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BWX Technologies, Inc.

BANR Licensing Activities NRC Kick-Off Meeting BANR-LTR-22-0498 Non-Proprietary Enclosure 2

> Steve Schilthelm Erik Nygaard Mike Haggerty

October 20, 2022

AGENDA



- BWXT Program Objectives
- Fuel Qualification Strategy
- Fuel Design & Analysis
- Fuel Development & Manufacturing
- Irradiation Testing
- REP Deliverables
- Next Steps, Actions, Questions



BWXT Program Objectives







- Goal: Accelerated fuel qualification of UN TRISO fuel architecture
- Basis of Approach: Fuel Qualification for Advanced Reactors, NUREG 2246
 - BANR will use a fuel design that is significantly different from commercial LWRs
 - BANR's operating environments is significantly different from commercial LWRs
- BWXT's Application of NUREG 2246





Fuel Qualification Strategy - Fuel Qualification Assessment Framework





Fuel Qualification Strategy - Evaluation Model Assessment Framework









Modeling & Simulation supports the Evaluation Model Framework





[4]







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Assessing Existing Data



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Fuel Qualification Strategy – Experimental Data Assessment Framework





Fuel Development and Manufacturing Work Flow

ED G4.1

Fuel manufacturing specification





 Natural uranium kernel particle production feeds coating development scope ED G4.1

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Fuel manufacturing specification

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Irradiation Testing and PIE supports the Experimental Data Framework

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ED G3 Irradiation Testing, cont Data measurement [[ATR irradiation \bigcirc cornerstone of fuel [4] qualification effort Recently completed Ο conceptual design review]] of test train with INL]] \bigcirc

[4]



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Irradiation Testing, cont	ED G3 Data measurement
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Irradiation Testing, cont	ED G3 Data measurement
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Irradiation Testing, cont	ED G3 Data measurement
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- Regulatory Engagement Plan
- QA Topical Report
- Fuel technical report
 - Goal: early feedback to reduce risk on fuel technical report
 - Confirm timing
 - Subject of continued meetings
- Topical report
- AM report





• Next Steps

- Timing of technical update meetings
- Topics of most interest to NRC
- Importance / Value

