

Protecting People and the Environment

Advanced Reactors and New Reactors Topics Briefing

Commission Meeting

February 6, 2020





Opening Remarks

Margaret Doane

Executive Director for Operations



Vision and Direction for Regulatory Reviews of New and Advanced Reactors

Robert Taylor

Deputy Office Director for New Reactors

UNIFIED NRR

We Make SAFE Use of Nuclear Technology POSSIBLE



SAFE, TIMELY, AND EFFECTIVE LICENSING & OVERSIGHT OF VOGTLE 3&4



Photos Courtesy of Southern Nuclear Operating Company

Overseeing Vogtle Construction

Closing ITAAC



Resolving License Amendment Requests

SUSTAINING SMALL MODULAR REACTOR (SMR) PROGRESS





ENABLING the **SAFE Use of New NUCLEAR Technologies** PREPARATION

EXECUTION

SUCCESS

COMMITMEN



Michael King, Director Vogtle Project Office Office of Nuclear Reactor Regulation

Photo Courtesy of Southern Nuclear Operating Company



Leveraging technology and innovation to ensure safe oversight of Vogtle project



Photos Courtesy of Southern Nuclear Operating Company

ITAAC CLOSURE

Vogtle Units 3 and 4 Dashboard

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Last Refresh



Modern Risk-Informed Licensing for Faster Decision-Making



All Vogtle UINs Are Accepted Enabling Efficient ICN Reviews



Continuously Adapting Inspection to Incorporate Lessons Learned from First Part 52 Construction





Initiatives to Modernize Advanced Reactor Licensing

John Segala

Chief, Advanced Reactor Policy Branch

Executing the Vision











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See "NRC Vision and Strategy: Safety Achieving Effective and Efficient Non-Light Water Reactor Mission Readmes," dated December 21, 2016 (Agencywids Documents Access and Management System (ADMRS) Accession No. ML 15056470).

Facilitating Innovation with an Integrated Safety Approach



Developing a Modern Risk-Informed Framework



Risk-Informing the Content of Applications



Cooperating Internationally



Sharing Regulatory Experience

Advancing Risk-Informed and Performance-Based Licensing Approaches

Implementing NEIMA Provisions





- Issued Reports to Congress
 - Staged Licensing Process
 - Risk-Informed Guidance
- Developing Guidance within Existing Framework
 - Source Term
 - Event Selection
 - Containment Performance
 - Emergency Preparedness
- Developing a Technology-Inclusive, Risk-Informed and Performance-Based Regulatory Framework
 - 10 CFR Part 53



Readiness to Review Non-LWR Applications

Ben Beasley, Chief Advanced Reactor Licensing Branch

Readiness: Staff Preparations



Readiness: New Approaches

- Pre-application interaction:
 - White paper, audit
 - Topical report, Preliminary Safety Information Document



- Integrated approach to reasonable assurance of adequate protection
- Environmental reviews

Readiness: Project Team

OKLO INTEGRATED REVIEW — PROJECT TEAM STRUCTURE





Potential Applicants





Current and Anticipated Work



Oklo Review Status



Photo Courtesy of Oklo, Inc

Oklo Aurora Powerhouse

- AOO anticipated operational occurrence
- **BDBE** beyond design basis event
- **CFR** Code of Federal Regulations
- **COL** combined license
- DBA design basis accident
- DBE design basis event
- **DG** draft guide
- **GE-H** GE Hitachi Nuclear Energy
- HTGR high-temperature gas-cooled reactor

- ICN ITAAC closure notification
- **ITAAC** inspections, tests, analyses, and acceptance criteria
- LAR license amendment request
- MSR molten salt reactor
- NEICA Nuclear Energy Innovation Capabilities Act
- NEIMA Nuclear Energy Innovation and Modernization Act
- NRR Office of Nuclear Reactor Regulation
- LMP licensing modernization project

- LMFR liquid metal cooled fast reactor
- LWR light-water reactor
- NEI Nuclear Energy Institute
- NRC U.S. Nuclear Regulatory Commission
- **QA** quality assurance
- **PISD** preliminary safety information document
- **RIS** regulatory issue summary
- SER safety evaluation report
- SMR small modular reactor

- SSC systems, structures and components
- **TRISO** tristructural-isotropic
- **UAMPS** Utah Associated Municipal Power Systems
- **UIN** uncompleted ITAAC notification
- VPO Vogtle Project Office
- VRG Vogtle Readiness Group
- VTR versatile test reactor
- WGSAR Working Group on the Safety of Advanced Reactors