Watts Bar Nuclear Plant, Unit 2
Safety Evaluation Report Review

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- TVA notified NRC of intent to complete WBN Unit 2 August 3, 2007

- TVA intends to align the licensing and design basis of WBN Units 1 and WBN Unit 2 to the fullest extent practical

- Commission SRM SECY-07-0096 endorsed a license review approach using the current licensing basis for WBN Unit 1 for the review and licensing of WBN Unit 2
  - Significant changes to licensing approach allowed where backfit rule would be met or as necessary to support dual unit operation

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- Technical Issues Resolved for Unit 2 as Part of WBN Unit 1 Operating License Review
  - Original Safety Evaluation Report NUREG-0847 – Watts Bar Units 1 and 2 (June 30, 1982)
  - Supplemental Safety Evaluation Reports (SSERs) 1-4 (1982-1985)
  - SSERs 5-20 (1990-1995)

- Generic Letters, Bulletins, Circulars and TMI Items Resolved for Unit 2 as Part of WBN Unit 1 Operating License Review

- Corrective Action Programs and Special Programs
  - Construction deficiencies unique to Watts Bar
  - Majority resolved for WBN Unit 2 using WBN Unit 1 Precedent
  - Change to WBN Unit 1 Precedent under Review
  - Programs Remaining Open

- SSER 21 – Baseline for WBN Unit 2 (February 2009)

Watts Bar Unit 2
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Units 1 and Unit 2 received construction permit	January 1, 1973	
	June 30, 1982	NRC staff issued NUREG-0847, "Safety Evaluation Report related to the operation of Watts Bar Nuclear Plant Units 1 and 2"
NRC issues 50.54(f) letter to TVA	September 17, 1985	
	May 27, 1988	TVA submits Volume 4 of the Nuclear Performance Plan to address Watts Bar site specific issues in response to NRC 50.54(f) letter
TVA initially submitted FSAR Amendment 91 on both Unit 1 and Unit 2 dockets that described the facility in support of Unit 1 operation.	October 24, 1995	
	August 3, 2007	TVA notified NRC of plans to resume unrestricted construction activities on Unit 2.
TVA submits "Red-Line FSAR	February 8, 2008	
	March 13, 2008	TVA submitted restructured tables for regulatory framework for the completion of construction and licensing activities for Unit 2.
TVA submitted restructured tables for previously submitted Generic Communications.	March 20, 2008	
	June 16, 2008	TVA submitted Regulatory Framework letter, Revision 1
TVA re-submitted FSAR, Amendment 91	July 2, 2008	
	July 7, 2008	NRC extends Unit 2 constructions permit to March 2013
TVA submitted Regulatory Framework for the Completion of Corrective Action Program (CAP) Plans and Special Programs (SP) and Unresolved Safety Issues	September 26, 2008	
	December 18, 2008	TVA submitted FSAR Amendment 92
	February 28, 2009	NRC issues Supplemental Safety Evaluation Report (SSER) 21 identifying the remaining issues for Unit 2 licensing.
TVA submitted FSAR, Amendment 93	April 30, 2009	
	August 27, 2009	TVA plans to submit Amendment 94
TVA plans to submit Amendment 95	November 27, 2009	
	January 11, 2010	TVA plans to submit Amendment 96

Watts Bar Unit 2
Safety Evaluation Report
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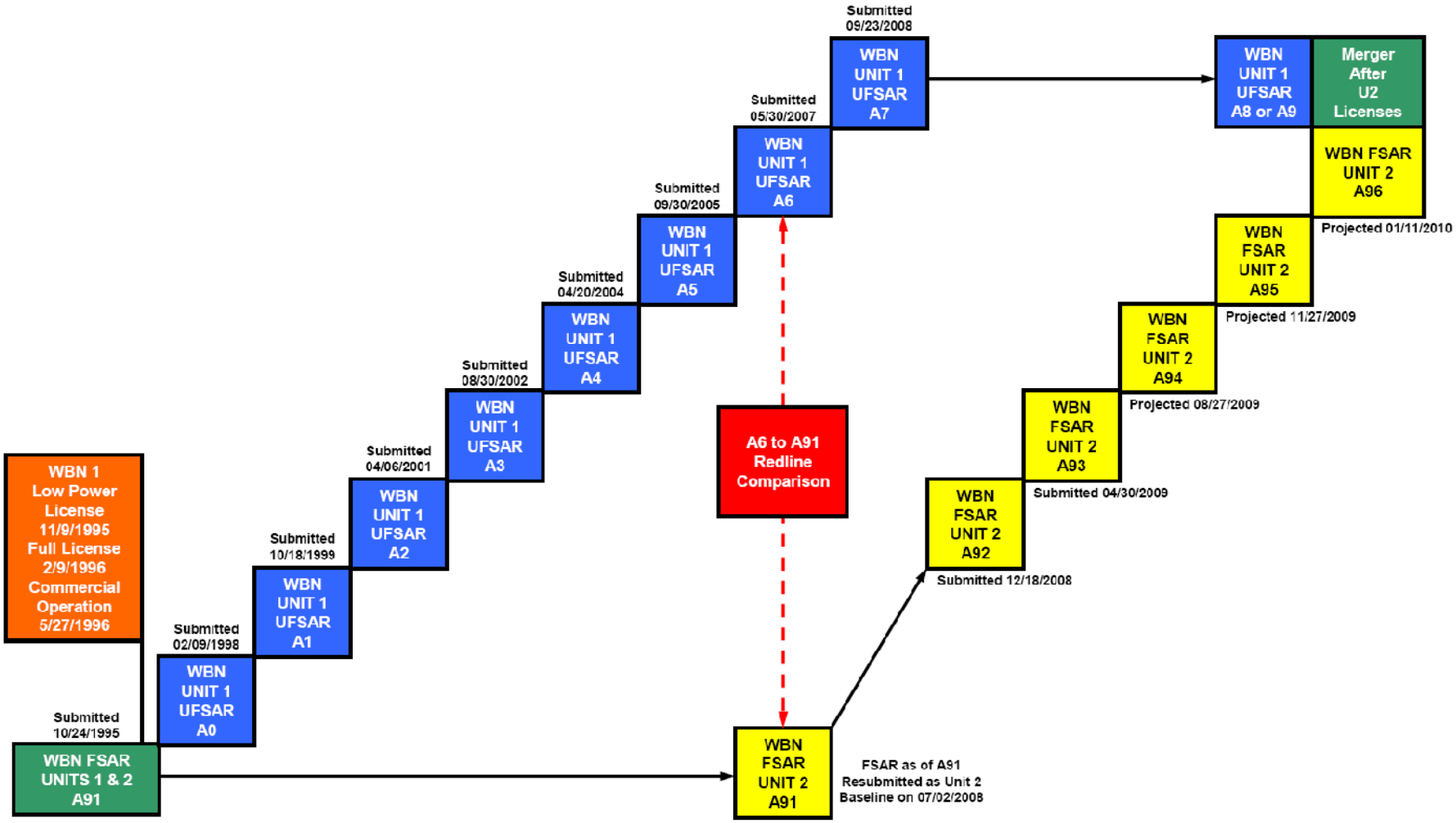
- Original SER addressed both Units when issued in June 30, 1982
- Supplements 1 through 4 also dealt with Units 1 & 2 (1982 – 1985)
- After Supplement 4 in March 1985, licensing activities for both units put on hold because of problems identified at TVA plants
- September 1985 50.54f letter
- NPP Volume 4 and NUREG 1234 Volume 4
- Supplements 5 (November 1990) through 20 (February 1996, with Unit 1 full-power license)
  - Focus primarily on licensing of Unit 1
  - Implementation of CAPs and SPs for Unit 1
  - However, some WBN Unit 2 issues were also addressed in these supplements as a result of the Unit 1 Licensing effort

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- TVA Activities to Aid Development of Supplemental Safety Evaluation Report (SSER) 21
  - Regulatory Framework Submittals
    - Documented results of TVA review of original SER and supplements to identify open issues
  - Red-Line FSAR
    - Electronic comparison of Unit 2 (1995) FSAR to current (2008) Unit 1 UFSAR
  - Generic Communications Submittals
    - Series of submittals in which a listing of generic communications focus on time periods of before and after Unit 1 Licensing
    - Before Unit 1 licensing in most cases, responses placed on both Unit 1 and Unit 2 dockets.
    - After Unit 1 Licensing, responses focused on strictly Unit 1 Operation.
  - Corrective Action Programs (CAPs) and Special Programs (SPs) Submittals
    - Committed Unit 2 to Unit 1 Precedent for most CAPs and SPs
    - Identified some CAPs and SPs where changes needed to be based on Unit 1 lessons learned. (e.g., Cable Issues)
    - Two CAPs and SPs closed based upon Unit 1 Licensing Effort

Watts Bar Unit 2
SAR History



Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- NRC Activities in the Development of Supplemental Safety Evaluation Report (SSER) 21
  - Performed similar SER/SSER, Generic Communications, and CAPs/SPs reviews in parallel with TVA
  - Compared results of both NRC and TVA reviews
  - Conducted NRC/TVA meetings to resolve identified differences resulting from TVA and NRC reviews
  - Issued Request for Additional Information (RAI) on areas where additional information needed to be placed on the Unit 2 docket.
  - Issued SSER 21 on February 28, 2009.

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- Review Status for each SER Section in summary form can be found in SSER 21.
  - Document Status
    - Resolved
    - Open (NRR)
    - Open (Region II Inspection)
  - Provides reference to previous SER Review

- Further details can be found from the following sources:

  – NRC letter dated October 10, 2008 entitled, "Watts Bar Nuclear Plant, Unit 2 – Status of Regulatory Framework for the Completion of Operating License Review (TAC No. MD9424)"

  – TVA letters include

    - SER/SSER Items – Letter dated June 16, 2008 entitled, "Watts Bar Nuclear Plant, Unit 2 – Regulatory Framework for the Completion of Construction and Licensing for Unit 2 – Revision 1 (TAC NO. MD6311)"

    - Generic Communication Items – Letter dated March 20, 2008 entitled, "Watts Bar Nuclear Plant – Unit 2 – Generic Communications Status for Unit 2 – Restructured Tables"

    - CAPs/SPs Items – Letter dated September 26, 2008 entitled, "Watts Bar Nuclear Plant, Unit 2 – Regulatory Framework for the Completion of Construction and licensing Activities for Unit 2 – Corrective Action and Special Programs and Unresolved Safety Issues"

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- Of 356 SER Sections listed in SSER 21, Section 1.7, “Summary of Outstanding Items,”
  - 148 (41%) Items statused as “Resolved” - These sections have been reviewed and resolved with no further NRC review required, but may require a confirmatory review of the final FSAR section to verify no changes occurred from what was previously approved.
  - 125 (35%) Items statused as “Open (NRR)”
    - Some sections have outstanding issues (e.g. for dual unit operation, impact from generic communications, etc.)
    - Other sections will require TVA to provide further information (via additional correspondence or by FSAR amendments) to correct existing information that has changed since 1995.
    - Still other sections may require different approach that was used for Unit 1.
  - 17 (5%) Items statused as “Open (Inspection)”
    - NRR Review complete awaiting Region II Inspection results
  - 66 (19%) Items status field is blank - General Headings such as introduction, subject matter found under other headings, etc,

Watts Bar Unit 2
Safety Evaluation Report
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- Of the 18 CAPs listed in SSER 21, Section 1.13.1, “Corrective Action Programs”
  - 14 (78%) Items statused as “Resolved” - These CAPs have been reviewed and resolved with no further NRC review required, but may require a confirmation of implementation by Region II Inspections.
  - 4 (22%) Items statused as “Open (NRR)”
    - Some CAPs have outstanding issues and will require TVA to provide further information
    - Other CAPs may require a review of a different approach based on Unit 1 lessons learned.
- Of the 11 SPs listed in SSER 1.13.2, “Special Programs”
  - 11 Items are statused as “Resolved” These SPs have been reviewed and resolved with no further NRC review required, but may require a confirmation of implementation by Region II Inspections.
- SBPB Portion of CAPs/SPs per LIC-110 are already resolved (MELB).

Watts Bar Unit 2
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- Of the 54 Open Generic Communications Items listed in SSER 21, Section 1.14, “Implementation of Applicable Bulletin and Generic Letter Requirements,” the NRC Action are listed as follows:
  - 39 (72%) Items statused as “Open (NRR)”
    - TVA has provided information as part of the Regulatory Framework for Unit 2.
  - 15 (28%) Items statused as “Submit Technical Specifications” – NRR review is to confirm existence of an TS addressing issue.

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- TVA systematic approach to resolve SER Issues will be via:
  - FSAR developed using RG-1.70
  - FSAR Amendments submitted as design completes by system by building in accordance with system waterfall schedule
  - Technical Specifications Updates to the templates provided as part of the Operating License Update submitted March 4, 2009
  - Additional Correspondence
  - Through meetings and/or teleconferences
- Status of outstanding issues will be tracked by periodically updates to TVA's Regulatory Framework Matrix and subsequent NRC SSERs.
- Preservation of Licensing Basis using PP-20, "Licensing Basis Preservation"

Watts Bar Unit 2
FSAR Simplified Process

Change Package (Design Driven)

Task Engineer/Designers

- By System by Building
- By Pieces of FSAR Section
- Change Packages include
  - Procedure Cover Form
  - Table of Contents/"Roadmap"
  - Description of change(s)
  - Justification for changes
  - Supporting information/ documents
  - Markups of current Living Unit 2 FSAR Pages
  - Drawings for New Designs

Prepares and Transmits Confirmation Change Package

Engineering Licensing

- Confirmation package assembled once FSAR Section achieves design complete.
- Perform verification review of a given section of the Unit 2 FSAR to ensure that the information is accurate and consistent with other sections of the Unit 2 FSAR and the Living Unit 1 UFSAR, including any design changes affecting the section. **(Refer to RG-1.70 for guidance, if necessary)**
- Ensure Unit 2 FSAR is bounded by the Unit 1 UFSAR, utilizing the Unit 1 UFSAR verbiage, as applicable
- If appropriate, validate no change required

Processes Packages

Unit 2 Licensing

Amendment To NRC

Unit 2 Licensing

- FSAR Section Submitted upon design complete (Receipt of Confirmation Package)
- May incorporate individual design changes but will not credit section complete until design complete

Watts Bar Unit 2
Safety Evaluation Report
Review for Operating License

- In Summary
  - Approximately 65% SER sections are already resolved
  - Outstanding Issues are known and included in SSER 21.
  - TVA systematic approach will address and resolve the outstanding issues.
  - Limited FSAR changes
  - Submittal milestones remaining

Questions?