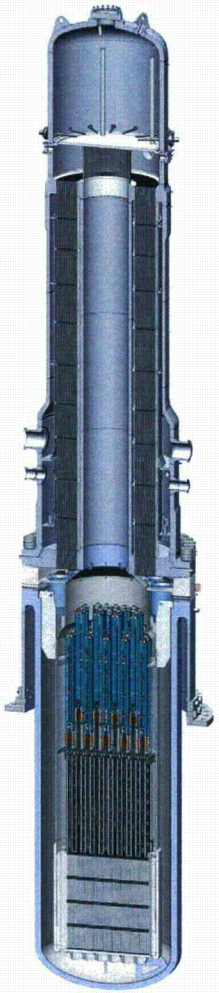


generation mPower

Clinch River Construction Permit Application Development

First Regulatory Framework Workshop
September 20, 2011

Agenda

- Introduction
- Workshop Objectives
- Background
- Regulatory Framework Process
- Specific Workshop Reviews
  - PSAR Section 9.1 RFD – Fuel Storage and Handling
  - PSAR Section 9.1.2 Mockup – New and Spent Fuel Storage
  - PSAR Section 5.3 – Reactor Vessel
  - PSAR Section 2.4.12 - Groundwater
- Conclusion

Workshop Objectives

- Present initial Clinch River Licensing Baseline
  - Regulatory Framework Documents
  - Section Outlines
- Develop understanding of NRC CPA level of detail needs
- Engage NRC Staff in discussions on RFD/Section Outline content
- Obtain NRC agreement on Identified Issues
- Identify areas for future interaction

Goal: NRC Acceptance of Licensing Baseline for CPA

TVA Chooses 10 CFR Part 50 for First-of-a-Kind (FOAK) SMR Project

generation mPower

- Experience with licensing process - know how it will work throughout
- Less cost and potentially less time to get to point where you can construct – CP issuance
- Modifications during construction easier to accommodate – useful for first-of-a-kind
- Testing and verification of design established later versus defining completely upfront
- Regulator has opportunity to evaluate as-built plant prior to operating license issuance

10CFR52 still appropriate and preferred for standardized deployment after FOAK

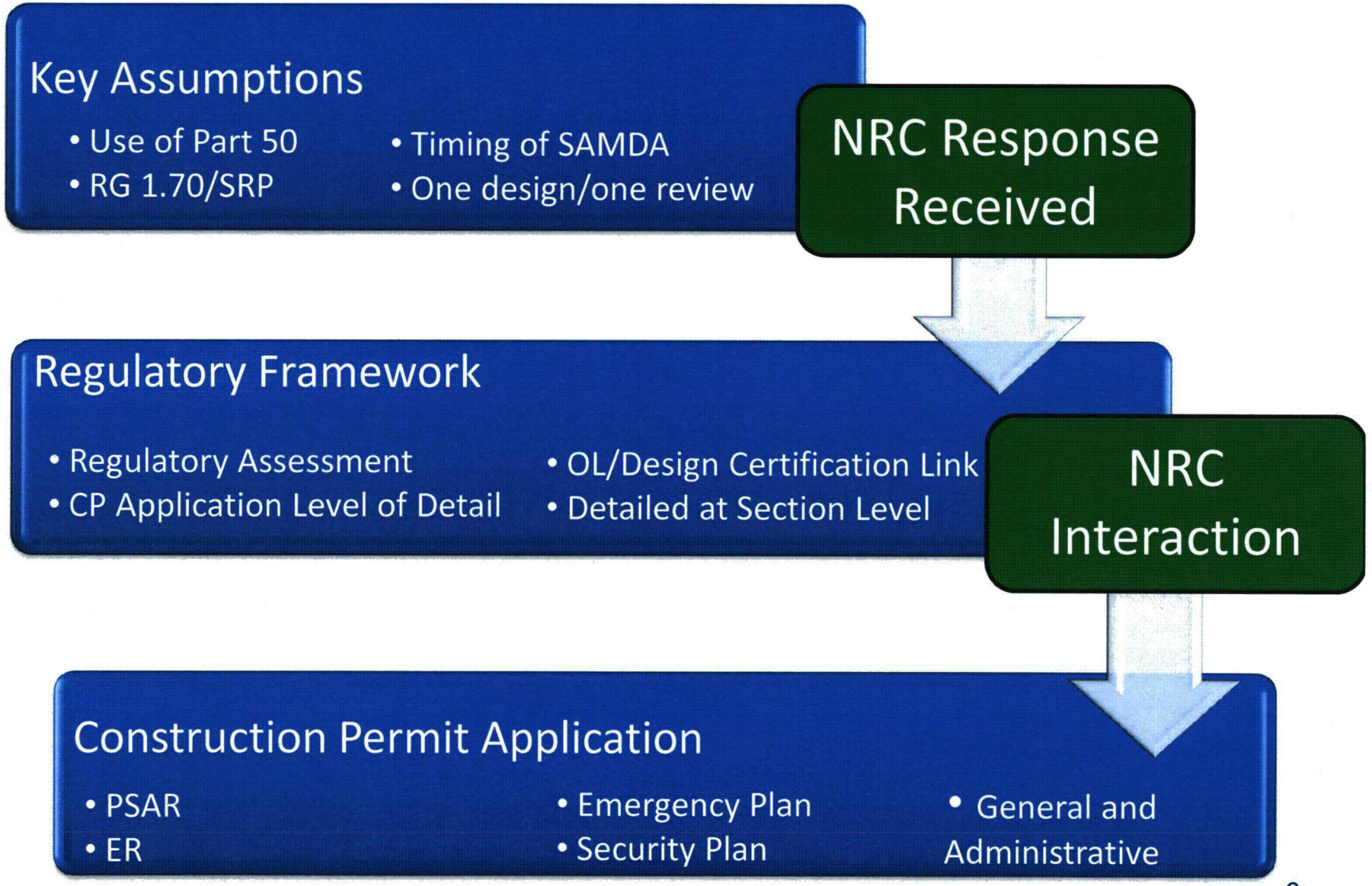
TVA's Regulatory Framework Approach

generation mPower

- TVA Regulatory Framework History
  - Browns Ferry Unit 1
  - Watts Bar Unit 2
  - Bellefonte Units 1 and 2
- Establish clear understanding of licensing basis applicable to a Construction Permit determination finding to address the following:
  - Current regulations
  - Current regulatory guidance
  - NRC generic communications and unresolved safety issues
- For Clinch River, the Regulatory Framework will be a living database system to guide both development and implementation of the licensing basis

Establishing Regulatory Alignment Consistent with NRC Requirements and Guidance

generation mPower



Key Assumptions

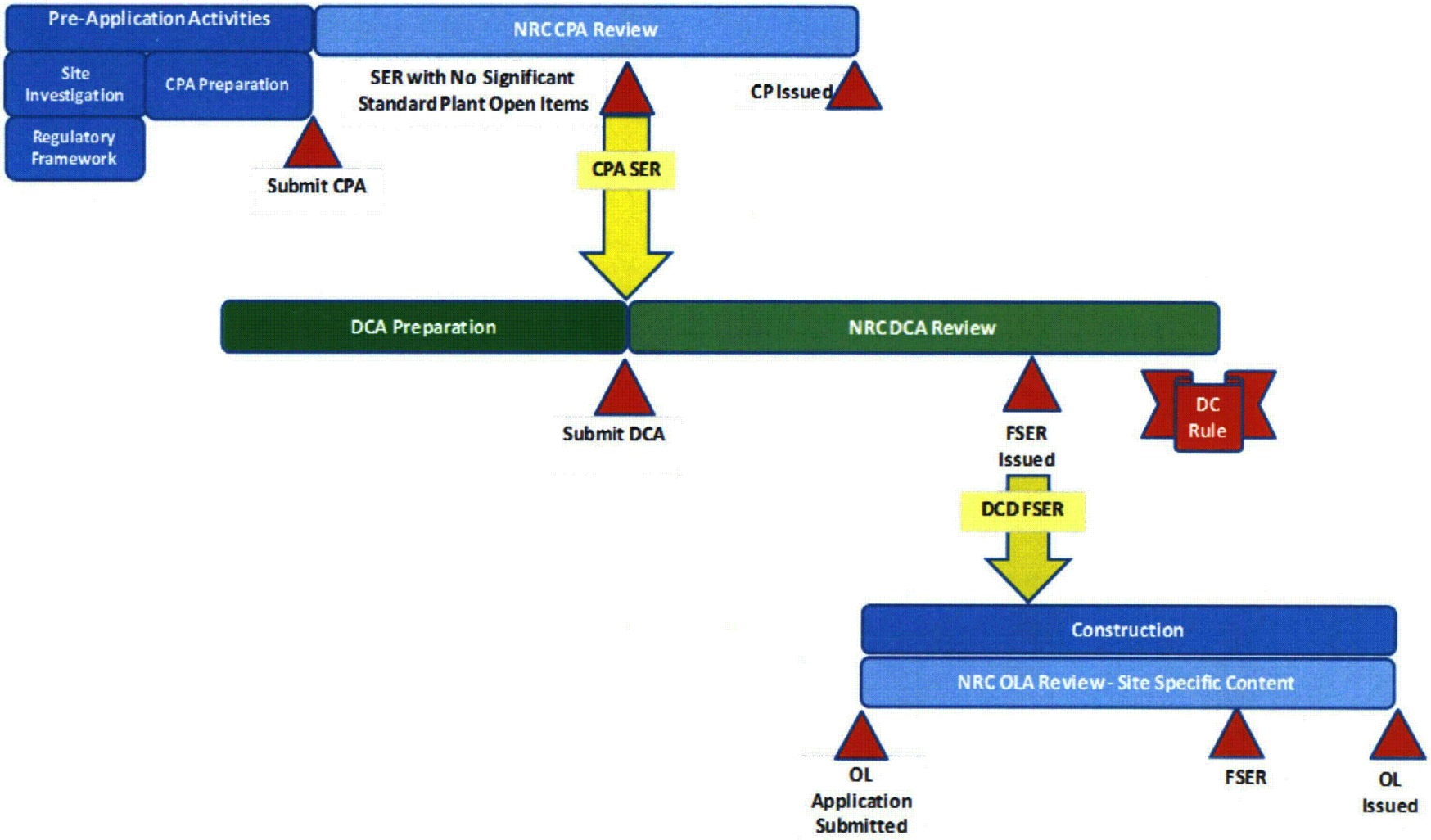
- 10 CFR Part 50 licensing process
- PSAR level of detail consistent with RG 1.70, Revision 3 and organizational structure of Standard Review Plan
  - Utilize the Regulatory Framework process
  - Address 10 CFR Part 52 requirements, as applicable
  - Develop Environmental Report consistent NUREG 1555
  - Evaluate SRP revision in effect 6 months prior to CPA submittal
- One Design – One Review
- NRC would inspect B&W as a vendor
- Initial test program will inform future ITAAC

CP and OL will address applicable Regulations

Regulatory Framework Purpose

- Current Regulations and Regulatory Guidance will be addressed
  - CP PSAR
  - DCD (Standard Plant Design)
  - OL FSAR
- Establish Licensing Baseline for Construction Permit
  - Regulations
  - Regulatory Guidance
  - Generic Communications
  - Level of Detail
- Illustrate alignment between CPA, B&W NE mPower™ Design Certification Application (DCA), and the OLA
- Provide input to CPA development schedule

CPA – DCA – OLA Alignment



B&W NE mPower™ High Level Requirements

- 160 MWe Nominal Output per Module
- 60-year plant design life
- NSSS Forging Diameter Allows Domestic Forgings and Unrestricted Rail Shipment
- Passive Safety Requirements – Emergency (Diesel) Power Not Required
  - Minimize Primary Coolant Penetrations, Maximize Elevation of Penetrations
  - Large Reactor Coolant Inventory
  - Low Core Power Density
- Standard Fuel (less than 5% ^{235}U)
- Long Fuel Cycle, 4 Year Core Life

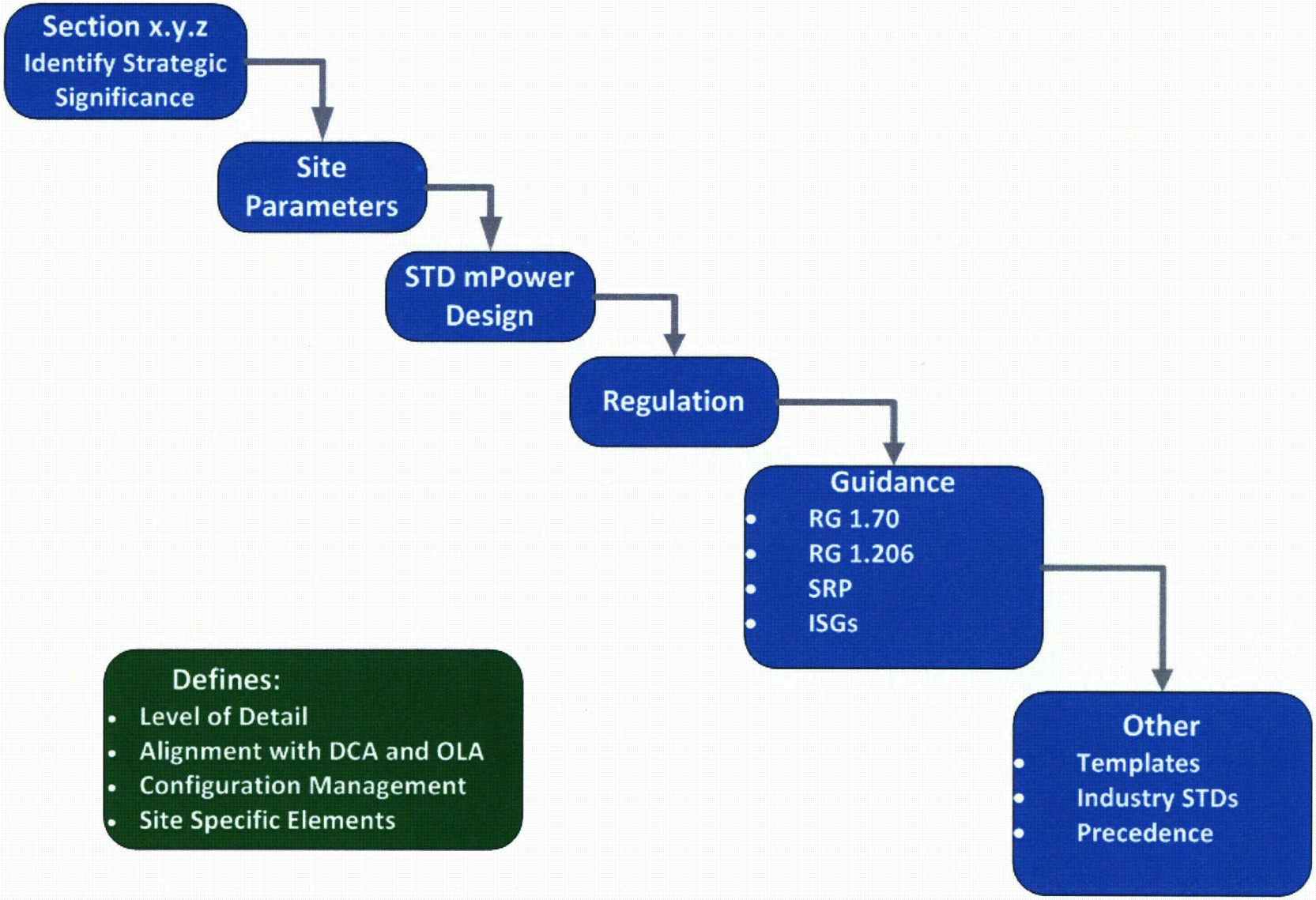
B&W NE mPower™
High Level Requirements

- No Soluble Boron in Primary System for Normal Reactivity Control
- Conventional/Off-the-Shelf Balance of Plant Systems and Components
- Accommodate Air-Cooled and Water-Cooled Condensers
- Flexible Grid Interface (50 Hz or 60 Hz)
- Digital Instrumentation and Controls Compliant with NRC Regulations

Regulatory Framework Process Description

- Production
- Integration
- Standard Plant – Site Specific
- Review

Regulatory Framework Process



Regulatory Framework Process

Submittal Document	Regulatory Requirements	Proposed Exemptions	Regulatory Basis for Section Content	NUREG-0800 (SRP) Section	Regulatory Guidance
PSAR					
DCD					
FSAR					

Regulatory Framework Process

Submittal Document	Industry Guidance	CPA Information Beyond RG 1.70	Changes to the Standard Plant Design	Related Sections
PSAR				
DCD				
FSAR				

Section Outline

- PSAR
  - Summary description of PSAR content
- DCD
  - Summary description of mPower Standard Plant DCD
- FSAR
  - Summary description of FSAR content

General CP Guidance

generation mPower

- 10CFR50.35(a) Issuance of CP

(1) The proposed facility design will be described, including
  - Principal architectural and engineering design criteria, and
  - Major features or components incorporated for protection of public health and safety

(2) Further technical or design information as may be required to complete the safety analysis, which can reasonably be left for later consideration, will be provided in FSAR.

(3) A description of the research and development program to be conducted to resolve any safety questions for safety features and components requiring such a program.

General CP Guidance

- Standard Review Plan Subsection III, Review Procedures

  The procedures in Subsection III of the SRP are used during the CP review to confirm that the design criteria and bases and the preliminary design as specified in the PSAR meet the acceptance criteria given in Subsection II of the SRP.

Regulatory Framework

- Chapter 1 Strategy
  - Rollup of other Chapters/Sections
  - General Arrangement Drawings
    - Fire protection Zones
    - Radiation Zones
  - Regulatory Guide conformance
- Proprietary Information
  - All proprietary Information will be included in a separate part of the application
  - Includes: Business sensitive, security related (SUNSI), and business proprietary

Regulatory Framework Schedule

generation mPower

- Proposed Schedule for Future Workshops
  - October 13
  - November 15
- Other planned meetings
  - Subsurface Investigation Plans
  - Low Level Radioactive Waste
  - Post Fukushima

Regulatory Framework Documents

generation mPower

- Section 9.1 – Fuel Storage and Handling
  - Regulatory Framework Matrix
  - Section Outline
  - Section 9.1.2, "New and Spent Fuel Storage" Mockup

Regulatory Framework Documents

- Section 5.3 – Reactor Vessel
  - Regulatory Framework Matrix
  - Section Outline

Regulatory Framework Documents

- Section 2.4.12 - Groundwater
  - Regulatory Framework Matrix
  - Section Outline

Conclusion

- Conclusion
- Questions?