NRC Staff Presentation-
Open Session

GEH Topical Report NEDC-33911P,
Revision 0, Supplement 1,
"BWRX-300 Containment Performance"

BWRX-300 Small Modular Reactor
ACRS Subcommittee Meeting

February 3, 2021

Presentation Outline

- NRC Staff Review Team
- BWRX-300 Containment Background
- NRC Staff Overview of NEDC-33911P

NRC Staff Review Team

- NRR Containment and Plant Systems Branch (SCPB)
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  - Dan Widrevitz
- NRR New Reactor Licensing Branch (NRLB)
  - Rani Franovich
  - George Wunder

BWRX-300 Containment Design Background

- BWRX-300 containment is an underground subterranean steel or reinforced concrete primary containment vessel (PCV) or a combination of steel and reinforced concrete
- Containment heat is removed by Passive Containment Cooling System (PCCS)
- Combustible gas control is not required for design basis accidents (DBAs) because the BWRX-300 containment atmosphere is well mixed and the containment atmosphere is initially nitrogen-inerted

BWRX-300 Containment Performance

NEDC-33911P provides design requirements, analytical methods, acceptance criteria, and regulatory bases for:

- Containment and the Passive Containment Cooling System (PCCS)
- Containment isolation valves (CIVs)
- Analytical methods evaluating containment performance
- Acceptance criteria for the BWRX-300 containment performance in accordance with the design requirements specified for the containment, PCCS, and CIVs

Overview of NRC Staff Review

- Piping and Valves Design Relevant to Containment Performance
- Containment Functional Design
- Containment Heat Removal Systems
- Secondary Containment Functional Design
- Containment Isolation System
- Combustible Gas Control in Containment
- Containment Leakage Testing
- Fracture Prevention of Containment Pressure Boundary