NRC Status of New Reactor License Applications

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Topics:

• Impact of 2005 Energy Policy Act (EPAct)
• NRC’s Readiness for New Reactor Applications
• New Reactor Licensing
• New Reactor Applications & Status of Review
• NRC’s Advanced Reactor Program (ARP)

- Provided Incentives to Industry
  - Loan Guarantees
  - Production Tax Credits
  - Standby Support
NRC’s Readiness for New Reactor Applications:

- Updating application submittal guidance & review guidance
- Early engagement on construction inspection
- Creation of Office of New Reactors (NRO)
NRO Mission

The Office of New Reactors (NRO) serves the public interest by enabling the safe, secure, and environmentally responsible use of nuclear power in meeting the nation's future energy needs.
New Reactor Licensing – The Regulator’s Perspective

- Maintain safety of licensed plants
- Predictable licensing process
- Meaningful public participation
- Enhanced safety for future plants
- Independent and credible regulator
Necessary NRC Documents for Licensing

- **FSER** (Final Safety Evaluation Report)
  - Documents safety assessment of design and operation

- **FEIS** (Final Environmental Impact Statement)
  - Documents NEPA* requirements for impact assessment of licensing

*NEPA = National Environmental Policy Act
Purpose of FSER

Safety Evaluation Reports (SER)

- Document the bases for our safety decisions
- Provide the standards to which the review was conducted
- Provide the description of how the application meets the standards
- Summarize the Agency findings
Purpose of FEIS

• An Environmental Impact Statement (EIS) is required for major Federal actions that may significantly affect the quality of the human environment

• Public disclosure of potential environmental impacts

• Involve all stakeholders in government’s decisions

• Identify alternative actions and appropriate mitigation of potential environmental effects
10 CFR Part 52 Licensing Processes

• Licensing Processes:
  – Early Site Permit (ESP)
  – Design Certification (DC)
  – Combined License (COL)

• Provide a predictable licensing process
• Resolve safety and environmental issues before authorizing construction
• Provide for timely & meaningful public participation
• Encourage standardization of nuclear plant designs
• Provide regulatory stability to nuclear plant licensees
Part 52 - Fitting the Pieces Together

- Licensing decisions finalized before major construction begins
- Inspections w/ITAAC (Inspections, Tests, Analyses, and Acceptance Criteria) to verify construction
- Limited work may be authorized before COL issuance
Early Site Permits (ESP)

• Allows Early Resolution of Siting Issues and “Banking” of a Site for 10 – 20 Years

• Review Areas Include:
  – Site safety
  – Environmental impact
  – Emergency preparedness
Design Certifications (DC)

- Essentially complete design
- Final design information
- Interface requirements
- Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)
- Reduces licensing uncertainty by resolving design issues
- Higher degree of regulatory finality with design certification
Combined License (COL) Applications

- Combined construction permit and operating license for a nuclear power plant
- May reference an early site permit, a standard design certification, both, or neither
- Objective is to resolve all safety & environmental issues before authorizing construction
- Prior to fuel load, must verify the facility has been constructed in accordance with the license
- The combined license process in Part 52 is fundamental for providing regulatory stability for companies building nuclear power plants
Combined License Process

- Pre-Application Public Information Meeting
- Combined License Application submitted to NRC
  - Environmental Review
    - Scoping Process and Resolved Issues
    - Local, State, Tribal, and Federal Government Officials
    - Public Meeting on Scoping
  - Environmental Analyses and Site Audit
    - Certified Design and Early Site Permit
    - Site Safety Review
  - Pre-Application Interactions with Applicant and Stakeholders

- Safety Review
  - Inspection(s) and ITAACs Developed
  - Open Exit Meeting(s)
  - Open Meetings on Safety Issues
  - Inspection Report(s) Issued
  - Safety Evaluation Report Issued
  - Atomic Safety and Licensing Board Mandatory Hearing
  - NRC Decision On Application
  - Advisory Committee on Reactor Safeguards Review
  - ACRS Letter Issued

- Draft Environmental Impact Statement Issued
- Public Meeting on Draft EIS
- Final Environmental Impact Statement Issued
New Reactor Applications Under Review

- 18 Combined License Applications
  - 5 suspended; 1 withdrawn

- 3 Design Certification (DC) Applications
  - General Electric Economic and Simplified Boiling Water Reactor (ESBWR)
  - AREVA Evolutionary Power Reactor (EPR)
  - Mitsubishi U.S. Advanced Pressurized Water Reactor (US APWR)

- 1 Amended DC Application
  - Westinghouse AP1000 Certification Amendment

- 1 DC Rule Amendment – ABWR (Aircraft Impact Rule)

- 2 Early Site Permit Applications
One Decision – Multiple Applications

DC Review

Rulemaking

COL - 1
Reference

COL - 2

COL - 3

COL - 4
Completed New Reactor Actions

• 4 Early Site Permits Approved
  – Clinton, North Anna, Grand Gulf, and Vogtle with LWA (Limited Work Authorization)

• 4 Designs Certified
  – Westinghouse AP600 and AP1000
  – GE Advanced Boiling Water Reactor
  – C-E System 80+
Limited Work Authorization (LWA)

- Scope of LWA
- What’s authorized under an LWA
- How LWA fits in the licensing process
Aerial of Plant Vogtle Units 3 and 4
Foundation Excavation (April 2010)
Conclusions

• NRC has undertaken an exceptionally high level of new reactor licensing activity

• NRC will accomplish its mission to ensure adequate protection of public health and safety and the environment for new reactors licensed under 10 CFR Part 52

• Applicants’ applications standardized around the design-centered approach are essential
Advanced Reactor Program (ARP)

- Relatively new program
- What’s included
- Status of applications
Questions?

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