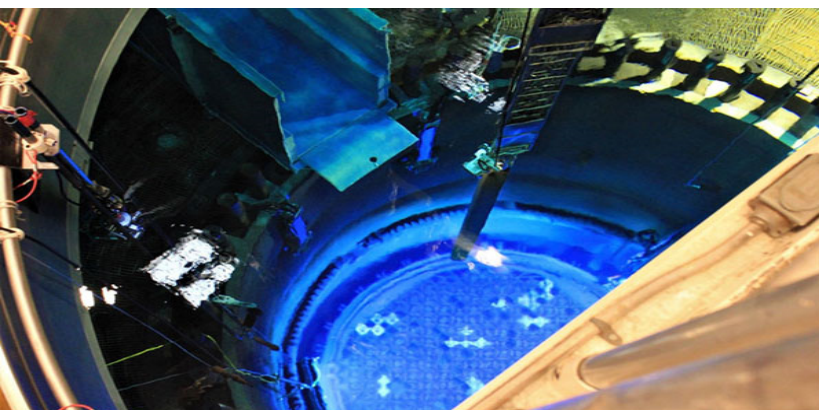




Advanced Reactor Content of Application Project (ARCAP)

NRR/DANU – Advanced Reactor Policy Branch
US Nuclear Regulatory Commission
with Support from
Idaho National Laboratory

April 22, 2020



Advanced Reactor Content of Application Project (ARCAP)

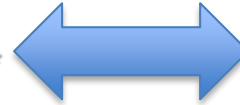
- Staff's draft outline was discussed on Dec. 12 and is found in ADAMS at Accession No. ML19325C089
- Draft outline addresses Sections 1 through 14
 - Final safety analysis report (FSAR) portion of application
- Staff's draft outline has now been “annotated” to suggest additional background and clarification regarding FSAR section content
 - Annotated outline is found in ADAMS at Accession No. ML20107J565
 - Continues to include a summary listing of other (non-FSAR) portions of an application for consideration

Informing Content of Applications

Outline (FSAR) with major licensing modernization project (LMP) areas highlighted

Introduction

1. **General Information***
2. Site Information
3. **Licensing Basis Event (LBE) Analysis***
4. **Integrated Plant Analysis***
5. **Description and Classification of SSCs***
6. **Design Basis Accidents Analysis (10 CFR 50.34)***
7. **Defense in Depth (DID)***
8. Control of Routine Plant Radioactive Effluents and Solid Waste
9. Control of Occupational Dose
10. **Human Factors Analysis***
11. Physical Security
12. **Overview of PRA***
13. **Administrative Control Programs*** (*special treatment*)
14. **Initial Startup Programs*** (*special treatment*)



Additional Portions of Application

- Technical Specifications
- Technical Requirements Manual
- Quality Assurance Plan (design)
- Fire Protection Program (design)
- PRA
- Fuel qualification report
- Exemptions
- Quality Assurance Plan (construction and operations)
- Emergency Plan
- Physical Security Plan
- SNM (special nuclear materials) physical protection program
- SNM material control and accounting plan
- Cyber Security Plan
- New fuel shipping plan
- Fire Protection Program (operational)
- Radiation Protection Program
- Offsite Dose Calculation Manual
- Inservice inspection/Inservice testing (ISI/IST) Program
- Environmental Report
- Site Redress Plan
- Exemptions, Departures, and Variances

Format and Content

Question on International Alignment (e.g., CNSC, IAEA)

- Industry interest in pursuing alignment ?

- I. Introduction
- II. General Plant Description
- III. Management of Safety
- IV. Site Evaluation
- V. General Design Aspects
- VI. Description of Plant Systems
- VII. Safety Analyses
- VIII. Commissioning
- IX. Operational Aspects
- X. Operational Limits and Conditions
- XI. Radiation Protection
- XII. Emergency Preparedness
- XIII. Environmental Aspects
- XIV. Radioactive Waste Management
- XV. Decommissioning and End of Life Aspects



Format and Content

Questions for ARCAP Content

- Is the general direction incorporated into the ARCAP outline consistent with the Technology Inclusive Content of Application Project (TICAP) direction?
- Should ARCAP scope include construction permit guidance
 - What should ARCAP include in this area?
 - Does TICAP include a construction permit process?
- Should ARCAP include guidance for microreactors?
- Does the ARCAP draft annotated outline have an appropriate level of detail?
- Are there other topics that should be included in the draft?
- Are there items in the draft that are inconsistent with LMP?

Format and Content

Questions for ARCAP Content

- Should the outline be updated to allow LMP concepts to be used in other sections of the outline that are not typically associated with the process? (e.g., risk inform quality assurance program, radioactive waste management).
 - Should performance-based criteria for inspection of Part 20 requirements be used vice a licensing review?
- Routine release and ALARA requirements (contained in 10CFR20, App. B, and 10CFR50, App. I, respectively) are based on LWR technology. How should ARCAP address these performance-based requirements for non-LWR technology?
- What non-LMP topics traditionally found in the FSAR should be relocated from the FSAR to a separate (non-50.59 controlled) application document?

Format and Content

Questions on Alignment for Technical Specifications (10 CFR 50.36)

- Construct of Technical Specifications
 - Safety Limits, Limiting Safety System Settings
 - Limiting Conditions of Operation (LCOs), Surveillance Requirements
 - Associated 4 Criteria
 - LCOs represent the “lowest functional capability or performance levels of equipment required for safe operation”
 - Design Features, Administrative Controls
 - Use exemptions or guidance?
 - Replace or define “Significant Safety Function” language in 50.36?

Format and Content

Questions on Alignment for Technical Specifications (10 CFR 50.36)

- Scope of Technical Specifications (TS)
 - Should LCOs address only requirements for “safety-related structures, systems and components (SSCs)” or also address “non-safety-related with special treatment?”
 - Relationship between TS, safety classification, and requirements associated with “adequate protection” and “safety enhancements”?
 - Which events should LCOs address? [All, or a subset of licensing basis events (e.g., Design Basis Accidents)]?
 - Role of administrative controls in maintaining configurations and reliability of SSCs consistent with licensing basis events and frequency-consequence targets