

# NRIC-NEI-EPRI Nuclear Quality Assurance Challenges Workshop

**Purpose:** Nuclear quality assurance requirements are essential for ensuring safety but can lead to significant cost increases and potential schedule delays in the construction of safety-related nuclear facilities. Furthermore, a shortage of qualified suppliers creates supply chain bottlenecks, resulting in extended lead times and schedule delays. Reducing construction costs, preventing schedule delays, and broadening the supply chain to include a more extensive pool of suppliers and contractors will positively impact nuclear construction and its economics. This workshop aims to assemble all stakeholders—including regulators, industry groups, code committees, reactor developers, EPC contractors, and material/component suppliers—to discuss the challenges in implementing nuclear quality assurance requirements and identify actionable solutions for NRIC and DOE to pursue moving forward.

## NEI Pre-Workshop Reception

5:00-6:30pm, Wednesday, Dec 04, 2024

NEI Offices, 1201 F Street NW, Washington, D.C.

Please RSVP to Mark Richter ([mar@nei.org](mailto:mar@nei.org)) or Samantha Packard ([smp@nei.org](mailto:smp@nei.org)) if attending

## Day 1 Agenda

December 05, 2024 (8:00 AM – 4:30 PM) – Location: Marriott Marquis, Washington, DC		
Time	Topic	Presenters
7:45 – 8:00	BREAKFAST (provided)	
8:00 – 8:05	Opening Remarks from DOE	Savannah Fitzwater, DOE NE
8:05 – 8:20	Opening Remarks from NRIC	Brad Tomer
8:20 – 9:20	Breakfast Keynote: State of New Nuclear	Marc Nichol
9:20 – 9:35	Workshop Agenda Overview	Chandu Boliseti
<b>Session 1: State of Practice in Nuclear Quality Assurance (Georgetown University Room)</b> <b>Organizer: Jen Davlin</b> <b>Chair: Jen Davlin</b> <b>Facilitators: Mike Fish and Ross Hays</b>		
9:35 – 9:50	1. Role of Appendix B to 10 CFR Part 50 in the NRC Licensing process and pathways for meeting Appendix B	Kerri Kavanagh
9:50 – 10:05	2. NQA-1 Introduction and its role as a pathway to meeting the Part 50 Appx B requirements	Rachel Czuba
10:05 – 10:20	3. Recent QA Experience from Vogtle	Robert Adams



December 05, 2024 (8:00 AM – 4:30 PM) – Location: Marriott Marquis, Washington, DC		
Time	Topic	Presenters
10:20 – 10:35	4. Lessons Learned from Having to Implement Concurrent NQA-1 / ISO 9001 (19443) Systems	Roger Sims
10:35 – 11:05	Q&A	
11:05 – 11:20	Polling	
11:20 – 11:40	BREAK (Pick up for working lunch)	
Session 2a: Design and Construction Quality Requirements and Specifications: Civil Structures (Georgetown University Room) Organizer: Chandu Bolisetti Chair: Luke Voss Facilitators: Chandu Bolisetti and Jason Christensen		
11:40 – 12:10	5. Fitness for Purpose	Andrew Whittaker and Brian McDonald
12:10 – 12:40	6. Reinforced Concrete, Steel and SC Structures (ACI 349 and AISC N690)	Amit Varma and Sanj Malushte
12:40 – 1:10	Q&A	
1:10 – 1:25	Polling	
Session 2b: Design and Construction Quality Requirements and Specifications: Mechanical Structures and Components (George Washington University Room) 11:40am – 1:25pm Organizer: Mike Dunkelberger Chair: Mike Dunkelberger Facilitators: Collin Clark and Sanjay Mukhi		
11:40 – 11:55	7. BPVC Section III Primer	Suzanne McKillop
11:55 – 12:10	8. QA for Metallic Components: Vessels, Pumps, Valves, Pressurized Containments, and Piping	Brett McGlone
12:10 – 12:25	9. QA for Non-Metallic Components: Graphite	Brett McGlone
12:25 – 12:40	10. ASME Certification and Accreditation	Mike Lockwood
12:40 – 1:10	Q&A	
1:10 – 1:25	Polling	
1:25 – 1:35	BREAK	
Session 3: Initiatives to Address Nuclear Quality Assurance Challenges (Georgetown University Room) 1:35pm – 3:20pm Organizer: Mike Dunkelberger Chair: Jen Davlin Facilitators: Mike Fish and Spencer Daw		



December 05, 2024 (8:00 AM – 4:30 PM) – Location: Marriott Marquis, Washington, DC		
Time	Topic	Presenters
1:35 – 1:50	11. NQA-1 Initiatives	Rachel Czuba
1:50 – 2:05	12. Alternate QA Requirements for Safety Related SSCs with a Low Safety Significance	Rachel Romano
2:05 – 2:20	13. NEI 22-04 Guidance for using ISO-9001 with additional controls to meet 10 CFR Part 50 Appendix B requirements	Mark Richter
2:20 – 2:35	14. EPRI’s research on using LMP for external hazards to inform structural design, and consideration of how QA practices impact failure probabilities for structures	John Richards
2:35 – 3:05	Q&A	
3:05 – 3:20	Polling	
3:20 – 3:30	BREAK	
<b>Session 4: Reactor Developer Perspectives on Opportunities for Improvement (Georgetown University Room)</b> <b>3:30pm – 5:30pm</b> <b>Organizer: Luke Voss</b> <b>Chair: Sanjay Mukhi</b> <b>Facilitators: Luke Voss and Chandu Bolisetti</b>		
3:30 – 3:45	15. Simpson, Gumpertz & Heger	Fred Grant
3:45 – 4:00	16. MPR Associates	Dennis Klein
4:00 – 4:10	17. Aalo Atomics	Raj Sekar
4:10 – 4:20	18. Antares	Doug Crawford
4:20 – 4:30	19. BWXT	Abbey Donahue
4:30 – 4:40	20. Westinghouse	Joe Halackna
4:40 – 5:10	Q&A	
5:10 – 5:25	Polling	
5:25 – 5:30	Day 1 Closeout	

## Day 2 Agenda

December 06, 2024 (8:00 AM – 12:00 PM) – Location: Marriott Marquis, Washington, D.C.		
Time	Topic	Presenters
7:45 – 8:00	<b>BREAKFAST (provided)</b>	
8:00 – 8:30	Breakfast Keynote: Considerations for Developing a QA Program	Mike Dunkelberger
<b>Session 5: Brainstorming Potential Solutions and their Feasibility (Georgetown University Room and George Washington University Room)</b> <b>8:30am – 12:00pm</b> <b>Organizer: Jason Christensen</b> <b>Chair: Jason Christensen</b>		
<b>Topic 1:</b> Good Procurement and Construction Practices		<i>Lead:</i> Mike Fish <i>Facilitator:</i> Jen Davlin
<b>Topic 2:</b> Graded Approach to Quality Requirements		<i>Lead:</i> Rachel Czuba <i>Facilitator:</i> Collin Clark
<b>Topic 3:</b> Safety and Risk-Informed Methods for Classification of SSCs		<i>Lead:</i> Lana Lawrence <i>Facilitator:</i> Chandu Bolisetti
<b>Topic 4:</b> Alternate QA Requirements for SSCs with Low Safety Significance		<i>Lead:</i> Brett McGlone <i>Facilitator:</i> Rachel Romano
<b>Topic 5:</b> Comparative Evaluation of Nuclear and Non-Nuclear Manufacturing and Construction Practices		<i>Lead:</i> Amit Varma <i>Facilitator:</i> Sanj Malushte
<b>Topic 6:</b> Peer Review		<i>Lead:</i> Andrew Whittaker <i>Facilitator:</i> Brian McDonald
<b>Topic 7:</b> Digital Engineering and Digital Twins		<i>Lead:</i> Ross Hays <i>Facilitator:</i> Luke Voss
<b>Topic 8:</b> Guidance for using ISO-9001 with additional controls to meet 10 CFR Part 50 Appendix B requirements		<i>Lead:</i> Mark Richter <i>Facilitator:</i> Sanjay Mukhi
<b>Topic 9:</b> Software Quality Assurance		<i>Lead:</i> Norm Moreau <i>Facilitator:</i> James Roll
8:30 – 9:15	Topic Introductions by Leads ( <b>Georgetown University Room</b> )	
9:15 – 9:30	<b>BREAK (organize into tables)</b>	
9:30 – 10:30	Breakout Group Discussions (Georgetown University Room and George Washington University Room)	



December 06, 2024 (8:00 AM – 12:00 PM) – Location: Marriott Marquis, Washington, D.C.		
Time	Topic	Presenters
10:30 – 11:50	Summary of Group Discussions (Georgetown University Room)	
11:50 – 12:00	Closing Remarks and Acknowledgements	Brad Tomer