologies depending on the test conditions and how much licensing credit is requested within a licensing application. The NRC will also be looking at the use of the additive manufacturing when used at a production scale.

During the closed (i.e., non-public) portion of the meeting, several discussions arose. On slide 9, the NRC staff noted that []

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For slide 10, the NRC staff asked [[

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For slide 12, the NRC staff asked if BWXT [[

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For slide 13, the NRC staff noted that [[

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asked [[

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- LKingsbury, NRR
- SJones, NRR
- MWentzel, NRR

ADAMS Accession Number: ML23300A010

NRR-052

OFFICE	NRR/DANU/UAL1/PM	NRR/DANU/UAL2/BC	NRR/DANU/UAL1/PM
NAME	MOrenak	MWentzel	MOrenak
DATE	10/27/2023	10/30/2023	10/30/2023

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List of Attendees

**Observation meeting between the U.S. Nuclear Regulatory Commission Staff
and BWXT Regarding the ARDP Fuel Qualification White Paper
and BANR Project Update**

Tuesday, October 24, 2023

<u>Name</u>	<u>Organization</u>
Mike Orenak	U.S. Nuclear Regulatory Commission (NRC)
Boyce Travis	NRC
Dan Beacon	NRC
Lance Kingsbury	NRC
Steve Jones	NRC
Abby Lindlof	BWX Technologies, Inc. (BWXT)
Steve Schilthelm	BWXT
Alex Shrier	BWXT
Don Statile	BWXT
Jeff Powers	BWXT
Michael Haggerty	BWXT
Neil Herman	BWXT
Brian Powers	BWXT
Eric Nygaard	BWXT
Dr. Edwin Lyman	Union of Concerned Scientists
Dominik Muszynski	
Timothy Polich	RoPower Nuclear