MDEP Meeting

United States Presentation on AP1000 Review Plans and Status

February 17-18, 2009

Overview

- What NRC Reviews for a license or design
- Part 52 Licensing processes
- Design certifications and combined licenses
- Amendment review
- Status

What the NRC Reviews

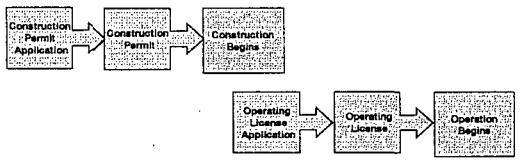
- Compliance with regulations to ensure adequate protection of public health and safety and common defense and security
  - Design of facility
  - Quality assurance
  - Security plan
  - Emergency preparedness (with the Federal Emergency Agency)
  - Applicant's process to verify that the nuclear plant will be as designed and operated in accordance with NRC regulations
- Disclosure of environmental impacts and evaluate alternatives

NRC Staff Review

- Determine whether application satisfies NRC safety and environmental regulations and requirements
- Perform environment review in accordance with National Environmental Protection Act and other statues
- Make informed decisions based on the facts and compliance with U.S. laws and NRC regulations
- Clearly document safety and environmental findings
- Follow established procedures that allow public participation
- Maintain an open and transparent process

I/16
1
4

Part 50 Licensing Process

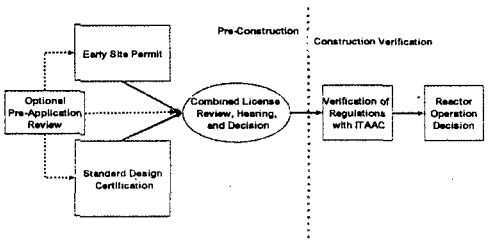


- Design effort proceeded throughout process
- No backfit protection with a Construction Permit
- Regulatory standards evolved as construction proceeded

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
- Reduce financial risk to nuclear plant licensees

Part 52 Objectives



- Licensing decisions finalized before major construction begins
- Inspections w/ITAAC to verify construction
- Limited work may be authorized before COL issuance

NRC Review Guidance and Tools

- Standard Review Plan (NUREG-0800) for nuclear power plant staff reviews – organized into chapters (e.g., Siting, Design of SSC, fuel, electrical, Safety Analysis)
- EPM planning tool to schedule work, organized around SRP branch assignments and review phase

Design Certifications

- Allows an applicant to obtain pre-approval of a standard nuclear plant design
- Essentially complete design
- Reduces licensing uncertainty by resolving design issues
- Facilitates standardization
- Combined license application can reference certified design

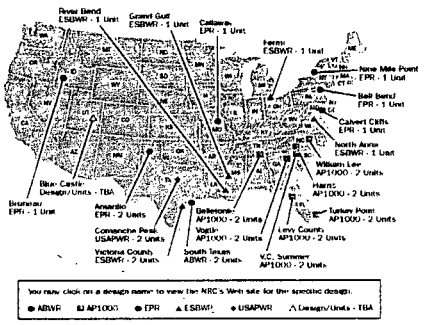
U.S.NRC

Design Certification Review Process

- **Phase 1:** Issue Requests for Additional Information (RAIs)
- **Phase 2:** Review RAI responses and Develop Safety Evaluation Report with Open Items (SER w/ OIs)
- **Phase 3:** ACRS Review of SER w/OIs
- **Phase 4:** Develop Advanced SER with no open items
- **Phase 5:** ACRS Review of Advanced ER
- **Phase 6:** Develop Final SER
- **Rulemaking**

U.S.NRC

New Reactor Applicants



U.S.NRC

Combined License 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

U.S.NRC

Design-Centered Review Approach (DCRA)

- Design Certification (DC) Reviews
  - NRC approval of a final standard design for a nuclear power facility
  - Codified as Appendix to 10 CFR 52
  - Majority of safety issues resolved through DC review process
- Reference COL (RCOL) Application Reviews
  - Staff ensures the "incorporation by reference" of the DC is adequate and appropriate
  - Staff reviews standard material that applies to the entire design center (e.g., operational programs)
  - Staff reviews site specific material (e.g., emergency planning, hydrology)
- SCOL Application Reviews
  - Staff ensures SCOL application conforms to RCOL application
  - Staff reviews site specific material

U.S.NRC

COL Application Review Process

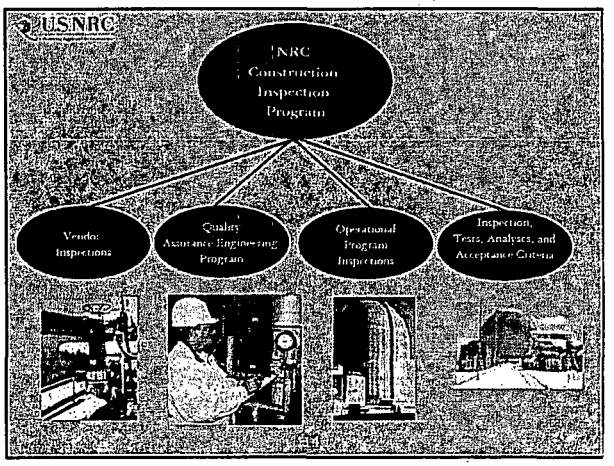
- **Phase 1:** Issue Requests for Additional Information (RAIs)
- **Phase 2:** Review RAI responses and develop Safety Evaluation Report with Open Items (SER w/ OIs)
- **Phase 3:** ACRS Review of SER w/ OIs
- **Phase 4:** Develop Advanced SER with no open items
- **Phase 5:** ACRS Review of Advanced SER
- **Phase 6:** Develop Final SER
- **Hearings**

U.S.NRC

New Construction

- Nuclear plants will be built more rapidly than their predecessors
- Detailed engineering essentially complete by start of construction
- Modular construction techniques will be used
- Fabrication of components may begin before Combined License (COL) issuance
- Components and modules will be fabricated in other countries
- Site preparation work will likely be performed

U.S.NRC



Amendment Review

- AP1000 design (Rev. 15) was certified by the NRC in Appendix D to part 52 in 2006.
- Westinghouse requested changes to the design (Rev. 16 and later 17)
- Design changes and COL action item responses
- NRC focus is on the changes, not a complete re-evaluation
- Supplement to previous SER will address the changes

U.S.NRC

17

Status

- Amendment review is in phase 2 (preparation of SE with open items).
- Several chapters have all inputs, or almost all, and are undergoing concurrence review (e.g., chapters 4, 5, 8,10,11,12, 14, 17, 18, 19)
- Some chapter inputs expected in next month (e.g., chapter 2, 7,13,16)
- Some chapters on longer schedule (e.g., 1,3, 6, 9, 15)
- Revision 17 reviews ongoing now for some sections

18

Pacing Issues

- Seismic analyses including analyses for soil sites and shield building modifications
- Containment sump performance and downstream effects
- Control room ventilation and dose
- Spent fuel pool criticality analysis

19