



Public Meeting on Toshiba's Request for Pre-Application Review of the “Super-Safe, Small, and Simple” (4S) Reactor Design

Donald E. Carlson

Office of Nuclear Regulatory Research

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Meeting on Pre-Application Review of 4S Reactor Design

Outline

- Formalities
- High-level Questions to be Answered by:
 - The Pre-Applicant
 - The NRC
- Pre-Application Objectives
- Examples of Possible Pre-application Topics
- Regulation of Radioactive Material Transportation
- Acronyms



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Formalities

- Category 1 public meeting protocol
- Visitor escort policy
- Microphones – court reporter
- Introductions
 - Around the room: Toshiba, NRC, public
 - Attendees via teleconference
- Sign-in sheets
- Opportunity for Public Comment /
Feedback Forms



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High-level Questions for Pre-Applicant

- What level of review for pre-application?
 - Informal (white paper submittal)
 - Formal (topical reports, safety analysis report)
 - Treatment of open items
- What is your schedule for application submittal?
- Will design be formally aligned with a customer?
 - This may affect review priority.



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High-level Question for NRC

- What priority does this effort receive relative to:
 - ALWR Combined License Applications
 - Support for DOE's NGNP and GNEP initiatives
 - Pebble Bed Modular Reactor pre-application review
 - Potential pre-application reviews for other proposed reactors (IRIS, HT3R, Hyperion, etc.)
- Availability of NRC resources and technical review staff for non-LWR efforts is important constraint.



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Pre-Application Objectives

- Familiarize NRC with design, building on LMR insights from:
 - past LMR reviews for CRBRP and PRISM
 - ongoing interactions with DOE on LMR technology for GNEP
 - NRC infrastructure research on LMR safety
- Provide feedback to pre-applicant on:
 - key safety, design, and licensing issues
 - technology development program plans
- Inform NRC's infrastructure development work
- Provide early identification of any policy issues



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Pre-Application Topic Examples

- Analysis codes & validation
- Defense-in-depth approach
- Testing and monitoring
- Safety classification and treatment of SSCs
- Licensing Basis Event selection
- Transportation of radioactive materials
- Fuel cycle and waste
- Source term generation
- Long term fuel performance
- Probabilistic Risk Assessment
- Nuclear analysis
- Physical protection / security
- Emergency planning

It is the pre-applicant's responsibility / prerogative to identify topics to be covered by pre-application review.



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Transportation

- Regulations for Transportation of Radioactive Material:
 - 10 CFR Part 71 for domestic shipments
 - IAEA Safety Standards Series No. TS-R-1 for international shipments
- These regulations apply to transporting:
 - Nuclear fuel from fabricator to proposed reactor site
 - Radioactive waste from proposed reactor site to centralized low-level waste facility
 - Spent nuclear fuel from proposed reactor site to centralized geologic repository, interim storage, or reprocessing facility



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Acronyms

- 4S Super Safe, Small, and Simple
- ALWRs advanced light water cooled reactors
- CRBRP Clinch River Breeder Reactor Project
- DOE U.S. Department of Energy
- GNEP Global Nuclear Energy Partnership (DOE)
- HT3R High Temperature Teaching and Test Reactor
- IRIS International Reactor Innovative and Secure
- LMR liquid metal cooled reactor
- LWR light water cooled reactor
- NGNP Next Generation Nuclear Plant (DOE)
- PRISM Power Reactor Inherently Safe Module
- SSCs systems, structures, and components



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Thank You



Reactor Licensing Overview

Backup Slides



Reactor Licensing Processes

- 10 CFR Part 50
 - Used to license current generation of power plants
 - Can be applied to future licenses if desired
- 10 CFR Part 52
 - Reflects lessons learned from experience with licensing current plants
 - Revision went into effect - September 27, 2007



Technical Requirements

- Regulations
- Regulatory Guidance
- Standard Review Plans
- Alternatives may be proposed to demonstrate compliance with regulations



Licensing Process - 10 CFR Part 50

- Construction Permit
- Operating License
- Site Suitability Review



Licensing Process - 10 CFR Part 52

- Early Site Permit
- Design Certification
- Manufacturing License
- Design Approval
- Combined License
- Inspections, Tests, Analysis, and Acceptance Criteria (ITAAC)