Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

January 29, 2008

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop: OWFN P1-35
Washington, D.C. 20555-0001

In the Matter of) Docket No. 50-391
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 2 - REGULATORY FRAMEWORK FOR THE COMPLETION OF CONSTRUCTION AND LICENSING ACTIVITIES FOR UNIT 2

This letter describes the regulatory framework for the completion of construction and licensing activities for Watts Bar Nuclear Plant (WBN) Unit 2 as committed in TVA's August 3, 2007, letter to the NRC, "Reactivation of Construction Activities" (Reference 1). In addition, responses are provided to address informational needs requested in NRC's letter of October 23, 2007 (Reference 2).

The regulatory framework for WBN Unit 2 was developed based on key assumptions provided in TVA's letter of April 3, 2007, (Reference 3) and NRC staff requirements memorandum SECY-07-0096 (Reference 4) that concluded:

1. The current licensing basis for Unit 1 will be used as the reference basis for the review and licensing of Unit 2.

2. Activities that have not been completed on Unit 2 will be completed in the same manner as Unit 1. In the event an activity cannot be completed in the same manner as Unit 1, the alternate approach will be provided to the NRC for review and approval.

3. Significant changes to this licensing approach by NRC Staff would be allowed where the existing backfit rule would be met or as necessary to support dual unit operation.

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Using the assumptions above, TVA determined the scope of WBN Unit 2 licensing activities, identified those activities requiring an alternate approach, and developed a closure process for those activities considered as "implementation only" actions (e.g., approach approved, but modification, procedure or some other action is required to close). Given that a significant amount of the Unit 2 licensing basis had been reviewed and approved concurrent with the Unit 1 operating license process, a comparison was conducted of the NRC Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (SRP) NUREG-0800 (Revision 2, July 1981) and the Safety Evaluation Report (SER) and its Supplements related to the operation of Watts Bar Nuclear Plant Units 1 and 2 (NUREG-0847) in order to identify whether the sections had or had not been approved for Unit 2. Once the initial comparison process was completed, a review was conducted to determine whether the outcome remains valid under current circumstances and/or assumptions, and whether the reviewed section has been affected by generic communications. The process was presented to NRC at a meeting on December 12, 2007. The following provides four practical results of the comparison and review process:

1. The Unit 2 licensing basis has been reviewed and approved and remains valid with no further action required.

2. The Unit 2 licensing basis was previously approved; however, it is no longer current. An update is necessary requiring NRC review and approval.

3. The Unit 2 licensing basis has not been approved or has been affected by generic communication, and the methodology used to resolve the issue on Unit 1 will be implemented. It is recommended that items in this category be approved consistent with the Unit 1 licensing basis with verification that implementation actions are complete.

4. The Unit 2 licensing basis has not been approved, or an action different than Unit 1 will be implemented, or the Unit 1 license basis has been modified in accordance with the 10 CFR 50.59 process. Items in this category require NRC review and approval.

To present the results of TVA's review of the WBN Unit 2 licensing basis, a series of tables (Tables 1 - 3) were developed. The four results described above were applied as appropriate to each of the tables. A brief description of these tables is provided below:

- Table 1 - Standard Review Plan/Safety Evaluation Report and Supplements (NUREG 0847) Review Matrix

  This table provides the previously described comparison of the Standard Review Plan to the Watts Bar Safety Evaluation Report and Supplements. TVA documented the results of the evaluation of Generic Communications in References 5 and 6. Open Generic Communications from that review that align with the Standard Review Plan/Safety Evaluation Sections are discussed in the applicable section of Table 1.

- Table 2 - Other Generic Communications Affecting WBN Unit 2 License Basis

  This table captures the generic communications from the review that did not align with the standard review plan sections detailed in Table 1.

- Table 3 - Corrective Action Programs and Special Programs

  Table 3 provides a description of the Watts Bar Nuclear Performance Plan (NPP) (Reference 7) Corrective Action Programs (CAPs) and Special Programs (SPs) and a summary of their proposed resolution for Unit 2. TVA evaluated these CAPs and SPs and determined that, with two exceptions, they will be resolved using the methodology employed for Unit 1.

At the request of your Staff, three additional tables (4-6) have been developed and sorted by the results of TVA's review. Table 4 contains those items requiring no further action, Table 5 contains the items recommended for implementation action review, and Table 6 contains items requiring NRC review and approval.

In Reference 2, the NRC Staff requested information to facilitate the reconstitution of the Unit 2 licensing basis. Enclosure 1 to this letter provides a response to each of the four items requested. In cases where information is not available at this time, a response date is provided. Enclosure 2 to this letter provides a summary of these dates as well as commitments associated with the actions outlined in Tables 1, 2, and 3.

New generic communications issued during the completion of construction and licensing activities for Unit 2 (e.g., Generic Letter 2008-01) will be responded to in accordance with the schedule requirement for the individual generic communication. This will allow consideration of both WBN units and aligns the licensing and design basis of the units to the fullest extent practicable.

During the review and development of Table 1, potential impacts to the Security and Emergency Plans were evaluated. It was determined that selected security boundaries may be altered during construction of Unit 2; however, these modifications would not result in a change to the Security Plan. At this time, it was also determined that the Emergency Plan was not affected. Future considerations are addressed under Unit 1's operating license, and are not discussed further in the regulatory framework.

Should TVA determine, based on further review or other emerging issues, that a different approach or additional action is appropriate, TVA will submit such changes to the NRC for review and concurrence. TVA will also provide periodic updates to the regulatory framework tables as actions are completed.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 29th day of January 2008. If you have any questions, please contact me at (423) 365-2351.

Sincerely,

M. Bajestani

Masoud Bajestani
Watts Bar Unit 2 Vice President

References:

1. TVA letter dated August 3, 2007, "Watts Bar Nuclear Plant (WBN) Unit 2 - Reactivation of Construction Activities" (T90 070803 001)

2. NRC letter dated October 23, 2007, "Watts Bar Nuclear Plant, Unit 2 - Information Needed for Licensing Review Reconstitution" (L44 071106 003)

3. TVA letter dated April 3, 2007, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Key Assumptions for the Possible Completion of Construction Activities" (L44 070403 001)

4. NRC Staff Requirements Memorandum SECY-07-0096, dated July 25, 2007, "Possible Reactivation of Construction and Licensing Activities for the Watts Bar Nuclear Plant Unit 2"

5. TVA letter dated September 7, 2007, "Watts Bar Nuclear Plant (WBN) – Unit 2 - Generic Communications Issued Prior to 1995" (T90 070911 001)

6. TVA letter dated September 7, 2007, "Watts Bar Nuclear Plant (WBN) – Unit 2 - Initial Responses to Bulletins and Generic Letters" (T90 070911 002)

7. TVA letter dated September 6, 1991, "Watts Bar Nuclear Plant (WBN) – Nuclear Performance Plan, Volume 4, Revision 1" (L44 910906 804)

Enclosures
cc: See page 5

cc (Enclosures):

Lakshminarasimh Raghavan
U.S. Nuclear Regulatory Commission
MS 08H4A
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

Joseph Williams, Senior Project Manager (WBN Unit 2)
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

Loren R. Plisco, Deputy Regional Administrator for Construction
U. S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center, Suite 23T85
61 Forsyth Street, SW,
Atlanta, Georgia 30303-8931

U. S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303-8931

NRC Resident Inspector Unit 2
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Enclosure 1

TVA Response to NRC's Request of Information Needed for Licensing Review Reconstitution

In NRC's Letter entitled "Watts Bar Nuclear Plant Unit 2 - Information Needed for Licensing Review Reconstitution" (Reference 2), the following information was requested of TVA. In response, either an answer to the question or a date that TVA plans to submit an answer is provided.

1. *In its August 3, 2007, letter, the Tennessee Valley Authority (TVA) stated that it plans to provide a "red-line" version of the WBN Unit 1 Final Safety Analysis Report (FSAR), documenting differences between the current FSAR and the FSAR in place at the time the Unit 1 operating license was issued. This submittal will assist the Nuclear Regulatory Commission (NRC) staff in fulfilling the Commission's direction to use the Unit 1 current licensing basis as the reference basis for Unit 2. To fully implement the Commission's direction, please ensure your submittal addresses the following topics:*

   a. *Describe the differences between WBN Units 1 and 2 expected at the time Unit 2 licensing is anticipated. For example, does TVA plan to request that Unit 2 be licensed at the power level currently described in its operating license application 3411 megawatts thermal (MWt) or at the current Unit 1 licensed power level (3459 MWt)?*

   b. *Describe the process for evaluation of WBN Unit 1 modifications to be implemented on Unit 2 to identify whether a previous NRC safety evaluation will need to be revised. Existing licensing reviews for WBN Unit 2 contained in NUREG-0847, and its supplements, are for plant configurations as described in various revisions of the operating license application FSAR. It is the NRC's understanding that TVA has completed modifications to WBN Unit 1 that it intends to implement on Unit 2, as well. If these modifications affect the configuration described in previous NRC safety evaluations, those evaluations may need to be revised to reflect the plant configuration as it will be completed.*

   c. *Describe how TVA will ensure that engineering and Title 10, Code of Federal Regulations, Section 50.59 evaluations for WBN Unit 1 modifications implemented since initial licensing will remain valid when WBN Unit 2 begins operations.*

   d. *Describe changes to the WBN Unit 1 licensing basis that will be required to accommodate multi-unit operations. Also, describe how TVA will demonstrate that the existing WBN Unit 1 configuration is applicable to Unit 2 for multi-unit operations.*

   Response

   TVA plans to submit a "red-line" Final Safety Analysis Report on or before February 8, 2008. A response to each of the questions above will be provided in the submittal.

2. *Operation of WBN Unit 2 will rely on common systems and structures that have already been in use supporting Unit 1 full-power operation since 1996. Based on the expected completion of WBN Unit 2 in 2012 and issuance of a 40-year operating license, these common systems and structures will be required to perform their intended functions well beyond the original term of the Unit 1 operating license. Additionally, Unit 2 components and structures already installed may have experienced degradation during the period of time construction was suspended. Therefore, TVA should describe how it will ensure these common and previously-constructed systems, structures, and components will be capable of performing their intended functions for the entire license term expected for WBN Unit 2.*

Response

The common systems and structures that have already been in use supporting Unit 1 full-power operation will be subjected to an aging management review in accordance with 10CFR54. This review will be completed prior to Unit 1's license expiration date.

Previously constructed systems and structures will be inspected and tested prior to turnover to plant operations. Any system, structure or component determined not to meet acceptance criteria will be repaired or replaced prior to system testing and turnover.

3. *TVA has indicated that it intends to apply Nuclear Performance Plan (NPP) corrective action and special programs used for WBN Unit 1 to WBN Unit 2. The staff notes that the NRC has not issued a safety evaluation for these programs for WBN Unit 2. Therefore, TVA should confirm that previous NPP submittals for WBN Unit 1 are also applicable to Unit 2. TVA should identify if there are any cases where TVA wishes to revise a corrective action or special program for use on WBN Unit 2, along with a schedule for submitting justification for the revision to NRC for its review.*

Response

See Table 3 of the regulatory framework letter.

4. *Please identify submittal dates for the following items:*

   a. *Application for extension of the WBN Unit 2 construction permit*

      Response

      TVA plans to submit an application for extension of the WBN Unit 2 construction permit on or before March 21, 2008.

   b. *Items given in Attachment 6 of the August 3, 2007, letter, if no date was provided.*

      Response

      The following status is provided for the items listed on Attachment 6.

      i. TVA will provide a regulatory framework submittal for WBN Unit 2 completion by January 31, 2008. **Complete**

      ii. TVA plans to provide a red-line version of the WBN Unit 1 FSAR early in the project. The schedule for submitting this markup FSAR will be provided in the regulatory framework document. **As noted previously, TVA plans to submit the "red-line" FSAR on or before February 8, 2008.**

      iii. Subsequent to the initial submittal, TVA intends to provide updates, as appropriate, to the regulatory framework submittal until the WBN Unit 2 commitments related to fuel load, startup and power operation are complete. **On-going**

      iv. The WBN Unit 2 Pre-service Inspection (PSI) Program was last submitted to NRC on April 30, 1990. TVA will provide a revised program for NRC approval. **TVA plans to submit the pre-service inspection program on or before October 30, 2008. TVA plans to submit PSI related relief requests on or before September 24, 2010.**

v. TVA will provide the Pressure Temperature Limits Report for WBN Unit 2 for NRC approval. **TVA plans to submit the Pressure Temperature Limits Report with the license application update on or before March 26, 2010.**

c. *Topics that TVA has already identified as requiring NRC review to complete WBN Unit 2 licensing.*

Response

TVA plans to submit the Final Supplemental Environmental Impact Statement "Completion and Operation of Watts Bar Nuclear Plant Unit 2" on or before February 22, 2008.

TVA plans to submit a response to Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," on or before October 10, 2008.

TVA plans to submit a waiver request to allow operators to hold a combined operating license for WBN Unit 1 and Unit 2 on or before October 23, 2009.

TVA plans to submit a WBN Unit 2 license application update including the Final Safety Analysis Report (FSAR), Technical Specifications, and Technical Requirements Manual on or before March 26, 2010.

Additional items known to require NRC review have been identified in the tables of the regulatory framework letter and this enclosure. At this time, no other items have been identified. If TVA determines, based on new information or emerging issues, that additional review action is required, TVA will notify NRC at the earliest opportunity.

Enclosure 2

List of Commitments

Summary of commitments from Tables 1, 2 and 3 and Enclosure 1 of this letter:

1. Update FSAR for present and projected population over the lifetime of the plant.

2. Update FSAR for potential external hazards and hazardous materials.

3. Update FSAR for projected annual number of aircraft flights.

4. Update FSAR for present and projected use of local and regional groundwater.

5. B 83-06, "Nonconforming Material Supplied by Tube-Line" – Implement as necessary.

6. B 80-04, "Analysis of PWR Main Steam Line Rupture with Continued Feedwater Addition" – Complete analysis for Unit 2.

7. B 80-11, "Masonry Wall Design" – Complete implementation for Unit 2.

8. B 74-03, "Failure of Structural or Seismic Support Bolts on Class I Components" – Implement per NUREG-0577 as was done for Unit 1.

9. B 75-03, "Incorrect Lower Disc Spring and Clearance Dimension in Series 8300 8302 ASCO Solenoid Valves" – Modify valves not modified at factory.

10. B 75-05, "Operability of Category I Hydraulic Shock and Sway Suppressors" – Install proper suppressors.

11. B 82-02, "Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants" – Implement same approach as Unit 1.

12. B 88-05, "Nonconforming materials supplied by Piping Supplies, Inc. and West Jersey Manufacturing Co. (WJM)" – Complete review to locate installed WJM material and perform in-situ hardness testing for Unit 2.

13. B 88-11, "Pressurizer Surge Line Thermal Stratification" - Complete modifications to accommodate surge line thermal movements and incorporate a temperature limitation during heatup and cooldown operations into Unit 2 procedures.

14. B 89-02, "Stress Corrosion Cracking of High Hardness Type 410 Stainless Steel Preloaded Bolting in Anchor Darling Model S350W Swing Check Valves or Valves of Similar Nature" – Replace the flapper assembly hold-down bolts fabricated on the 14 (12 valves are installed) Atwood and Morrell Mark No. 47W450-53 check valves. Replacement bolts are to be fabricated from ASTM F593 Alloy 630. A review of the remaining Unit 2 safety related swing check valves will be performed.

15. GL 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves" – Perform evaluation for pressure locking and thermal binding of safety related power-operated gate valves and take corrective actions for those valves identified as being susceptible.

16. GL 80-14, "LWR Primary Coolant System Pressure Isolation Valves" – Incorporate guidance into Technical Specifications.

17. GL 89-04, "Guidelines on Developing Acceptable Inservice Testing Programs" – Submit an ASME Section XI Inservice Test Program for the first ten year interval six months before receiving an Operating License.

18. GL 89-10, "Safety Related Motor-Operated Valve (MOV) Testing and Surveillance" – Implement pressure testing and surveillance program for safety-related MOVs, satisfying the intent of GL 89-10.

19. GL 96-05, "Periodic Verification (PV) of Design Basis Capability of Safety-Related MOVs" – TVA will implement the Joint Owner's Group recommended GL 96-05 MOV PV program and begin testing during the first refueling outage after startup.

20. B 78-04, "Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment" – Ensure NAMCO switches have been replaced.

21. II.B.2, "Plant Shielding" – Complete Design Review of EQ of equipment for spaces/systems which may be used in post accident operations.

22. GL 93-04, "Rod Control System Failure and Withdrawal of Rod Control Cluster Assemblies" – Implement modifications and testing.

23. B 96-01, "Control Rod Insertion Problems" – Issue Emergency Operating Procedure and provide core map.

24. TVA will use Westinghouse RFA-2 fuel as currently installed in Unit 1 for the initial cycle.

25. GL 86-09, "Technical Resolution of Generic Issue B-59-(N-1) Loop Operation in BWRs and PWRs"– Confirm Technical Specifications prohibit (N-1) Loop Operation.

26. Use Eagle-21 for Unit 2. NRC requested additional information December 27, 2007. – Provide the additional information for NRC review.

27. TVA will replace the LPMS. Provide the startup test results and the alert level settings.

28. GL 82-28/II.F.2, "Inadequate Core Cooling Instrumentation System". TVA to install the Westinghouse Common Q Post-Accident Monitoring System. – Install Westinghouse Common Q PAM system.

29. GL 96-03, "Relocation of the Pressure Temperature Limit Curves and Low Temperature Overpressure Protection System Limits" – Submit P-T limits and similar to Unit 1, upon approval, incorporate into licensee-controlled document.

30. GL 90-06, "Resolution of Generic Issues 70, "PORV and Block Valve Reliability," and 94, "Additional LTOP Protection for PWRs" – 1) Revise operating instruction and surveillance procedure; and 2) Incorporate testing requirements in the Technical Specifications.

31. II.D.1, "Relief and Safety Valve Test Requirements" –1) Testing of relief and safety valves; 2) Reanalysis of fluid transient loads for pressurizer relief and safety valve supports and any required modifications; 3) Modifications to pressurizer safety valves, PORVs, PORV block valves and associated piping; and 4) Change motor operated block valves.

32. GL 88-05, "Boric Acid Corrosion of Carbon Stainless Steel Reactor Pressure Boundary Components in PWR Plants" – Implement program.

33. GL 97-01, "Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations" – Provide a report to address the inspection program.

34. B 88-09, "Thimble Tube Thinning in Westinghouse Reactors" – Inspect the thimble tubes during the first refueling outage.

35. B 01-01, "Circumferential Cracking of Reactor Pressure Vessel (RPV) Head Penetration Nozzles" – Perform baseline inspection.

36. B 02-01, "RPV Head Degradation and Reactor Coolant Pressure Boundary Integrity" – Perform baseline inspection.

37. B 02-02, "RPV Head and Vessel Head Penetration Nozzle Inspection Program" – Perform baseline inspection.

38. B 03-02, "Leakage from RPV Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity" – Perform baseline inspection.

39. B 04-01, "Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at PWRs" – Provide details of pressurizer and penetrations and apply Material Stress Improvement Process.

40. Submit Inservice inspection (ISI) program within 6 months after receiving an operating license.

41. GL 88-11, "NRC Position on Radiation Embrittlement of Reactor Vessel Material and its Impact on Plant Operations" – Use RG 1.99, Rev. 2 methodology for Pressure-Temperature (P-T) Limits curves. The Pressure Temperature Limits Report will be submitted with the license application on or before March 26, 2010.

42. GL 85-02, "Recommended Actions Stemming From NRC Integrated Program for the Resolution of Unresolved Safety Issues Regarding Steam Generator Tube Integrity" – Perform SG inspection.

43. GL 95-03, "Circumferential Cracking of Steam Generator (SG) Tubes" – Perform baseline inspection.

44. GL 97-05, "SG Inspection Techniques" – TVA will employ the same approach used on the original Unit 1 SGs.

45. GL 97-06, "Degradation of SG Internals" – Perform SG inspections during each refueling outage.

46. GL 04-01, "Requirements for SG Tube Inspection" – Perform baseline inspection.

47. GL 06-01, "SG Tube Integrity and Associated Technical Specifications" – Include TSTF-449 in TS.

48. B 89-01, "Failure of Westinghouse Steam Generator Tube Mechanical Plugs" – Remove SG tube plugs.

49. B 88-02, "Rapidly Propagating Fatigue Cracks in Steam Generator Tubes" – Evaluate E/C data to determine anti-vibration bar penetration depth; perform T/H analysis to identify susceptible tubes; modify, if necessary.

50. Verify that the RHR flow alarm to alert the operator to initiate alternate cooling modes in the event of loss of RHR pump suction is installed.

51. GL 88-17, "Loss of Decay Heat Removal" – Implement modifications to provide RCS temperature, RV level and RHR system performance.

52. B 88-08, "Thermal Stresses in Piping Connected to Reactor Cooling Systems" – Implement program to prevent thermal stratification.

53. B 88-04, "Potential Safety-Related Pump Loss" – Perform calculations and install check valves to prevent pump to pump interaction.

54. GL 81-21 "Natural Circulation Cooldown" – Issue operating procedures.

55. II.B.1," Installation of reactor coolant vents" – Verify installation of reactor coolant vents.

56. II.F.1," Accident monitoring instrumentation containment pressure" – Verify installation of containment pressure indication.

57. II.F.1," Accident monitoring instrumentation containment water level" – Verify installation of containment water level monitors.

58. B 77-04, "Calculation Error Affecting Performance of a System for Controlling pH of Containment Sump Water Following a LOCA" – Ensure Technical Specifications includes limit on Boron concentration.

59. II.E.4.2," Containment isolation dependability" – Reflect valve opening restriction (lower containment isolation valves are physically blocked to an opening angle of 50 degrees or less.) in the Technical Specifications.

60. The hydrogen recombiners will be removed from the Unit 2 design and licensing basis based on 10 CFR 50.44 (final rule September 16, 2003) and abandoned in place.

61. II.F.1," Accident monitoring instrumentation containment hydrogen" – Verify installation of containment hydrogen accident monitoring instrumentation.

62. GL 97-04, "Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps" – Install new sump strainers, and perform other modification-related activities identical to Unit 1.

63. GL 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigating Functions While in a Shutdown Condition" – 1) Review the ECCS designs to ensure they do not contain design features which can render them susceptible to common-cause failures; and 2) document the results.

64. GL 98-04, "Potential for Degradation of the ECCS and the Containment Spray System Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment" – Install new sump strainers, and perform other modification-related activities identical to Unit 1.

65. GL 04-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at PWRs – Install new sump strainers, and perform other modification-related activities identical to Unit 1.

66. B 79-24,"Frozen Lines" – Insulate the section of piping in the containment spray full-flow test line that is exposed to outside air. Confirm installation of heat tracing on the sensing lines off the feedwater flow elements.

67. B 80-18, "Maintenance of Adequate Minimum Flow Thru Centrifugal Charging Pumps Following a Secondary Side High Energy Rupture" – Implement design and procedure changes.

68. GL 03-01, "Control Room Habitability" – Incorporate TSTF-448 into Technical Specifications.

69. GL 89-08, "Erosion / Corrosion Induced Pipe Wall Thinning" – Prepare FAC procedure and perform baseline inspections.

70. Resolve issue of methodology for determining, setting, and evaluating as-found setpoints for drift susceptible instruments using the BFN TS-453 precedent (see NRC ML061680008).

71. B 79-21, "Temperature Effects on Level Measurements" – Update accident calculation.

72. B 80-06, "Engineered Safety Features Reset Control" – Perform verification during the preoperational testing.

73. B 79-27, "Loss of Non-class 1E I&C Power System Bus During Operation" – Issue appropriate emergency procedures.

74. II.F.1.2, "Accident Monitoring Instrumentation" – Install Noble gas (NCO850192009), Iodine / particulate sampling, and Containment High Range Monitors.

75. GL 89-19, "Request for Actions Related to Resolution of Unresolved Safety Issue A-47 "Safety Implication of Control Systems in LWR Nuclear Power Plants" – Perform evaluation of common mode failures due to fire.

76. II.D.3, "Valve Position Indication" – Verify installation of the acoustic monitoring system to PORV to indicate position.

77. II.K.3.9, "Proportional Integral Derivative Controller Modification" – Set the derivative time constant to zero.

78. GL 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power" – complete the two unit baseline electrical calculations and implementing procedures.

79. GL 1996-01, "Testing of Safety-Related Circuits" – Implement Recommendations.

80. GL 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients" – Complete testing of four additional cables.

81. II.E.3.1, "Emergency Power for Pressurizer Heaters" – Implement procedures and testing.

82. GL 79-36, "Adequacy of Station Electric Distribution System Voltages" – Perform verification of adequacy of voltages during the preoperational testing.

83. II.G.1, "Power Supplies for Pressurized Relief Valves, Block Valves and Level Indicators" – Implement modifications such that PORVS and associated Block Valves are powered from same train but different buses.

84. Implement SBO requirements.

85. B 89-03, "Potential Loss of Required Shutdown Margin During Refueling Operations" – Ensure that requirements for fuel assembly configuration, fuel loading and training are included in Unit 2.

86. B 84-03, "Refueling Cavity Water Seal" – Ensure appropriate abnormal operating instructions (AOIs) are used for Unit 2.

87. B 96-02/GL 81-07, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor, or Over Safety-Related Equipment" – Unit 2 Heavy Loads Program will be in compliance with NUREG-0612.

88. Implement NEI guidance on heavy loads.

89. Appropriate measures will be taken to ensure that the ERCW system is fully capable of meeting design requirements for two unit operation.

90. GL 89-13, "Service Water Problems Affecting Safety-Related Equipment" – 1) Implement initial performance testing of the heat exchangers; and 2) Establish eddy current baseline data for the Containment Spray heat exchangers.

91. GL 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions" – Implement modification to provide containment penetration relief.

92. Relocate component cooling thermal barrier booster pumps above probable maximum flood (PMF) level for Unit 2.

93. GL 88-14, "Instrument Air Supply System Problems Affecting Safety-Related Equipment" – Complete Unit 2 implementation.

94. II.B.3, "Post Accident Sampling" – Unit 2 Technical Specifications will eliminate requirements for the Post Accident Sampling System.

95. B 80-05/GL 80-21, "Vacuum Condition Resulting in Damage to Chemical Volume Control System Holdup Tank" – Complete surveillance procedures for Unit 2.

96. B 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Perform its Specified Fire Endurance Function" / GL 92-08, "Thermolag 330-1 Fire Barriers" – 1) Review Watts Bar design and installation requirements for Thermolag 330-1 fire barrier system and evaluate the Thermolag currently installed in Unit 2. 2) Remove and replace, as required, or prepare an approved deviation.

97. Perform testing of communication systems on Unit 2.

98. Include secondary water chemistry monitoring and control program in the administrative section of the Technical Specifications.

99. B 85-01 / GL 88-03, "Steam Binding of Auxiliary Feedwater Pumps" – Procedures and hardware will be in place to ensure recognition of indications of steam binding and maintenance of system operability until check valves are repaired and back leakage stopped.

100. II.E.1.1, "Auxiliary Feedwater System Evaluation, Modifications" – Perform Auxiliary Feedwater System analysis as it pertains to system failure and flow rate.

101. B 80-10, "Contamination of Non-radioactive Systems and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment" – Correct deficiencies involving monitoring of systems.

102. III.D.1.1, "Primary Coolant Outside Containment" – Include the waste gas disposal system in the leakage reduction program and incorporate in Unit 2 Technical Specifications.

103. II.F.1, "Accident monitoring instrumentation high range in- containment monitor" – Install high range in-containment monitor for Unit 2.

104. III.D.3.3, "In-plant Monitoring of I_2 radiation monitoring" – Complete modifications for Unit 2.

105. Implement the alternate ISEG that was approved for the rest of the TVA units including WBN Unit 1 by NRC August 26, 1999. The function will be performed by the site engineering organizations.

106. I.C.7, "NSSS vendor revision of procedures" – Revise power ascension and emergency procedures which were reviewed by Westinghouse.

107. I.C.8, "Pilot monitoring of selected emergency procedures for NTOLs" – Pilot monitor selected emergency procedures for NTOL.

108. I.C.1, "Short term accident and procedure review" – Implement upgraded EOPs, including validation and training.

109. II.K.3.3, "Reporting of SRV Challenges and Failures" (action from GL 82-16) - Include, as necessary, in Technical Specifications submittal.

110. Amend FSAR Chapter 14 to reflect the capability of each CSST to carry the loads of one unit under LOCA conditions in addition to power required for shutting down the non-accident unit.

111. Notify NRC within 30 days of any changes to the Startup Test Program made under 10 CFR 50.59.

112. GL 85-12/II.K.3.5, "Implementation of TMI Item II.K.3.5" – Implement modifications for automatic trip of reactor coolant pumps during a small break LOCA as required.

113. II.K.3.30/II.K.3.31, "Small break LOCA methods/Plant specific analysis" – Complete analysis for Unit 2.

114. B 87-02, "Fastener Testing to Determine Conformance with Applicable Material Specifications" – Complete for Unit 2, using information used for Unit 1, as applicable.

115. Implement Maintenance Rule for Unit 2 systems 1 month prior to fuel load.

116. I.D.1, "Control Room Design Review" – TVA will complete the CRDR process. Perform rewiring in accordance with ECN 5982. TVA will take advantage of the completed Human Engineering reviews to ensure appropriate configuration for Unit 2 control panels. See CRDR Special Program Table 3.

117. III.D.3.4, "Control Room Habitability" – Complete with CRDR completion.

118. I.D.2/GL 82-33/GL 89-06, "Safety Parameter Display System" (SPDS)/"Requirements for Emergency Response Capability" – Install SPDS (NCO860011001) and have it operational prior to start-up after the first refueling outage.

119. IEB 74-15," Misapplication of Cutler-Hammer Three Position Maintained Switch Model No. 10250T" – Install modified A3 Cutler-Hammer 10250T switches.

120. IEB 75-08," PWR Pressure Instrumentation" – Ensure that Technical Specifications and Site Operating Instructions address importance of maintaining temperature and pressure within prescribed limits.

121. IEB 77-03," On-Line Testing of the W Solid State Protection System" – Include necessary periodic testing in test procedures.

122. IEB 80-10," Contamination of Non-radioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment" – Include proper monitoring of non-radioactive systems in procedures.

123. IEB 83-04," Failure of the Undervoltage Trip Function of Reactor Trip Breakers' – Install new undervoltage attachment with wider grooves on the reactor trip breakers.

124. IEB 85-02," Undervoltage Trip Attachment of W DB-50 Type Reactor Trip Breakers" – Install automatic shunt trip on the Westinghouse DS-416 reactor trip breakers on Unit 2.

125. IEB 88-10," Nonconforming Molded-Case Circuit Breakers" – Replace those circuits not traceable to a circuit breaker manufacturer.

126. IEB 90-01," Loss of Fill-Oil in Transmitters Manufactured by Rosemount" – For Unit 2, implement applicable recommendations from this bulletin including identification of potentially defective transmitters and an enhanced surveillance program which monitors transmitters for loss of fill oil.

127. GL 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events" – 2.2 – Equipment Classification and Vendor Interface (All SR Components) – Enter engineering component background data in NPRDS for Unit 2. and 3.2 – Post-Maintenance Testing (All SR Components) –Test and maintenance procedures and Technical Specifications will include post-maintenance operability testing of other (than reactor trip system) safety-related components.

128. GL 88-20," Individual Plant Examination for Severe Accident Vulnerability" – Complete evaluation for Unit 2.

129. II.K.1.10," Operability status" – Confirm multi-unit operation will have no impact on administrative procedures with respect to operability status.

130. II.K.3.10," Anticipatory trip at high power" – Unit 2 Technical Specifications and surveillance procedures will address this issue.

131. For the Unit 2 Cable CAP sub issues: cable jamming, cable pullbys, cable sidewall bearing pressure, pulling cable through 90° condulet and flexible conduit and computerized cable routing system software, TVA will submit a justification for use of a different approach by May 16, 2008. For the other cable CAP sub issues, Unit 2 will follow the Unit 1 approach.

132. For the Unit 2 Electrical Issues CAP sub issue coil-to-contact and contact-to-contact, TVA will submit a justification for use of a different approach by May 16, 2008. For the other Electrical Issues CAP sub issues, Unit 2 will follow the Unit 1 approach.

133. TVA will implement the following Corrective Action Programs for Unit 2 with the Unit 1 approach: Cable Tray Supports, Conduit Supports, Design Baseline Verification Program, Equipment Seismic Qualification, Fire Protection, Hanger Update and Analysis Program, Heat Code Traceability, HVAC duct Supports, Instrument Sensing Lines, QA Records, Q-List, Replacement Items, Seismic Analysis, Vendor Information and Welding.

134. TVA will implement the following Special Programs for Unit 2 with the Unit 1 approach: Containment Cooling, Control Room Design Review, Equipment Qualification, Master Fuse List, Mechanical Equipment Qualification, Microbiologically Induced Corrosion, Moderate Energy Line Break, Radiation Monitoring System and Use-as-is CAQs.

135. TVA plans to submit the "red-line" Final Safety Analysis Report on or before February 8, 2008.

136. The common systems and structures that have already been in use supporting Unit 1 full-power operation will be subjected to an aging management review in accordance with 10CFR54. This review will be completed prior to Unit 1's license expiration date.

137. The application for extension of the WBN Unit 2 construction permit is scheduled for submittal on or before March 21, 2008.

138. TVA will provide a revised pre-service inspection program for NRC approval. TVA plans to submit the pre-service inspection program on or before October 30, 2008. TVA plans to submit PSI related relief requests on or before September 24, 2010.

139. TVA will provide the Pressure Temperature Limits Report for WBN Unit 2 for NRC approval. TVA plans to submit the Pressure Temperature Limits Report with the license application update on or before March 26, 2010.

140. TVA plans to submit the Final Supplemental Environmental Impact Statement "Completion and Operation of Watts Bar Nuclear Plant Unit 2" on or before February 22, 2008.

141. TVA plans to submit a response to Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," on or before October 10, 2008.

142. TVA plans to submit a waiver request to allow operators to hold a combined operating license for WBN Unit 1 and Unit 2 on or before October 23, 2009.

143. TVA plans to submit a WBN Unit 2 license application update including Final Safety Analysis Report (FSAR), Technical Specifications, and Technical Requirements Manual on or before March 26, 2010.

Table 1 - Standard Review Plan / Safety Evaluation Report and Supplements (NUREG 0847) Review Matrix

Chapter 2	-	Site Characteristics
Chapter 3	-	Design of Structures, Components, Equipment, and Systems
Chapter 4	-	Reactor
Chapter 5	-	Reactor Coolant System and Connected Systems
Chapter 6	-	Engineered Safety Features
Chapter 7	-	Instrumentation and Controls
Chapter 8	-	Electric Power
Chapter 9	-	Auxiliary Systems
Chapter 10	-	Steam and Power Conversion System
Chapter 11	-	Radioactive Waste Management
Chapter 12	-	Radiation Protection
Chapter 13	-	Conduct of Operations
Chapter 14	-	Initial Test Program
Chapter 15	-	Accident Analysis
Chapter 16	-	Technical Specifications
Chapter 17	-	Quality Assurance
Chapter 18	-	Control Room Design Review

The NRC issued an OL Safety Evaluation Report (SER), NUREG-0847 for Watts Bar Unit 1 and Unit 2 in June 1982. The SER documented NRC's review of the Unit 1 and Unit 2 design against Federal Regulations, construction permit criteria, and the NRC Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants ("SRP") otherwise known as NUREG-0800 (Revision 2 dated July 1981). Open issues raised by the review in the SER that were not closed out when the SER was issued were classified into outstanding issues, confirmatory issues, and proposed license conditions. The staff listed 17 outstanding issues in the SER. Additional outstanding issues were added in Supplemental SERs (SSERs) for a total of 28. The SER listed 42 confirmatory actions; issue 43 was added in SSER6. There were 44 proposed Licensing Conditions.

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		Chapter 2 - Site Characteristics			
2.1.1	2.1.1 - Site Location and Description	Original 1982 SER			
2.1.2	2.1.2 - Exclusion Area Authority and Control	Original 1982 SER			
2.13 - 2.1.4	2.1.3 - Population Distribution	Original 1982 SER			**L**- SRP requirement. Unit 2 action – Update FSAR for present and projected population over the lifetime of the plant.
2.2.1 - 2.2.3	2.2.1 - 2.2.2 - Identification of Potential Hazards in Site Vicinity	Original 1982 SER			**L**- SRP requirement. Unit 2 action – Update FSAR for potential external hazards and hazardous materials.
2.2.2	3.5.1.5 – Site Proximity Missiles (Except Aircraft) 3.5.1.6 - Aircraft Hazards	Original 1982 SER			**L**- SRP requirement. Unit 2 action – Update FSAR for projected annual number of aircraft flights.
2.2.3	2.2.3 - Evaluation of Potential Accidents	Original 1982 SER			
2.3.1	2.3.1- Regional Climatology	Original 1982 SER			
2.3.2	2.3.2 - Local Meteorology	Original 1982 SER			
2.3.3	2.3.3 - Onsite Meteorological Measurements Programs	Original 1982 SER			
2.3.4	2.3.4 – Short-term Dispersion Estimates for Accidental Atmospheric Releases	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
2.3.5	2.3.5 – Long-term Diffusion Estimates	Original 1982 SER			
2.4.2	2.4.1 - Hydrologic Description	Original 1982 SER			
2.4.3	2.1.1 - Site Location and Description	Original 1982 SER			
2.4.3	2.4.2 Floods	Original 1982 SER		GL 89-22	**C** - GL 89-22, "Potential For Increased Roof Load Due to Changes in Maximum Precipitation" – Answer to informal question provided in TVA letter dated December 16, 1981, and subsequently included in FSAR. GL did not require a response. No further action required.
2.4.3	2.4.3 - Probable Maximum Flood (PMF) on Streams and Rivers	Original 1982 SER			
2.4.3	2.4.4 - Potential Dam Failures	Original 1982 SER			
2.4.3, 2.4.10	2.4.10 - Flooding Protection Requirements	Original 1982 SER			
2.4.6	2.4.11 - Cooling Water Supply	Original 1982 SER			
2.4.7 - 2.4.8	2.4.12 – Groundwater	2.4.8 - Confirmatory issue for design basis groundwater level for ERCW pipeline	SSER3 – January 1985		**C** - Amendment 50 to the FSAR (May 1, 1984) provided a description of the analysis used to determine the 25-year groundwater level for the ERCW pipeline. Staff closed issue in SSER3.
2.4.9	2.4.13 – Accidental Releases of Liquid Effluents in Ground and Surface Waters	Original 1982 SER			**L**- SRP requirement. Unit 2 action – Update FSAR for present and projected use of local and regional groundwater.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
2.4.2 - 2.4.3	2.4.14 – Technical Specifications and Emergency Operation Requirements	Original 1982 SER			
2.5, 2.5.1	2.5.1 - Basic Geologic and Seismic Information	Original 1982 SER			
2.5	2.5.2 - Vibratory Ground Motion	Original 1982 SER			
2.5	2.5.3 - Surface Faulting	Original 1982 SER			
2.5.4	2.5.4 - Stability of Subsurface Materials and Foundations	2.5.4 - Outstanding issue on liquefaction beneath ERCW pipelines and Class 1E electrical conduit.	SSER3 – January 1985		**C** - Amendment 50 to the FSAR (May 1, 1984) provided a description of the underground barriers along the ERCW pipelines. Staff agreed the barriers provide sufficient confinement to any liquefied soil. Staff closed issue in SSER3.
		2.5.4 - Confirmatory issue for material and geometric damping in soil-structure interaction (SSI) analysis	SSER3 – January 1985		**C** - Staff performed audit in September 1982, and determined TVA had used reasonable assumptions. Staff closed issue in SSER3.
		2.5.4 - Confirmatory issue for analysis of sheetpile walls	SSER3 – January 1985		**C** - Staff performed audit in September 1982, and determined TVA had used reasonable assumptions. Staff closed issue in SSER3.
		2.5.4 - Confirmatory issue for design differential settlement of piping and electrical components	SSER3 – January 1985		**C** - Analysis was presented to staff in September 1983. Staff found analysis and results acceptable. Staff closed issue in SSER3.
2.5.5	2.5.5 - Stability of Slopes	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		Chapter 3 - Design of Structures, Components, Equipment, and Systems			
3.2.1	3.2.1 - Seismic Classification	3.2.1 - Confirmatory Issue for ERCW upgrade to seismic category 1	SSER5 – November 1990		**C** - Staff verified that required portion of ERCW had been upgraded or replaced satisfactorily in SSER5 and closed this issue.
		3.2.1 - Confirmatory issue for seismic classification of structures, systems, and components important to safety	SSER5 – November 1990		**C** - Staff closed issue on ERCW seismic category upgrade and seismic classification in SSER5.
3.2.2	3.2.2 - System Quality Group Classification	Original 1982 SER		B 83-06	**I** - B 83-06, "Nonconforming Material Supplied by Tube-Line" - NRC SER for both units dated September 23, 1991, provided an alternate acceptance for fittings supplied by Tube-Line. Unit 2 Action – Implement as necessary.
3.3.1	3.3.1 - Wind Loadings	Original 1982 SER			
3.3.2	3.3.2 - Tornado Loadings	Original 1982 SER			
3.4	3.4.1 – Flood Protection	Original 1982 SER			
3.5.1.1	3.5.1.1 - Internally Generated Missiles (Outside Containment)	Original 1982 SER			
3.5.1.2	3.5.1.2 - Internally Generated Missiles (Inside Containment)	Original 1982 SER			
3.5.1.3	3.5.1.3 - Turbine Missiles	Original 1982 SER			
3.5.1.4	3.5.1.4 - Missiles Generated by Natural Phenomenon	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
3.5.1.4	3.5.1.5 - Site Proximity Missiles (Except Aircraft)	Original 1982 SER			
3.5.2	3.5.2 - Structures, Systems, and Components to be protected from Externally Generated Missiles	3.5.2 - Confirmatory Issue for modifications to protect Diesel Generators	SSER2 – January 1984		**C** - TVA submitted a proposed design modification for installation of a reinforced concrete curb around the diesel exhaust stacks to protect them from damage in a letter dated November 24, 1982. The staff found this acceptable and closed this issue in SSER2.
3.5.3	3.5.3 - Barrier Design Procedures	Original 1982 SER			
3.6.1	3.6.1 - Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment	3.6.1 - Outstanding issue involving main steam line break (MSLB) outside containment	SSER14 – December 1994		**C** - In a letter dated November 30, 1992, TVA submitted a new evaluation for both Units 1 and 2 accounting for increased environmental temperatures in the MSVV rooms due to release of superheated steam and later submitted, by letter dated March 28, 1994, additional information related to the assumptions made in this analysis. The staff reviewed this information together with their detailed evaluation and acceptance of the same methodology applied at Sequoyah and concluded that the MSLB analysis for the WBN MSVV rooms, including the effects of superheated steam, was acceptable and identified this issue as resolved in SSER14.
3.6.2	3.6.2 - Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping	Original 1982 SER		B 80-04	**I** - B 80-04, "Analysis of PWR Main Steam Line Rupture with Continued Feedwater Addition" - IR 50-390/85-60 and 50-391/85-49 (December 6, 1985) required completion of actions that included determination of temperature profiles inside and outside of containment following a MSLB for Unit 1. Unit 2 Action – Complete analysis for Unit 2.
NA	3.6.3 - Leak-Before-Break Evaluation Procedures	Not addressed in Original 1982 SER	New section SRP 1987 - Approved in SSER5 – November 1990		

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
3.7.1	3.7.1 - Seismic Design Parameters	3.7 - Outstanding issue involving update of FSAR for seismic design issues	SSER8 – January 1992		**C** - The staff reviewed FSAR Amendment 68 and found that required changes had been incorporated into the FSAR, as committed to in TVA letter dated December 18, 1990, and issue was deemed resolved in SSER8.
3.7.2	3.7.2 - Seismic System Analysis	3.7.2.1.2 - Outstanding issue involving mass eccentricity	SSER8 – January 1992		**C** - In a letter dated May 8, 1991, TVA provided clarification that actual mass eccentricities from such items as equipment hatch and lock used in evaluating the steel containment vessel for an earthquake load were replaced by a 5% accidental eccentricity. This was demonstrated to be conservative. TVA also proposed a revision to the FSAR to document this change. The staff found this acceptable and resolved this issue in SSER8.
		3.7.2.12 - Outstanding issue involving comparison of Set A vs. Set B response	SSER11 – April 1993		**C** - The staff considered this item (opened in SSER6) resolved in SSER11 based on audits and inspections since SSER6.
3.7.3	3.7.3 - Seismic Subsystem Analysis	3.7.3 - Outstanding issue involving number of peak cycles to be used for OBE	SSER8 – January 1992		**C** - In a letter dated May 8, 1991, TVA proposed to revise the FSAR for ASME Section III Class I piping analysis to include the assumption of 5 OBEs and 1 SSE and a minimum of 10 peak stress cycles per event. The staff accepted this in SSER8.
		3.7.3 - Outstanding issue involving use of code cases, damping factors for conduit and use of worst case, critical case and bounding case	Code case use, damping factors for conduit SSER8 – January 1992, (CAP/SP implementation issue resolved in IR 390/93-201)		**C** - The staff reviewed the list of specific ASME Code cases TVA intended to use and found that they were either incorporated into the ASME Code or endorsed in Position C.1 of RG 1.84. This issue was considered resolved in SSER8. For damping, the staff found the use of 4% damping for OBE and 7% damping for SSE acceptable based on the information in a TVA letter dated August 22, 1991, and considered the issue resolved in SSER8.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
					I - Deficiencies identified in the use of worst case, critical case and bounding calculations were resolved in IR 50-390/93-201, and this issue was considered resolved for Unit 1 in SSER12. Unit 2 Action – CAP/SP see Table 3. The Unit 1 approach will be used for Unit 2. **I** - Conduit Supports Corrective Action Program. Process was reviewed and determined to be acceptable for Unit 1 in SER dated September 1, 1989. Unit 2 Action – CAP/SP see Table 3. The Unit 1 approach will be used for Unit 2.
		3.7.3 - Outstanding issue involving 1.2 multi-mode factor	SSER9 – June 1992		**C** - The staff reviewed verification studies performed by TVA to justify the use of a 1.2 multi-mode factor in seismic evaluation of certain sub-systems in SSER8 and SSER9 and, after TVA provided further confirmation of supporting calculations, the use of Complete Quadratic Combinations and validity of two degree of freedom predictions in a letter dated October 10, 1991, the staff considered this issue resolved in SSER9.
3.7.4	3.7.4 - Seismic Instrumentation	Original 1982 SER			
NA	3.8.1 - Concrete Containment				Reviewed using SRP 3.8.2 and 3.8.3.
3.8.1	3.8.2 - Steel Containment	3.8.1 - Confirmatory issue to verify buckling *methodology*	SSER3 – January 1985		**C** - In response to staff concern, TVA submitted a letter dated May 16, 1984, stating that TVA calculations already accounted for new information from NRC-sponsored research programs, particularly information concerning reinforcement around shell (vessel) opening. Based on their review of the response, the staff closed this issue in SSER3.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		3.8 - Outstanding issue involving load combinations and stress allowables	SSER9 – June 1992		**C** - In response to staff concerns regarding use of ductility ratio when considering thermally induced stresses, TVA stated in a letter dated April 6, 1992, that they would use a methodology consistent with SRP 3.8.4 for the design of steel members and use the linear elastic provision of DG-C 1.6.12, Rev. 1, "Evaluation of Steel Structures with Thermal Restraint," except for the energy balance provision of Section C.2.3.1. The staff found this acceptable. TVA also agreed, in its May 8, 1991, letter, that any further sampling of structural welds after the issuance of NCIG-2, Rev. 2 would be to that revision. This issue was resolved in SSER9.
3.8.2	3.8.3 - Concrete and Steel Internal Structures of Steel or Concrete Containments	Original 1982 SER			
3.8.3	3.8.4 - Other Seismic Category I Structures	Original 1982 SER		B 80-11	**I** - B 80-11, "Masonry Wall Design" - NRC accepted all but completion of corrective actions in IR 50-390/93-01 and 50-391/93-01(February 25, 1993) and closed for Unit 1 in IR 50-390/95-46 (August 1, 1995). Unit 2 Action – Complete implementation for Unit 2.
3.8.4	3.8.5 - Foundations	Original 1982 SER			
3.9.1	3.9.1 - Special Topics for Mechanical Components	3.9.1 - Outstanding issue involving assumption in piping analysis for water-hammer due to check valve slam	SSER13 – April 1994		**C** - In response to NRC concern regarding TVA's piping analysis that postulated failure of certain supports, TVA submitted an August 4, 1992, letter stating that, where possible, supports were upgraded in the analysis to maintain structural integrity during the postulated loading scenario. The issue was resolved in SSER13.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
3.9.2.1, 3.9.2.2, 3.9.2.3 and 3.9.2.4	3.9.2 - Dynamic Testing and Analysis of Systems, Components, and Equipment	Original 1982 SER			
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4	3.9.3 – Special Topics for Mechanical Components	3.9.3.1 - Outstanding issue involving use of experience data to qualify category I(L) piping	SSER8 – March 1985		**C** - TVA stated in a letter dated December 18, 1990, that it was performing a verification program to validate the original seismic design basis for Category I(L) piping, including a screening criteria based on earthquake experience data to identify items requiring further evaluation and bounding case analysis to demonstrate the conservatism of the screening criteria. In a September 20, 1991, letter, TVA provided revised criteria for the bounding case analysis. Based on the staffs' evaluation, the issue was considered resolved in SSER8.
				B 74-03	**I** - B 74-03, "Failure of Structural or Seismic Support Bolts on Class I Components" - Approach accepted in IR 50-390/85-08 and 50-391/85-08 (March 29, 1985). Unit 2 Action – Implement per NUREG-0577 as was done for Unit 1.
				B 75-03	**I** - B 75-03, "Incorrect Lower Disc Spring and Clearance Dimension in Series 8300 8302 ASCO Solenoid Valves" - NRC accepted in IR 50-390/75-6 and 50-391/75-6 (August 21, 1975). Unit 2 Action – Modify valves not modified at factory.
				B 75-05	**I** - B 75-05, "Operability of Category I Hydraulic Shock and Sway Suppressors" - NRC accepted in IR 50-390/75-6 and 50-391/75-6 (August 21, 1975). Unit 2 Action – Install proper suppressors.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				B 79-02	I - B 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts" - NRC review of HAAUP Program in NUREG-1232, SSER6 (April 1991) and SSER8 (January 1992). Unit 2 Actions – CAP/SP see Table 3. Conduct a complete review of affected support calculations, and perform the necessary revisions to design documents and field modifications to achieve compliance.
				B 79-14	I - B 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems" - NRC review of HAAUP Program in NUREG-1232, SSER6 (April 1991) and SSER8 (January 1992) - Unit 2 Actions – CAP/SP see Table 3. Initiate a Unit 2 hanger walkdown and hanger analysis program similar to the program for Unit 1. Complete re-analysis of piping and associated supports as necessary. Perform modifications as required by re-analysis.
				B 82-02	I - B 82-02, "Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants" - Approach accepted in IR 50-390/85-08 and 50-391/85-08 (March 29, 1985). Unit 2 Action – Implement same approach as Unit 1.
				B 88-05	I - B 88-05, "Nonconforming materials supplied by Piping Supplies, Inc. and West Jersey Manufacturing Co. (WJM)" - NRC reviewed in SSER16 (September 1995). Unit 2 Action – Complete review to locate installed WJM material and perform in-situ hardness testing for Unit 2.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				B 88-11	**I** - B 88-11, "Pressurizer Surge Line Thermal Stratification" - NRC SER on "Leak-Before-Break" (April 28, 1993) and review in SSER16 (September 1995). Unit 2 Action – Complete modifications to accommodate Surge Line thermal movements and incorporate a temperature limitation during heatup and cooldown operations into Unit 2 procedures.
				B 89-02	**I** - B 89-02, "Stress Corrosion Cracking of High Hardness Type 410 Stainless Steel Preloaded Bolting in Anchor Darling Model S350W Swing Check Valves or Valves of Similar Nature" - NRC reviewed in SSER16 (September 1995). Unit 2 Actions – Replace the flapper assembly hold-down bolts fabricated on the 14 (12 valves are installed) Atwood and Morrell Mark No. 47W450-53 check valves. Replacement bolts are to be fabricated from ASTM F593 Alloy 630. A review of the remaining Unit 2 safety related swing check valves will be performed.
		3.9.3.3 - Outstanding issue involving operating characteristics of main steam safety valves	SSER7 – September 1991		**C** - In a letter dated June 21, 1991, TVA responded to NRC concerns regarding the design and installation of MSSVs stated that all valves and piping components were analyzed for all MSSV discharge loads acting simultaneously, combined with other required loads and this was accepted by the staff. In the same letter, TVA also provided the method used to establish the MSSV adjustment ring settings for plant valves and this was acceptable to the staff. This resolved the issue in SSER7.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				GL 95-07	I - GL 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves" - Unit 1 SER for GL 95-07 dated Sept 15, 1999. Unit 2 Action – Perform evaluation for pressure locking and thermal binding of safety related power-operated gate valves and take corrective actions for those valves identified as being susceptible.
		3.9.3.4 - Outstanding issue, staff was awaiting TVA concurrence on their position with respect to margin for critical buckling of pipe supports	SSER4 – March 1985		**C** - In a letter dated May 14, 1984, TVA provided results of a sampling program and determined that compressive stresses for pipe supports did not exceed acceptance criteria established by NRC and staff considered this issue resolved in SSER4.
				GL 78-02	**C** - GL 78-02, "Asymmetric Loads Background and Revised Request for Additional Information" - NRC reviewed in SSER15 – Appendix C (June 1995) – Resolved by approval of leak-before-break analysis.
				GL 80-14	**T** - GL 80-14, "LWR Primary Coolant System Pressure Isolation Valves" - NRC reviewed in SSER6 (April 1991). Unit 2 Action – Incorporate guidance into Technical Specifications.
				GL 80-46/47	**C** - GL 80-46/47, "Fracture Toughness and Additional Guidance on Potential for Low Fracture Toughness and Lamellar Tearing on PWR Steam Generator and Coolant Pump Supports." – No response was required for this GL and NUREG-0577 states that the lamellar tearing aspect of this issue was resolved by the NUREG. Further, the NUREG states that for plants under review, the fracture toughness issue was resolved.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		3.9.3.4 - Confirmatory issue involving baseplate flexibility and its effect on anchor bolt loads	SSER8 – January 1992		**C** - The TVA response to this issue, in a letter dated July 26, 1991, described an update to the previous response for B 79-02 and its civil design standard for concrete anchorage, which incorporated an increase in anchor stiffness and consideration of prying forces for thin baseplates analyzed by hand. The staff determined that this adequately resolved the issue in SSER8.
		3.9.3.4 - Outstanding issue involving stiffness and deflection limits for seismic Category I pipe supports	SSER8 – January 1992		**C** - TVA program to demonstrate that change in design criteria which uses stiffness and deflection limits for Category I pipe supports did not compromise the adequacy of pipe supports was found to be acceptable by the staff and the issue was resolved in SSER8.
		3.9.3.3 - LC - Relief and safety valve testing (II.D.1)	SSER3 –January 1985		**C** - Staff found TVA approach in response to this issue, using information from EPRI valve test program and performing modifications to safety and relief discharge piping and supports, was acceptable. Issue was considered resolved in SSER3.
3.9.4	3.9.4 - Control Rod Drive Systems	Original 1982 SER			
3.9.5	3.9.5 - Reactor Pressure Vessel Internals	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
3.9.6	3.9.6 – Inservice Testing of Pumps and Valves	3.9.6 - Outstanding issue required that Technical Specifications include limiting condition for operation that requires plant shutdown or system isolation when leak limits are not met. Staff had not reviewed Technical Specifications.	SSER14 – December 1994		**T** - The safety evaluation in SSER14 states that the staff did not find any IST issues that would prevent issuance of an operating license for Unit 1. The item was resolved in SSER14. Unit 2 Action – Submit Technical Specifications.
				GL 89-04	**L** - GL 89-04, "Guidelines on Developing Acceptable Inservice Testing Programs" - NRC reviewed in SSER14 (December 1994). Unit 2 Action – Submit an ASME Section XI Inservice Test Program for the first ten year interval six months before receiving an Operating License.
				GL 89-10	**I** - GL 89-10, "Safety Related Motor-Operated Valve (MOV) Testing and Surveillance" - NRC accepted approach in September 14, 1990, letter and reviewed in SSER16 (September 1995). Unit 2 Action – Implement pressure testing and surveillance program for safety-related MOVs, satisfying the intent of GL 89-10.
				GL 96-05	**I** - GL 96-05, "Periodic Verification (PV) of Design Basis Capability of Safety-Related MOVs" - SE of TVA response to GL 96-05 dated July 21, 1999. Unit 2 Action – Implement the Joint Owner's Group recommended GL 96-05 MOV PV program, as described in Topical Report No. OG-97-018, and begin testing during the first refueling outage after startup.
		3.9.6 - LC – Inservice testing of pumps and valves	SSER12 – October 1993		**C** - TVA committed to submit a revised ASME Section XI Inservice Pump and Valve Test Program six months before the projected date of operating license issuance in an August 21, 1989, letter. On this basis, the staff considered that the proposed license condition was no longer required in SSER12.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
3.10	3.10 - Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	3.10 - Generic outstanding issues involving adequacy of frequency test, peak broadening of response spectra, reconciling actual field mounting by welding vs. testing configuration mounted by bolting and need for surveillance and maintenance programs to address aging.	Approved all but adequacy of frequency test SSER6 – April 1991; adequacy of frequency test SSER9 – June 1992		**C** - For reconciling the impact for equipment actually mounted using welding but tested with mounting by bolting, in-situ test results were provided to NRC (in letters dated April 30, 1985, and January 30, 1986) along with Westinghouse report on seismic qualification by analysis and testing for the main control board. The staff reviewed these results and on the basis of the consistency of all results provided, concluded that the issue was resolved in SSER6. **C** - Staff concerns on the impact of aging on seismic performance were resolved in SSER6 based on discussions with TVA technical personnel and review of maintenance and surveillance instruction manuals. **C** - In a letter dated December 1, 1982, TVA provided justification for single-frequency tests to seismically qualify the Reactor Protection System cabinet. This showed that test response spectra (TRS) were substantially higher than broadened required response spectra (RRS) throughout the required frequency range. The staff evaluated test results and building seismic behavior and considered this aspect of the testing issue closed in SSER6.
					C - There was a specific issue on installing spacers for the 125-V-DC vital batteries as was done during qualification testing and required by the manufacturer. The issue was closed in SSER6 when it was determined that spacers had been installed.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
					C - With regard to the overall issue on adequacy of testing, the staff performed an audit as part of SSER9 (Appendix S). This included a review of the TVA approach, criteria and action plan to address effect of directional coupling and verification that acceleration at each device location is less than .95g because relay chatter at higher acceleration levels is expected. TRS enveloped RRS for all directions. The staff found the above to be in accordance with SRP 3.10 and IEEE 344-1975 and closed the issue.
		3.10 - Outstanding issue involving seismic classification of cable tray and conduits	SSER8 – January 1992		**C** - In its May 8, 1991, letter, TVA proposed to analyze conduits as Seismic Category I subsystems. Additionally, in a September 18, 1991 letter, TVA agreed to perform cable tray qualification using conventional linear elastic analysis methods, considering nonlinear response behavior on a case-by-case basis and to submit these cases to the staff for approval. The staff resolved this issue in SSER8.
3.11	3.11 - Environmental Qualification of Mechanical and Electrical Equipment	3.11 - Outstanding issue - TVA program not submitted at time of SER	SSER15 – June 1995		**C** – The EQ program was submitted after issuance of the SER. It was reviewed and found acceptable in SSER15.
				B 78-04	**I** - B 78-04, "Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment" - IR 50-390/82-13 and 50-391/82-10 (April 22, 1982) accepted approach. Unit 2 Action – Ensure NAMCO switches have been replaced.
				NUREG-0737, II.B.2	**I** - II.B.2, "Plant Shielding" - NRC reviewed in SSER16 (September 1995). Unit 2 Action – Complete Design Review of EQ of equipment for spaces/systems which may be used in post accident operations.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
			Chapter 4 - Reactor		
4.2.1, 4.2.2, 4.2.3, 4.2.4	4.2 - Fuel System Design	4.2.2 - Confirmatory issue on thermal performance analysis code.	SSER2 – January 1984		**C** - Thermal performance analysis was performed using a revised model (PAD-3.3) and found acceptable. Staff closed issue in SSER2.
				GL 93-04	**I** - GL 93-04, "Rod Control System Failure and Withdrawal of Rod Control Cluster Assemblies" - NRC letter December 9, 1994, accepted TVA commitments for both units. Unit 2 action – Implement modifications and testing.
				B 96-01	**I** - B 96-01, "Control Rod Insertion Problems" – NRC acceptance letter for Unit 1 dated July 22, 1996. – Initial response for Unit 2 on September 7, 2007. Unit 2 action – Issue Emergency Operating Procedure and provide core map.
		4.2.2 - Confirmatory issue on cladding collapse calculations	SSER2 – January 1984		**T** - The staff reviewed the calculation for the predicted cladding collapse for the most limiting Watts Bar fuel and found it acceptable. Staff closed issue in SSER2. Unit 2 action – Use Westinghouse RFA-2 fuel as currently installed in Unit 1 for the initial cycle.
		4.2.3 - Confirmatory issue to identify margins and to offset reduction in DNBR due to fuel rod bowing and incorporating residual bow penalty into the Technical Specifications.	SSER2 – January 1984		**C** - In SSER2, the staff concluded TVA had an acceptable means of analyzing the effects of fuel rod bowing and determining any residual rod bowing penalties on the departure from nucleate boiling ratio and total peaking power. Staff closed issue in SSER2.
4.3.1, 4.3.2, 4.3.3	4.3 - Nuclear Design	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8	4.4 - Thermal and Hydraulic Design	Original 1982 SER		GL 86-09	**T** - GL 86-09, "Technical Resolution of Generic Issue B-59-(N-1) Loop Operation in BWRs and PWRs – N-1 Loop operation was addressed in original 1982 SER (4.4.7). Unit 2 Action – Confirm Technical Specifications prohibit (N-1) Loop Operation.
		4.4.3 - Outstanding issue concerning removal of RTD bypass system			**L** - This outstanding issue was opened in SSER6. Staff issued an SER dated June 13, 1989, for Unit 1 only that approved replacement of the RTD bypass system with an Eagle-21 microprocessor system for monitoring reactor coolant temperature. TVA letter dated December 5, 2007, informs NRC of intent to use Eagle-21 for Unit 2. NRC requested additional information December 27, 2007. Unit 2 Action – Provide the additional information for NRC review.
		4.4.5 - Confirmatory Issue / LC on review of Loose Parts Monitoring System (LPMS) startup report and inclusion of limiting conditions for LPMS in Technical Specifications	SSER3 – January 1985 SSER5 – November 1990		**L** - TVA letters dated February 25, 1982 and November 10, 1982, provided a description of operator training and an evaluation of conformance to RG 1.133. In SSER3, the staff closed the confirmatory issue and opened a license condition to track submittal of the startup test results and the alert level setting. In SSER5, the staff closed the LC to a TVA commitment to provide the startup test results and the alert level settings in a letter dated Sept 19, 1990, for both units. For Unit 2 due to obsolescence, TVA will replace the LPMS. Unit 2 action – provide the startup test results and the alert level settings.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		4.4.8 – LC - Detectors for Inadequate core cooling (II.F.2)	SSER10 – October 1992	GL 82-28 / NUREG-0737, II.F.2	**L** - In the original SER, the review of the ICC instrumentation was incomplete. The January 24, 1992, letter superseded the previous responses on this issue. GL 82-28/II.F.2, "Inadequate Core Cooling Instrumentation System" – TVA letter for Units 1 and 2 January 24, 1992, committed to install Westinghouse ICCM-86 and associated hardware (NCO850119020). NRC completed the review for Units 1 and 2 in SSER10. For Unit 2 due to obsolescence of the ICCM-86 system, TVA intends to install the Westinghouse Common Q Post-Accident Monitoring System. Unit 2 action – Install Westinghouse Common Q PAM system.
4.5.1	4.5.1 - Control Rod Drive Structural Materials	Original 1982 SER			
4.5.2	4.5.2 - Reactor Internal and Core Support Materials	Original 1982 SER			
4.6	4.6 - Functional Design of Control Rod Drive System	Original 1982 SER			

Chapter 5 – Reactor Coolant System and Connected Systems

5.2.1.1	5.2.1.1 - Compliance with the Codes and Standards Rule, 10CFR50.55a	Original 1982 SER			
5.2.1.2	5.2.1.2 - Applicable Code Cases	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
5.2.2	5.2.2 - Overpressure Protection	5.2.2 - Outstanding issue on staff review of sensitivity study of required safety valve flow rate versus trip parameter	SSER2 – January 1984		**C** - TVA letter dated April 18, 1983, provided the safety valve sizing information and information on differences with the reference plant. Staff closed issue in SSER2.
				GL 96-03	**I** - GL 96-03, "Relocation of the Pressure Temperature Limit Curves and Low Temperature Overpressure Protection System Limits" – GL 96-03 did not require a response. Unit 2 Action – Submit P-T limits and similar to Unit 1, upon approval, incorporate into licensee-controlled document.
				GL 90-06	**T** - GL 90-06, "Resolution of Generic Issues 70, "PORV and Block Valve Reliability," and 94, "Additional LTOP Protection for PWRs" – NRC letter dated January 9, 1991, accepted TVA's response for both units. Unit 2 actions – 1) Revise operating instruction and surveillance procedure; and 2) Incorporate testing requirements in the Technical Specifications.
				NUREG-0737, II.D.1,	**I** - II.D.1, "Relief and Safety Valve Test Requirements" – NRC reviewed in TER attached to SSER15 (June 1995). Unit 2 actions - 1) Testing of relief and safety valves; 2) Reanalysis of fluid transient loads for pressurizer relief and safety valve supports and any required modifications; 3) Modifications to pressurizer safety valves, PORVs, PORV block valves and associated piping; and 4) Change motor operated block valves.
5.2.3	5.2.3 - Reactor Coolant Pressure Boundary Materials	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
5.2.4	5.2.4 - Reactor Coolant Pressure Boundary Inservice Inspection and Testing	5.2.4 - Outstanding issue – Unit 2 PSI program submitted April 30, 1990, with a partial listing of relief requests. This item tracked the staff review.	Unit 1 only SSERs 10, 12 and 16		I - In the SER, the preservice inspection program was still under review. NRC reviewed the Unit 1 PSI program in SSERs 10, 12 and 16. Unit 2 Action – Submit Unit 2 PSI program.
				GL 88-05	I - GL 88-05, "Boric Acid Corrosion of Carbon Stainless Steel Reactor Pressure Boundary Components in PWR Plants" – NRC acceptance letter dated August 8, 1990 for both units. Unit 2 action – Implement program.
				GL 97-01	I - GL 97-01, "Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations" – NRC acceptance letter dated November 4, 1999 (Unit 1). Unit 2 Action - Provide a report to address the inspection program.
				NRC Order EA-03-009	**C** - NRC Order EA-03-009 – NA to Unit 2
				B 88-09	I - B 88-09, "Thimble Tube Thinning in Westinghouse Reactors "– Reviewed in SSER16 (September 1995). Unit 2 Action – TVA letter dated March 11, 1994, for both units committed to establish a program and inspect the thimble tubes during the first refueling outage.
				B 01-01	I - B 01-01, "Circumferential Cracking of Reactor Pressure Vessel (RPV) Head Penetration Nozzles" – NRC acceptance letter dated November 20, 2001 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action – Perform baseline inspection.
				B 02-01	I - B 02-01, "RPV Head Degradation and Reactor Coolant Pressure Boundary Integrity" - NRC review of 15 day response in letter dated May 20, 2002 – Initial response for Unit 2 on September 7, 2007. Unit 2 action – Perform baseline inspection.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				B 02-02	**I** - B 02-02, "RPV Head and Vessel Head Penetration Nozzle Inspection Program" – NRC acceptance letter dated December 20, 2002 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action – Perform baseline inspection.
				B 03-02	**I** - B 03-02, "Leakage from RPV Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity" – NRC acceptance letter dated October 6, 2004 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action – Perform baseline inspection.
				B 04-01	**I** - B 04-01, "Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at PWRs" – Initial response for Unit 2 on September 7, 2007. Unit 2 actions – Provide details of pressurizer and penetrations and apply Material Stress Improvement Process.
		LC – Inservice inspection (ISI) program	SSER12 – October 1993		**L** - The ISI program is required to be submitted within 6 months of the date of issuance of the operating license. The applicable ASME Code edition and addenda are determined by reference to 50.55a(b) 12 months preceding the date of issuance of the OL. In SSER12, the LC was resolved by a TVA commitment to submit the program within six months after receiving the operating license. Unit 2 action - Submit ISI program.
5.4.5	5.2.5 - Reactor Coolant Pressure Boundary Leakage Detection	Original 1982 SER			
5.3.1	5.3.1 - Reactor Vessel Materials	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
5.3.2	5.3.2 - Pressure-Temperature (P-T) Limits	5.3.2 -Outstanding issue on P-T limits for Unit 2 not provided. Staff will review as part of Unit 2 Technical Specifications.			**T** - In the original 1982 SER, NRC indicated that the review of the Unit 2 P-T limits would be completed as part of the review of the Unit 2 Technical Specifications. Unit 2 action - Submit P-T limits.
5.3.3	5.3.3 - Reactor Vessel Integrity	5.3.3 - Outstanding issue for staff to complete evaluation of Unit 2 after receipt of P-T limits			**T** - In the original 1982 SER, NRC indicated that the review of the Unit 2 P-T limits would be completed as part of the review of the Unit 2 Technical Specifications. Unit 2 action - Submit P-T limits.
				GL 88-11	**L** - GL 88-11, "NRC Position on Radiation Embrittlement of Reactor Vessel Material and its Impact on Plant Operations" – NRC acceptance letter dated June 29, 1989, for both units. Unit 2 action – Use RG 1.99, Rev. 2 methodology for P-T curves.
				GL 92-01	**C** - GL 92-01, R1, "Reactor Vessel Structural Integrity" –By letter dated May 11, 1994, for both units NRC confirmed TVA had provided the information requested in GL 92-01. NRC issued GL 92-01 revision 1, supplement 1 on May 19, 1995. By letter dated July 26, 1996, NRC closed GL 92-01, revision 1, supplement 1 for both Watts Bar units.
NA	10 CFR 50.61 Fracture Toughness Requirements	Not addressed in original 1982 SER			**C** - NRC SE for both units March 11, 1993 concluded that the Watts Bar reactor vessels satisfy the requirements of 10 CRF 50.61.
5.4.1.1, 5.4.2.1, 5.4.2.1	5.4 – Reactor Coolant System Components and Subsystem Design	Original 1982 SER			
5.4.1.1	5.4.1.1 - Pump Flywheel Integrity (PWR)	Original 1982 SER			
5.4.2.1	5.4.2.1 - Steam Generator Materials	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
5.4.2.2	5.4.2.2 - Steam Generator Tube Inservice Inspection	5.4.2.2 - Outstanding issue for staff to evaluate TVA's proposed resolution to concerns about flow induced vibrations in Model D-3 SGs pre-heat region	SSER4 – March 1985		**C** - In the original 1982 SER, the staff concluded that because of the generic problem of tube degradation caused by flow induced vibration in Westinghouse model D steam generators, operation would be limited to 50%. TVA's May 27, 1983, letter committed to implement the NUREG-0966 modifications. In SSER4, staff concluded the modification was acceptable to operate at 100%.
				GL 85-02	**I** - GL 85-02, "Recommended Actions Stemming From NRC Integrated Program for the Resolution of Unresolved Safety Issues Regarding Steam Generator Tube Integrity" - TVA responded to the GL on June 17, 1985. Unit 2 Action – Perform SG inspection.
				GL 95-03	**I** - GL 95-03, "Circumferential Cracking of Steam Generator (SG) Tubes" – NRC acceptance letter dated May 16, 1997 (Unit 1). – Initial response for Unit 2 on September 7, 2007. TVA responded to a request for additional information on December 17, 2007. Unit 2 Action – Perform baseline inspection.
				GL 97-05	**I** - GL 97-05, "SG Inspection Techniques" – NRC acceptance letter dated September 22, 1998 (Unit 1) - Initial response for Unit 2 on September 7, 2007. Unit 2 action - Employ the same approach used on the original Unit 1 SGs. TVA responded to a request for additional information on December 17, 2007.
				GL 97-06	**I** - GL 97-06, "Degradation of SG Internals" – NRC acceptance letter dated October 19, 1999 (Unit 1). – Initial response for Unit 2 on September 7, 2007. TVA responded to a request for additional information on December 17, 2007. Unit 2 action – Perform SG inspections during each refueling outage.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				GL 04-01	**I** - GL 04-01, "Requirements for SG Tube Inspection" – NRC acceptance letter dated April 8, 2005 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 action – Perform baseline inspection.
				GL 06-01	**T** - GL 06-01, "SG Tube Integrity and Associated Technical Specifications" – Initial response for Unit 2 on September 7, 2007. Unit 2 action – Include TSTF-449 in TS.
				B 89-01	**I** - B 89-01, "Failure of Westinghouse Steam Generator Tube Mechanical Plugs" – NRC acceptance letter dated September 26, 1991 for both units. Unit 2 action – Remove SG tube plugs.
				B 88-02	**I** - B 88-02, "Rapidly Propagating Fatigue Cracks in Steam Generator Tubes" – NRC acceptance letter dated June 7, 1990, for both units. Unit 2 actions – Evaluate E/C data to determine anti-vibration bar penetration depth; perform T/H analysis to identify susceptible tubes; modify, if necessary.
5.4.3	5.4.7 - Residual Heat Removal (RHR) System	5.4.3 - Confirmatory issues to verify installation of an RHR flow alarm and proper function of dump valves when actuated manually	SSER2 resolved testing of dump valves		**I** - In the SER, staff accepted TVA's commitment to provide, before startup, an RHR flow alarm to alert the operator to initiate alternate cooling modes in the event of loss of RHR pump suction. Unit 2 action - Verify alarm installation.
					C - In SSER2, based on the relief capacity of 3 of the 4 valves, NRC agreed that manual actuation testing of the atmospheric relief valves was not necessary.
				GL 87-12	**C** - GL 87-12, "Loss of Residual Heat Removal While the Reactor Coolant System is Partially Filled" – This GL was superseded by GL 88-17 per NRC letter dated December 5, 1988.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				GL 88-17	**I** - GL 88-17, "Loss of Decay Heat Removal" – NRC acceptance letter dated March 8, 1995 (Unit 1). Unit 2 Action – Implement modifications to provide RCS temperature, RV level and RHR system performance.
				B 88-08	**I** - B 88-08, "Thermal Stresses in Piping Connected to Reactor Cooling Systems" – NRC acceptance letter dated September 19, 1991, for both units. Unit 2 Action – Implement program to prevent thermal stratification.
				B 88-04	**I** - B 88-04, "Potential Safety-Related Pump Loss" – NRC acceptance letter dated May 24, 1990, for both units. Unit 2 Action – Perform calculations and install check valves to prevent pump to pump interaction.
		5.4.3 - Outstanding issue involving natural circulation test to demonstrate ability to cool down and depressurize the plant, and that boron mixing is sufficient under such circumstances; or, if necessary, other applicable tests before startup after first refueling	SSER10 – October 1992		**C** - Branch Technical Position requires a natural circulation test with supporting analysis to demonstrate the ability to cool down and depressurize the plant and that boron mixing is sufficient. Comparison with performance of previously tested plants of similar design is acceptable, if justified. July 11, 1991, TVA letter provided an assessment of the acceptability of the Diablo Canyon natural circulation tests to WBN. In SSER10, the NRC found the methods and conclusions acceptable.
				GL 81-21	**I** - GL 81-21 "Natural Circulation Cooldown" TVA responded December 3, 1981. Unit 2 action – Issue operating procedures.
5.4.4	5.4.11 - Pressurizer Relief Tank	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
5.4.5	5.4.12 - Reactor Coolant System High Point Vents	LC – Installation of reactor coolant vents (II.B.1)		NUREG-0737, II.B.1	I - In the original SER, the NRC found TVA's commitment to install reactor coolant vents acceptable pending verification. This was completed for Unit 1 only in SSER5 (IR 390/84-37). Unit 2 action - Verify installation of reactor coolant vents.

Chapter 6 – Engineered Safety Features

6.1.1	6.1.1 - Engineered Safety Features Materials	Original 1982 SER			
6.1.2	6.1.2 - Protective Coating Systems (Paints) Organic Materials	Original 1982 SER			
6.2.1 (contains 6.2.1.1 to 6.2.2.5)	6.2.1 - Containment Functional Design	Original 1982 SER			
6.2.1.1	6.2.1.1.B - Ice Condenser Containments	6.2.1.1 - Confirmatory issue involves reviewing analysis that ensures that containment external pressure will not exceed design value of 2.0 psi	SSER3 – January 1985		**C** – In the original 1982 SER, NRC indicated it would confirm the contention that containment external pressure transients could not exceed the design value of 2.0 psig. TVA submitted the information June 4, 1982. In SSER3, NRC concluded that the design provided adequate protection against damage from external pressure transients.
		LC – (6d) Accident monitoring instrumentation II.F.1 – containment pressure.		NUREG-0737, II.F.1	**I** – In SSER5, NRC closed the LC for Unit 1 only (IR 390/84-59) – November 1990. Unit 2 action - Verify installation of containment pressure indication.
		LC – (6e) Accident monitoring instrumentation II.F.1 –		NUREG-0737, II.F.1	**I** – In SSER5, NRC closed the LC for Unit 1 only (IR 390/84-85) – November 1990. Unit 2 action - Verify installation of containment water level monitors.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		containment water level		B 77-04	**T** - B 77-04, "Calculation Error Affecting Performance of a System for Controlling pH of Containment Sump Water Following a LOCA" – Reviewed in Original 1982 SER. Unit 2 action – Ensure Technical Specifications includes limit on Boron concentration.
6.2.1.2	6.2.1.2 - Subcompartment Analysis	Original 1982 SER			
6.2.1.1.1	6.2.1.3 - Mass and Energy Release Analysis for Postulated Loss-of-Coolant Accidents (LOCAs)	Original 1982 SER			
6.2.1.1.1	6.2.1.4 - Mass and Energy Release Analysis for Postulated Secondary System Pipe Ruptures	Original 1982 SER			
6.2.1.3	6.2.1.5 - Minimum Containment Pressure Analysis for Emergency Core Cooling System Performance Studies	Original 1982 SER			
6.2.2	6.2.2 - Containment Heat Removal Systems	Original 1982 SER			
6.2.3	6.2.3 - Secondary Containment Functional Design	Original 1982 SER			
6.2.4	6.2.4 - Containment Isolation System	6.2.4 - Confirmatory issue to install safety-grade isolation valves on 1" chemical feed lines joining	SSER5 – November 1990		**C** - In the original 1982 SER, the containment isolation provisions for the main and auxiliary feedwater lines, feedwater bypass lines and the chemical feedlines to the steam generators did not meet GDC 57. This was resolved by FSAR Amendment 55. In SSER5, the NRC

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		feedwater lines to main steam line. LC – Modification of chemical feedlines			concluded that the containment isolation provisions for the main and auxiliary feedwater lines, feedwater bypass lines and the chemical feedlines were acceptable.
		6.2.4 - Outstanding issue for NRC to complete review of information provided by TVA to address Containment Purging During Normal Plant Operation LC – Containment isolation dependability	SSER3 – January 1985 SSER5 – November 1990		**T** - In the original 1982 SER, NRC concluded that WBN met all the requirements of NUREG-0737, item II.E.4.2 except subsection (6) concerning containment purging during normal operation. In SSER3, the outstanding issue was closed and the License Condition left open. NRC completed the review and issued a TER for both units July 12, 1990. NRC concluded that the isolation valves can close against the buildup of pressure in the event of a design basis accident if the lower containment isolation valves are physically blocked to an opening angle of 50 degrees or less. Unit 2 Action – Reflect valve opening restriction in the Technical Specifications.
		6.2.4 - Outstanding issue involving containment isolation using closed systems	SSER12 – October 1993		**C** - This outstanding issue was opened in SSER7. In SSER12, the NRC concluded that the systems in question were *"closed loops outside containment"* and reaffirmed the previous conclusion of acceptability.
6.2.5	6.2.5 - Combustible Gas Control in Containment	6.2.5 - Outstanding issue for review of TVA-provided additional information relative to discussion added to FSAR to address analysis of the production and	SSER4 – March 1985		**C** - In the original 1982 SER, NRC indicated that additional information was required concerning the analysis of the production and accumulation of hydrogen within the containment during a design basis LOCA. This information was provided in FSAR amendments and evaluated by NRC in SSER4. In SSER4, the NRC concluded that the design of the combustible gas control system was acceptable and the outstanding issue closed.

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		accumulation of hydrogen within containment following onset of a LOCA			**L-** Unit 2 action - The hydrogen recombiners will be removed from the Unit 2 design and licensing basis based on 10 CFR 50.44 (final rule September 16, 2003) and abandoned in place.
		LC – (6f) Accident monitoring instrumentation II.F.1 – containment hydrogen		NUREG-0737, II.F.1	**I** - In SSER5, NRC closed the LC for Unit 1 only (IR 390/84-85) – November 1990. Unit 2 action - Verify installation of containment hydrogen accident monitoring instrumentation.
		LC – (9) Hydrogen control measures	SSER8 – January 1992		**C** - In the original 1982 SER, an LC was raised to track resolution of Unresolved Safety Issue A-48, "Hydrogen Control Measures and Effects of Hydrogen Burns on Safety Equipment." In SSER8, the NRC reviewed the hydrogen mitigation system (igniters) and concluded it met the requirements of the final rule {10 CFR 50.44(c)(3)}.
6.2.6	6.2.6 - Containment Leakage Testing	Original 1982 SER			

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
6.2.7	6.2.7 - Fracture Prevention of Containment Pressure Boundary	6.2.7 - Confirmatory issue for TVA to confirm that the lowest temperatures which will be experienced by the limiting materials of the reactor containment pressure boundary under the conditions cited by GDC 51 will be in compliance with the temperatures identified in the staff's analysis of fracture toughness requirements for load bearing component of the containment system	SSER4 – March 1985		**C** - In SSER4, NRC reviewed the confirmatory information submitted and concluded for both units that the reactor containment pressure boundary materials will behave in a non-brittle manner and the requirements of GDC 51 were satisfied. NRC provided the technical basis in SSER4, Appendix H.
6.3	6.3 - Emergency Core Cooling System	6.3.3 - Confirmatory issue to provide a detailed survey of insulation material that could become debris post-LOCA	SSER2 – January 1984		**C** - In the original 1982 SER, NRC found the design of the containment sump against debris acceptable subject to the acceptability of a detailed survey of insulation materials. In SSER2, the NRC review of the survey confirmed the staff's initial conclusion that the design to provide protection against sump debris was acceptable.
				GL 97-04	**I** - GL 97-04, "Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps" – NRC acceptance letter dated June 17, 1998 (Unit 1). – Initial response for Unit 2 on September 7, 2007. Unit 2 actions - Install new sump strainers, and perform other modification-related activities identical to Unit 1.

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				GL 98-02	I - GL 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigating Functions While in a Shutdown Condition" – Initial response for Unit 2 on September 7, 2007. Unit 2 actions – 1) Review the ECCS designs to ensure they do not contain design features which can render them susceptible to common-cause failures; and 2) document the results.
				GL 98-04	I - GL 98-04, "Potential for Degradation of the ECCS and the Containment Spray System Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment" – NRC closure letter dated November 24, 1999 (Unit 1). – Initial response for Unit 2 on September 7, 2007. Unit 2 actions – Install new sump strainers, and perform other modification-related activities identical to Unit 1.
				GL 04-02	I - GL 04-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at PWRs – NRC Audit Report dated February 7, 2007 (Unit 1). – Initial response for Unit 2 on September 7, 2007. Unit 2 actions – Install new sump strainers, and perform other modification-related activities identical to Unit 1.
				B 79-24	I - B 79-24,"Frozen Lines." Unit 2 Actions – Insulate the section of piping in the containment spray full-flow test line that is exposed to outside air. Confirm installation of heat tracing on the sensing lines off the feedwater flow elements.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				B 80-18	**I** - B 80-18 "Maintenance of Adequate Minimum Flow Thru Centrifugal Charging Pumps Following a Secondary Side High Energy Rupture" – IR 50-390/85-60 and 50-391/85-49 (Unit 1). Unit 2 action - Implement design and procedure changes.
		6.3.1 - Outstanding issue - involving removal of upper head injection system	SSER7 – September 1991		**C** - The Upper Head Injection (UHI) system design was approved in the original 1982 SER. TVA letter dated September 19, 1985, informed NRC that UHI would not be installed on Unit 2. In SSER7, NRC concluded it was acceptable to delete UHI from both units.
		6.3.3 - Outstanding issue involving containment sump screen design	SSER9 – June 1992		**C** - In the original 1982 SER, the staff approved the proposed sump design in the FSAR. A deviation between the installed and proposed design was discovered during an NRC inspection. In SSER9, the staff concluded that the as-installed sump screen was acceptable.
6.4	6.4 - Control Room Habitability System	Original 1982 SER		GL 03-01	**T** - GL 03-01 "Control Room Habitability" – Initial response for Unit 2 on September 7, 2007. Unit 2 action - Incorporate TSTF-448 into Technical Specifications.
6.5.1.1 to 6.5.1.4	6.5.1 - ESF Atmosphere Cleanup Systems	Original 1982 SER			
6.5.2	6.5.2 - Containment Spray as a Fission Product Cleanup System	Original 1982 SER			
6.5.3	6.5.3 - Fission Product Control Systems and Structures	Original 1982 SER			
6.5.4	6.5.4 - Ice Condenser as a Fission Product Cleanup System	Original 1982 SER			

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
6.6	6.6 - Inservice Inspection of Class 2 and 3 Components	6.6 - Outstanding issue on additional information required on preservice inspection program and identification of plant specific areas where ASME Code Section XI requirements cannot be met and supporting technical justification		GL 89-08	**L** - NRC reviewed the preservice inspection program (PSI) for Unit 1 only in SSER10 – October 1992. Unit 2 action - Submit Unit 2 PSI program. **I** - GL 89-08 "Erosion / Corrosion Induced Pipe Wall Thinning" – Unit 1 FAC program reviewed in IR 390/94-89 (February 1995). Unit 2 actions – Prepare procedure and perform baseline inspections.

Chapter 7 – Instrumentation and Controls

7.1.1	7.1 - Instrumentation and Controls - Introduction	7.1.3.1 - Confirmatory issue to provide a list of all safety related functions and a summary of the setpoint analysis	SSER4 – March 1985		**C** - In the original 1982 SER, the staff indicated the intent to perform an audit of the setpoint methodology. TVA provided information in letters dated April 25, 1983, September 4, 1984, and October 16, 1984. The NRC reviewed the information and found the methodology acceptable in SSER4. **T** - Staff requested discussion of methodology for determining, setting, and evaluating as-found setpoints for drift susceptible instruments. Unit 2 action - Resolve this issue using the BFN TS-453 precedent (see NRC ML061680008).
7.2.1 to 7.2.6	7.2 - Reactor Trip System	7.2.5 - Confirmatory issue to address IEB 79-21 to alleviate temperature dependence problem associated with measuring SG water level	SSER2 – January 1984 SSER14 – December 1994		**C** – TVA performed an evaluation of SG level instrumentation for a major pipe rupture in containment and determined that it was not necessary to insulate the SG reference legs. As a result, the July 27, 1994, letter withdrew a previous commitment to install insulation. In SSER14, the staff reviewed TVA's proposal and accepted it.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				B 79-21	**I** - B 79-21, "Temperature Effects on Level Measurements" - Reviewed in SSER14 (December 1994). Unit 2 action – Update accident calculation.
7.3.1 to 7.3.6	7.3 - Engineered Safety Features Systems	7.3.2 - Confirmatory issue is commitment to make a design change to provide protection that prevents debris from entering containment sump level sensors	SSER2 – January 1984		**C** – In the original SER, staff identified a concern that debris in the containment sump could block the inlets to the differential pressure transmitters and result in a loss of the permissive signal to the initiation logic for the automatic switchover from the injection to the recirculation mode of the emergency core cooling system. In a September 15, 1983, letter TVA notified NRC that the level sensors had been moved from inside the sump wall to outside the sump wall with the sense line opening protected by a cap with small holes. Staff closed the issue in SSER2.
		7.3.5 - Confirmatory issue to perform confirmatory tests to satisfy IEB 80-06 (to ensure that no device will change position solely due to reset action) and staff review of electrical schematics for modifications that ensure that valves remain in emergency mode after ESF reset	SSER3 – January 1985	B 80-06	**C** - In the original SER, staff concluded that the design modifications for Bulletin 80-06 were acceptable subject to review of the electrical schematics that were not available at the time. In SSER3, the staff found the modifications acceptable and closed the confirmatory issue. **I** - B 80-06, "Engineered Safety Features Reset Control" - TVA response dated March 11, 1982. Unit 2 action – Perform verification during the preoperational testing.
7.4.1 to 7.4.3	7.4 - Safe Shutdown Systems	Original 1982 SER			

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
7.5.1 to 7.5.4	7.5 - Information Systems Important to Safety	7.5.2 - Outstanding issue involving RG 1.97 instruments following course of an accident	SSER9 – June 1992		**C** - In the original 1982 SER, the staff stated that WBN did not use RG 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plants and Environs Conditions During and Following an Accident," for the design because the design predated the RG. In SSER7, an outstanding issue was opened. TVA provided NRC information on exceptions to RG 1.97. A detailed review was performed for both units (SSER9 - Appendix V). The staff concluded that WBN conforms to or has adequately justified deviations from the guidance of RG 1.97, Revision 2.
				B 79-27	**I** - B 79-27, "Loss of Non-class 1E I&C Power System Bus During Operation" – TVA responded to the Bulletin on March 1, 1982. Reviewed in Original 1982 SER. Unit 2 action – Issue appropriate emergency procedures.
				NUREG-0737, II.F.1.2	**I** - II.F.1.2, "Accident Monitoring Instrumentation" – Reviewed in SSER9 (June 1992). Unit 2 actions – Install Noble gas, Iodine / particulate sampling, and Containment High Range Monitors.
7.6.1 to 7.6.9	7.6 - Interlock Systems Important to Safety	7.6.5 - Confirmatory issue to install switches on the main control board for the operator to manually arm this system (overpressure protection provided by pressurizer PORVs)	SSER4 – March 1985		**C** - In the original 1982 SER, the staff found the design of the overpressure protection during low temperature features acceptable pending review of the drawings and FSAR description. In SSER4, the staff documented completion of the review and closed the confirmatory issue.

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1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
7.7.1 to 7.7.7	7.7 - Control Systems	7.7.2 – LC – Status monitoring system, Bypassed and Inoperable Status Indication	SSER7 – September 1991		**C** – In the original 1982 SER, the staff requested TVA address RG 1.47, "Bypassed and Inoperable Status Indications for Nuclear Power Plant Safety Systems." TVA addressed RG 1.47 by letters dated January 29, 1987, and October 22, 1990. In SSER7, the staff documented completion of the review and closed the issue.
					I - GL 89-19, "Request for Actions Related to Resolution of Unresolved Safety Issue A-47 "Safety Implication of Control Systems in LWR Nuclear Power Plants" – TVA responded by letter dared March 22, 1990. NRC acceptance letter dated October 24, 1990, for both units. Unit 2 action – Perform evaluation of common mode failures due to fire.
7.8 NUREG-0737 Items	NA	7.8.1 - LC - Confirm installation of acoustic monitoring system on Unit 2		NUREG-0737, II.D.3	**I** - II.D.3, "Valve Position Indication" – The design was reviewed in the original 1982 SER and found acceptable pending confirmation of installation of the acoustic monitoring system. In SSER5 (IR 390/84-35), the staff closed the LC for Unit 1 only. Unit 2 action – verify installation of the acoustic monitoring system to PORV to indicate position.
				NUREG-0737, II.K.3.9	**I** – II.K.3.9, "Proportional Integral Derivative Controller Modification" – Reviewed in Original 1982 SER. Unit 2 action – Set the derivative time constant to zero.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
Chapter 8 – Electrical Power Systems					
8.1	8.1 - Electrical Power - Introduction	Original 1982 SER			
8.2.1 to 8.2.4	8.2 - Offsite Power System	8.2.2.1 - Confirmatory issue to document additional information in FSAR on control power supplies and distribution system for the Watts Bar Hydro Plant Switchyard	SSER2 – January 1984 SSER13 – April 1994		**C** - In the original 1982 SER, NRC concluded that the offsite power system circuits at the Watts Bar Hydro Plant Switchyard met GDC 17 pending documentation in the FSAR. The information was added to the FSAR. In SSER2, NRC closed the issue. In SSER13, the staff reviewed revised information and concluded that it supported the original conclusion in SSER2.
				GL 2006-02	**I** - GL 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power" – Initial response for Unit 2 on September 7, 2007. Unit 2 action – complete the two unit baseline electrical calculations and implementing procedures.
		*8.2.2.2/8.2.2.3/ 8.2.2.4 - Outstanding issue involving compliance of design changes to the offsite power system with GDC 17 and 18.	SSER13 – April 1994		**C** - In SSER13, the NRC documented the review of design changes to minimize the probability of losing all AC power, compliance with GDC 17 and minimizing the probability of a two unit trip following a one unit trip. These issues were resolved in SSER13.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6	8.3.1 - AC Power Systems (Onsite)	8.3.1.1 - Confirmatory issue to incorporate new design that provides dedicated transformer for each preferred offsite circuit in FSAR	SSER2 – January 1984		**C** - In the original 1982 SER, NRC concluded that the offsite power system with a dedicated transformer for each preferred offsite circuit met GDC 17 pending documentation in the FSAR. The information was added to the FSAR. In SSER2, NRC closed the issue.
				GL 1996-01	**I** - GL 1996-01, "Testing of Safety-Related Circuits" - TVA responded for both units on April 18, 1996. Unit 2 action – Implement Recommendations.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				GL 2007-01	**L** - GL 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients" - Initial response for Unit 2 on September 7, 2007. Unit 2 action – Complete testing of four additional cables.
				NUREG-0737, II.E.3.1	**I** - II.E.3.1, "Emergency Power for Pressurizer Heaters" – Reviewed in original 1982 SER. Unit 2 action – Implement procedures and testing.
		8.3.1.2 - Confirmatory issue to verify voltage drop analysis and testing	SSER13 – April 1994	GL 79-36	**I** - This item and the GL tracked compliance with BTP PSB-1, "Adequacy of Station Electric Distribution System Voltages." This item was closed for Unit 1 in SSER13 based on results of the preoperational test. Unit 2 Action – Perform verification during the preoperational testing.
		8.3.1.6 - Confirmatory issue to provide diesel generator reliability qualification test report	SSER7 – September 1991		**C** - In SSER2, NRC indicated that it would verify DG qualification testing. TVA provided a copy of the DG qualification test report. In SSER7, the NRC concluded that the DGs had been satisfactorily tested in accordance with IEEE 387-1977.
		8.3.3.1.2 - Confirmatory issue to verify design for bypass of thermal overload protective device	SSER2 – January 1984		**C** - In the original 1982 SER, NRC indicated that the design for bypass of thermal overload protective devices on safety-related motor operated valves would be verified during the electrical drawing review. The staff subsequently reviewed the drawings and closed the issue in SSER2.
		8.3.3.2.3 - Confirmatory issue for design of sharing raceway systems between units	SSER2 – January 1984		**C** - In the original SER, NRC indicated that the design for sharing of raceway systems between units would be verified during the electrical drawing review. The staff confirmed that cable routing was in accordance with accepted separation criteria and closed the issue in SSER2.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		8.3.3.5.2 - Confirmatory issue to incorporate commitment to test only one of four diesel generators at one time	SSER2 - January 1984		**C** - In the original 1982 SER, the NRC found the commitment to test DGs one at a time acceptable pending its incorporation into the FSAR. In SSER2, NRC reviewed the documentation and closed the issue.
		8.3.3.6 - Confirmatory issue involving evaluation of penetrations' ability to withstand failure of overcurrent protection device	SSER7 – September 1991		**C** - In the original 1982 SER, staff required a reevaluation of the penetrations' capability to withstand, without seal failure, the total range of available time-current characteristics assuming a single failure of any overcurrent protective device. In SSER3, staff found the results of the evaluation acceptable pending the information being incorporated in the FSAR. The staff reviewed the FSAR and closed the issue in SSER7.
		8.3.3.1.1 - Confirmatory issue involving submergence of electrical equipment as result of a LOCA	SSER13 – April 1994		**C** - In the original 1982 SER, staff stated that the design for the automatic deenergizing of loads as a result of a LOCA would be verified as part of the site visit. During the August 1991, visit and in a letter dated September 13, 1991, TVA committed to revise the FSAR. The information was added to the FSAR. In SSER13, NRC closed the issue.
		8.3.3.2 - Confirmatory issue to revise FSAR to reflect requirements of shared safety systems	SSER3 – January 1985 SSER13 – April 1994		**C** - In the original 1982 SER, the staff stated that the description and analysis of shared onsite AC and DC systems was under review but was acceptable pending revision of the FSAR. In SSER3, the confirmatory issue was left open to track additional information to be incorporated in the FSAR. In a letter dated September 13, 1991, TVA provided the additional information. In SSER13, NRC closed the issue.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		8.3.1.6 - LC – (12) Diesel generator reliability qualification testing at normal operating temperature	SSER2 – January 1984		**C** - In the original 1982 SER, NRC required that the capability of the DGs to start at normal temperature be demonstrated. TVA's August 31, 1983, letter confirmed tests had been performed on a DG identical to those at WBN. In SSER2, NRC closed the issue.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6	8.3.2 - DC Power Systems (Onsite)	8.3.2.4 - Confirmatory issue to include diesel generator design analysis in FSAR	SSER2 – January 1984		**C** - In the original 1982 SER, staff indicated the design analysis for demonstrating compliance of the DGs with regulatory requirements and guidelines was acceptable pending incorporation of the analysis in the FSAR. The analysis was incorporated in the FSAR, and the issue closed in SSER2.
		8.3.2.2 – LC – DC monitoring and annunciation system	SSER3 – January 1985 SSER13 – April 1994		**C** - In SSER3, the staff determined that some items were omitted from the design of the DG DC monitoring and annunciation system. In TVA letter dated September 13, 1991, TVA provided the additional information. In SSER13, NRC closed the issue.
		8.3.3.2.4 – LC – Possible sharing of DC control power to AC switchgear	SSER3 – January 1985		**C** - In the original 1982 SER, staff required that all possible interconnections between redundant divisions through normal and alternate power sources to various loads be identified in the FSAR. TVA letter dated January 17, 1984, provided the information. NRC closed the issue in SSER3.
		8.3.3.3 – LC – Testing of associated circuits	SSER3 – January 1985		**C** - In the original 1982 SER, staff required that protective devices used to isolate non-Class 1E from Class 1E circuits be of high quality commensurate with their importance to safety and be periodically tested. TVA letter dated January 17, 1984, provided the information. NRC closed the issue in SSER3.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		8.3.3.3 – LC – Testing of non-class 1E cables	SSER3 – January 1985		**C** - In the original 1982 SER, staff required that protective devices used to isolate non-Class 1E from Class 1E circuits be of high quality commensurate with their importance to safety and be periodically tested. TVA letter dated January 17, 1984, provided the information. NRC closed the issue in SSER3.
		8.3.3.4 – LC – Low temperature overpressure protection power supplies, II.G.1	SSER7 – September 1991	NUREG-0737, II.G.1	**I** - II.G.1, "Power Supplies for Pressurized Relief Valves, Block Valves and Level Indicators" – Reviewed in Original 1982 SER and SSER7 (September 1991). Unit 2 Action – Implement modifications such that PORVS and associated Block Valves are powered from same train but different buses.
		8.3.3.6 – LC – Testing of reactor coolant pump breakers	SSER2 – January 1984		**C**- In the original 1982 SER, staff required that the redundant fault current protective devices for the reactor coolant pump circuits meet RG 1.63. In SSER2, staff reviewed the design and concluded it met RG 1.63.
NA	8.4 Station Blackout	Not addressed in original 1982 SER			**I** - SE for both units – March 18, 1993 SSE for both units – September 9, 1993. Unit 2 Action – Implement SBO requirements.

Chapter 9 – Auxiliary Systems

9.1.1	9.1.1 – Criticality Safety of Fresh and Spent Fuel Storage and Handling	Original 1982 SER		B 89-03	**I** - B 89-03, "Potential Loss of Required Shutdown Margin During Refueling Operations" – NRC acceptance letter dated June 22, 1990. Unit 2 Action – Ensure that requirements for fuel assembly configuration, fuel loading and training are included in Unit 2.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
NA	10 CFR 50.68 - Criticality Accident Requirements	Not addressed in original 1982 SER			**C** – The new fuel storage vault and the spent fuel storage racks are shared equipment that is in service to support operation of Unit 1. Criticality of fuel assemblies outside the reactor is precluded by adequate design of fuel transfer and storage facilities and by administrative control procedures in accordance with 10 CFR 50.68(b).
9.1.2	9.1.2 – New and Spent Fuel Storage	Original 1982 SER		B 84-03	**I** - B 84-03, "Refueling Cavity Water Seal" – Reviewed in IR 390/93-11. Unit 2 Action – Ensure appropriate abnormal operating instructions (AOIs) are used for Unit 2.
9.1.3	9.1.3 - Spent Fuel Pool Cooling and Cleanup System	Original 1982 SER			
9.1.4	9.1.4 - Light Load Handling System (Related to Refueling)	Original 1982 SER			
9.1.4	9.1.5 - Overhead Heavy Load Handling Systems	LC – Control of heavy loads (NUREG-0612)	Resolved SSER13 – April 1994		**C** - The staff concluded in SSER13 that the license condition was no longer necessary based on their review of TVA's response to NUREG-0612 guidelines for Phase I in TVA letter dated July 28, 1993.
				B 96-02 / GL 81-07	**I** - B 96-02/GL 81-07, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor, or Over Safety-Related Equipment" – NRC closure letter dated May 20, 1998. Unit 2 Action – Unit 2 Heavy Loads Program will be in compliance with NUREG-0612.
					I – Implement NEI guidance on heavy loads.
9.1.4	15.7.5 -Spent Fuel Cask Drop Accidents	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	*SRP TITLE*	**Approval for WBN** *Unit 2*	**Approval** *Reference*	**Guidance (GL, Bulletins)** *Note 1*	*Additional Information*
9.2.1	9.2.1 - Station Service Water System	No open issues in the original 1892 SER. SSER18 concludes ERCW does not conform to GDC 5 for two-unit operation.			**L** – Appropriate measures will be taken to ensure that the ERCW system is fully capable of meeting design requirements for two unit operation.
				GL 89-13	**I** - GL 89-13, "Service Water Problems Affecting Safety-Related Equipment" - NRC letters dated July 9, 1990 and June 13, 1997, accepting approach. Unit 2 Actions – 1) Implement initial performance testing of the heat exchangers; and 2) Establish eddy current baseline data for the Containment Spray heat exchangers.
				GL 96-06	**I** - GL 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions" – NRC letter dated April 6, 1999, accepting TVA response for Unit 1. Unit 2 Action – Implement modification to provide containment penetration relief.
9.2.2	9.2.2 - Reactor Auxiliary Cooling Water Systems	9.2.2 - Confirmatory issue to relocate component cooling thermal barrier booster pumps above probable maximum flood (PMF) level before receipt of an OL			**I** - TVA committed to relocate the pumps above PMF level and the staff found this acceptable. Implementation for this issue was resolved for Unit 1 when the staff verified in IR 390/84-20 that the pumps had been relocated. Unit 2 Action – Relocate pumps for Unit 2.
				NUREG-0737, II.K.3.25	**C** - II.K.3.25, "Power on Pump Seals" - NRC reviewed and closed in IR 390/84-35 based on DG power to pump sealing cooling system.
9.2.3	9.2.3 - Demineralized Water Makeup System	Original 1982 SER			
9.2.4	9.2.4 - Potable and Sanitary Water Systems	Original 1982 SER			
9.2.5	9.2.5 - Ultimate Heat Sink	Original 1982 SER			
9.2.6	9.2.6 - Condensate Storage Facilities	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	*Approval for WBN Unit 2*	*Approval Reference*	Guidance *(GL, Bulletins)* Note 1	Additional Information
9.3.1	9.3.1 - Compressed Air System	Original 1982 SER		GL 88-14	**I** - GL 88-14, "Instrument Air Supply System Problems Affecting Safety-Related Equipment" – NRC letter dated July 26, 1990, closing the issue. Unit 2 Action – Complete Unit 2 implementation.
9.3.2	9.3.2 - Process and Post Accident Sampling Systems	9.3.2 - LC – Post-Accident Sampling System	Resolved SSER14 – December 1994		**C** - TVA submitted a final procedure for estimating degree of core damage by letter dated June 10, 1994, and the license condition was deleted in SSER14.
				NUREG-0737, II.B.3	**T** - II.B.3, "Post Accident Sampling" – NRC reviewed in SSER16 (September 1995). TVA submitted a TS improvement to eliminate requirements for the Post Accident Sampling System using the Consolidated Line Item Improvement Process in a letter dated October 31, 2001. Unit 2 Actions – Unit 2 Technical Specifications will eliminate requirements for the Post Accident Sampling System.
9.3.3	9.3.3 - Equipment and Floor Drainage System	Original 1982 SER			
9.3.4	9.3.4 - Chemical and Volume Control System (PWR) (Including Boron Recovery System)	Original 1982 SER		B 80-05/GL 80-21	**I** - B 80-05/GL 80-21, "Vacuum Condition Resulting in Damage to Chemical Volume Control System Holdup Tank" - Closed in IR 50-390/84-59 and 50-391/84-45. Unit 2 Action – Complete surveillance procedures for Unit 2.
9.4.1	9.4.1 - Control Room Area Ventilation System	Original 1982 SER			
9.4.2	9.4.2 - Spent Fuel Pool Area Ventilation System	Original 1982 SER			
9.4.3	9.4.3 - Auxiliary and Radwaste Area Ventilation System	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
9.4.4	9.4.4 - Turbine Area Ventilation System	Original 1982 SER			
9.4.5	9.4.5 - Engineered Safety Feature Ventilation System	Original 1982 SER			
9.5.1.1 to 9.5.1.9	9.5.1 - Fire Protection Program	9.5.1.2 - Outstanding issue for Fire Protection Program 9.5.1.3 – Confirmatory issue – Electrical penetrations documentation 9.5.1.3 - LC – Fire protection program	Resolved SSER18 – October 1995 SSER19 – November 1995		**C** - In SSER18, the staff concluded that the Fire Protection program for Watts Bar conformed to the requirements of 10CFR50.48 and was acceptable except for the fire barrier seal program and emergency lighting inside the Reactor Building. Additionally, the staff considered the confirmatory issue involving electrical penetration documentation resolved in SSER18 on the basis of the safety evaluation of the revised Fire Protection program included in Appendix FF of SSER18. In SSER19, Appendix FF, a safety evaluation of the Fire Protection program contains a detailed evaluation of fire barrier penetration seals. The staff concluded that TVA's penetration seal program adequately demonstrates the fire resistive rating of the penetrations, and that they conform to the guidelines of Positions D.1.j and D.3.d of Appendix A to BTP 9.5.1 and were acceptable. The safety evaluation also includes TVA's revised position on emergency lighting, which was found to be acceptable.
				B 75-04	**C** - B 75-04, "Cable Fire at BFNPP" – This bulletin is included in the Fire Protection Program.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				B 92-01 GL 92-08	I - B 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Perform its Specified Fire Endurance Function" / GL 92-08, "Thermolag 330-1 Fire Barriers" - Reviewed in SSER18 (October 1995) and accepted in NRC letter dated January 6, 1998 (includes a supplemental SE). Unit 2 Actions – 1) Review Watts Bar design and installation requirements for Thermolag 330-1 fire barrier system and evaluate the Thermolag currently installed in Unit 2. 2) Remove and replace, as required, or prepare an approved deviation.
				GL 06-03	I - GL 06-03, "Potentially Nonconforming Hemyc and MT Fire Barrier Materials" - TVA does not rely on Hemyc or MT materials to protect electrical and instrumentation cables or equipment that provide safe shutdown capability during a postulated fire. Unit 2 Action – CAP/SP see Table 3. The Fire Protection Corrective Action Program will ensure Unit 2 conforms with NRC requirements and applicable guidelines.
9.5.2.1, 9.5.2.2	9.5.2 - Communications Systems	9.5.2 - LC – Performance testing of communications system	Resolved SSER5 - November 1990		I - The staff resolved this license condition in SSER5 based on TVA's letter of March 18, 1985, which described its testing of communications systems. Unit 2 Action – Perform testing of communication systems on Unit 2.
9.5.3	9.5.3 - Lighting Systems	No open issues			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	*Approval for WBN* Unit 2	*Approval* Reference	Guidance (GL, Bulletins) Note 1	Additional Information
9.5.4.1, 9.5.4.2	9.5.4 - Emergency Diesel Engine Fuel Oil Storage and Transfer System	9.5.4.1 - Outstanding issue for staff to complete review to determine if diesel generator auxiliary support systems can perform their design safety functions under all *conditions, after receipt* of all requested information	Resolved SSER5 - November 1990		**C** - The staff reviewed standards to which emergency diesel engine skid mounted auxiliary system piping and associated components were designed, as well as the testing and inspections to be performed on these systems, and concluded that they were acceptable in SSER5. The staff considered this issue resolved. This resolution applies to the fuel oil, cooling water, air starting, lubrication, and combustion air intake and exhaust *systems.*
		9.5.4.1 - Confirmatory issue to include required language in operating instruction to ensure no-load and low-load operation is minimized and revise operating procedures to address increased diesel generator load after it has run for an extended period of time at low or no load	Resolved SSER5 - November 1990		**C** – In SSER5, the staff verified that plant operating procedures had been revised to incorporate requirements that ensure that operational no-load and low-load conditions will not harm the diesel generators.
		9.5.4.2 - Outstanding issue to design skid-mounted piping and components from the day tank to the diesel engine as seismic Category I and to ASME Section III, Class 3	Resolved SSER5 - November 1990		**C** – See discussion in 9.5.4.1

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		9.5.4.2 - *Confirmatory* issue to provide missile protection for fuel oil storage tank vent lines	Resolved SSER5 - November 1990		**C** – The staff found TVA's commitment to provide missile protection for the fuel oil storage tank vent lines acceptable and verified that the protection had been installed and considered this issue resolved in SSER5.
		9.5.4.1 - LC – Diesel Generator reliability	Resolved SSER5 - November 1990		**C** - The staff verified that the modifications necessary to comply with NUREG/CR-0660 had been completed and, as stated above, requirements had been incorporated into operating procedures. Thus, this license condition was resolved in SSER5.
9.5.5	9.5.5 - Emergency Diesel Engine Cooling Water System	9.5.5 - Outstanding issue to design engine cooling water system piping and components for all engines up to the engine interface, including auxiliary skid mounted piping, to ASME Section III, Class 3	Resolved SSER5 - November 1990		**C** – See discussion in 9.5.4.1
9.5.6	9.5.6 - Emergency Diesel Engine Starting System	9.5.6 - Outstanding issue to design engine air-starting system piping components for all engines up to the engine interface, including auxiliary skid mounted piping, to ASME Section III, Class 3	Resolved SSER5 - November 1990		**C** – See discussion in 9.5.4.1

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	*Approval for WBN Unit 2*	*Approval Reference*	Guidance (GL, Bulletins) Note 1	Additional Information
9.5.7	9.5.7 - Emergency Diesel Engine Lubrication System	9.5.7 - Outstanding issue to perform additional modification, or provide justification for acceptability of proposed modification, to ensure lubrication of all wearing parts of the diesel engine either on an interim or continuous basis	Resolved SSER5 - November 1990		**C** - In response to a staff concern regarding dry diesel engine starting, TVA proposed using the manufacturers' modification and provided justification for its ability to ensure lubrication of all parts of the diesel engine. The staff found this acceptable in SSER5.
		9.5.7 - Outstanding issue to design standby diesel engine lube oil system piping and components up to the engine interface, including skid mounted piping, to ASME Section III, Class 3	Resolved SSER5 - November 1990		**C** – See discussion in 9.5.4.1
		9.5.7 - Outstanding issue to provide a more detailed description of the lubricating oil system and a description of the diesel engine crankcase explosion protection features	Resolved SSER5 - November 1990		**C** – TVA submittal of March 18, 1995, responded to a staff request to describe the features that protect the diesel engine crankcase from exploding. In SSER5, on the basis of this submittal, the staff concluded that the emergency diesel engine lubrication oil system can perform its safety function and is acceptable. This issue was resolved.

1982 SER	SRP TITLE	*Approval for WBN* Unit 2	*Approval* Reference	Guidance (*GL, Bulletins*) Note 1	Additional Information
9.5.8	9.5.8 - Emergency Diesel Engine Combustion Air Intake and Exhaust System	9.5.8 - Outstanding issue to design standby diesel engine combustion air intake and exhaust system piping and components up to the engine interface to ASME *Section III, Class 3 and* recommendations of RG 1.26	Resolved SSER5 - November 1990		**C** – See discussion in 9.5.4.1

Chapter 10 – Steam and Power Conversion System

10.2.1, 10.2.2	10.2 - Turbine Generator	Original 1982 SER			
10.2.2	10.2.3 - Turbine Rotor Integrity	Original 1982 SER			
10.3.1 to 10.3.4	10.3 - Main Steam Supply System	10.3.4 - LC – Secondary water chemistry monitoring and control program			**T** - The staff determined that the secondary water chemistry monitoring and control program was being included in the administrative section of the Technical Specifications and resolved this for Unit 1 in SSER5 (November, 1990). Unit 2 Action – Take same action for Unit 2.
10.3.3	10.3.6 - Steam and Feedwater System Materials	Original 1982 SER			
10.4.1	10.4.1 - Main Condensers	Original 1982 SER			
10.4.2	10.4.2 - Main Condenser Evacuation System	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
10.4.3	10.4.3 - Turbine Gland Sealing System	Original 1982 SER			
10.4.4	10.4.4 - Turbine Bypass System	Original 1982 SER			
10.4.5	10.4.5 - Circulation Water System	Original 1982 SER			
10.4.6	10.4.6 - Condensate Cleanup System	Original 1982 SER			
10.4.7	10.4.7 - Condensate and Feedwater System	Original 1982 SER			
10.4.8	10.4.8 - Steam Generator Blowdown System (PWR)	Original 1982 SER			
10.4.9	10.4.9 - Auxiliary Feedwater System (PWR)	Original 1982 SER	SER – July 20, 1988	B 85-01/GL 88-03	I - B 85-01 / GL 88-03, "Steam Binding of Auxiliary Feedwater Pumps" – NRC accepted approach in letter dated July 20, 1988, and reviewed response in SSER16 (September 1995). Unit 2 Action – Procedures and hardware will be in place to ensure recognition of indications of steam binding and maintenance of system operability until check valves are repaired and back leakage stopped.
				NUREG-0737, II.E.1.1	I - II.E.1.1, "Auxiliary Feedwater System Evaluation, Modifications" – Reviewed in SSER16 (September 1995). Unit 2 Action – Perform Auxiliary Feedwater System analysis as it pertains to system failure and flow rate.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		Chapter 11 - Radioactive Waste Management			
11.1	11.1 - Source Terms	Original 1982 SER			
11.2	11.2 - Liquid Waste Management System	Original 1982 SER			
11.3	11.3 - Gaseous Waste Management System	Original 1982 SER			
11.4	11.4 - Solid Waste Management System	Original 1982 SER			
11.5	11.5 - Process and Effluent Radiological Monitoring Instrumentation and Sampling Systems	Original 1982 SER		B 80-10	I - B 80-10, "Contamination of Non-radioactive Systems and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment." Unit 2 Action – Correct deficiencies involving monitoring of systems.
11.7	NA - NUREG -0737 items	11.7.1 - LC – (6a) Accident monitoring instrumentation II.F.1 – Noble Gas monitor	Resolved SSER5 – November 1990		**C** – TVA committed to have Unit 2 shielding building vent monitor in place and high range noble gas monitor installed and operational prior to Unit 1 fuel loading and the staff then considered license condition 6a resolved in SSER5.
		11.7.1 - LC – (6b) Accident monitoring instrumentation II.F.1 – Iodine particulate sampling	Resolved SSER6 – April 1991		**C** – TVA committed to have the capability for continuous collection of samples of plant gaseous effluents for post accident releases of iodine particulate by fuel load. The staff reviewed this in SSER5 and SSER6 and considered the issue resolved in SSER6.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		11.7.2 - LC – Primary coolant outside containment III.D.1.1		NUREG-0737, III.D.1.1	**T** – III.D.1.1, "Primary Coolant Outside Containment" - Resolved for Unit 1 only in SSER10 (October 1992), reviewed in SSER16 (September 1995). Unit 2 Actions – Include the waste gas disposal system in the leakage reduction program and incorporate in Unit 2 Technical Specifications.

Chapter 12 – Radiation Protection

12.2	12.1 - Assuring that Occupational Radiation Exposures are As Low As Reasonably Achievable	Original 1982 SER			
12.3	12.2 - Radiation Sources	Original 1982 SER			
12.4	12.3, 12.4 - Radiation Protection Design Features	Original 1982 SER			
12.5, 12.6	12.5 - Operational Radiation Protection Program	12.6 - Outstanding issue involving Health Physics Program	Resolved SSER10 – October 1992		**C** - The staff reviewed TVA's RADCON program (formerly the HP program) and found that the WBN organizational structure can provide adequate support for the RADCON program and that organizational changes described in the FSAR amendments met the staff's acceptance criteria. They considered this issue resolved in SSER10.
12.7	NA – NUREG-0737 items	12.7.2 LC – (6c) Accident monitoring instrumentation – containment radiation monitor			**I** – In SSER5 (November 1990), the staff resolved this license condition for Unit 1 (IR 390/84-09 & IR 390/84-28) due to verification that TVA's commitments regarding the high range in-containment monitor were satisfactory and that it was installed. Unit 2 Action – Install high range in-containment monitor for Unit 2.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
				NUREG-0737, III.D.3.3	**I** - III.D.3.3, "In-plant Monitoring of I_2 radiation monitoring" - NRC reviewed in SSER16 (September 1995). Unit 2 Action – Complete modifications for Unit 2.

Chapter 13 – Conduct of Operations

13.1.1	13.1.1 - Management and Technical Support Organization	Original 1982 SER			
13.1.2, 13.1.3	13.1.2, 13.1.3 - Operating Organization	13.1.3 - LC – Use of experienced personnel during startup	Resolved SSER8 – January 1992		**C** - In the original 1982 SER, NRC provided for an LC to ensure TVA augmented the shift staff with individuals that had prior experience with large pressurized water reactor operations. TVA's commitment to comply with RG 1.8, "Personnel Selection and Training," provided adequate assurance, and in SSER8, NRC eliminated the LC.
13.2.1	13.2.1 - Reactor Operator Requalification Program, Reactor Operator Training	Original 1982 SER			
13.2.2	13.2.2 - Non-Licensed Plant Staff Training	Original 1982 SER			
13.3	13.3 - Emergency Planning	13.3 - LC – Emergency Preparedness III.A.1, III.A.2, III.A.2	Resolved SSER13 – April 1994		**C** - The NRC review of Emergency Preparedness in SSER13 superseded the review in the original 1982 SER. In SSER13, the staff concluded that the WBN Radiological Emergency Plan (REP) provided an adequate planning basis for an acceptable state of onsite emergency preparedness, and the LC was deleted. The NRC completed the review of the REP in SSER20.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	*Approval for WBN* Unit 2	*Approval* Reference	Guidance (*GL, Bulletins*) Note 1	Additional Information
13.4	13.4 - Operational Programs	13.4 - LC – Independent Safety Engineering Group (ISEG) I.B.1.2			**L** - Resolved for Unit 1 only in SSER8 – January 1992. Unit 2 action - Implement the alternate ISEG that was approved for the rest of the TVA units including WBN Unit 1 by NRC August 26, 1999. The function will be performed by the site engineering organizations.
13.5.1, 13.5.2	13.5.1 - Administrative Procedures	13.5.2 - Outstanding issue involving operating, maintenance and emergency procedures	Resolved SSER9 – June 1992		**C** - In the original 1982 SER, this issue was used to track the staff's review of the emergency operating procedures generation package. In SSER9, the staff concluded that the outstanding issue was no longer needed as the staff no longer performed such reviews. The emergency operating procedure development program review is performed under IP 42000, "Emergency Operating Procedures." This inspection will be performed before issuance of an operating license.
		13.5.2 - LC – Review of power ascension test procedures and emergency operating procedures by the NSSS vendor I.C.7	Resolved SSER10 - October 1992	NUREG-0737, I.C.7	**I** - I.C.7, "NSSS vendor revision of procedures" – IR 50-390/391 85-08 closed this item for Unit 1, and NRC also reviewed in SSER16. Unit 2 Action – Revise power ascension and emergency procedures which were reviewed by Westinghouse.
		13.5.2 - LC – Modifications to Emergency Operating instructions I.C.8	Resolved SSER10 - October 1992	NUREG-0737, I.C.8	**I** - I.C.8, "Pilot monitoring of selected emergency procedures for NTOLs" - IR 50-390/391 85-08 closed this item for Unit 1, and NRC also reviewed in SSER16. Unit 2 Action – Pilot monitor selected emergency procedures for NTOL.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
13.5.3	NA - NUREG-0737, items	13.5.3 - LC – Report on outage of emergency core cooling system II.K.3.17	Resolved SSER3 – January 1985		**C** - In the original 1982 SER, the NRC accepted TVA's commitment to develop and implement a plan to collect emergency core cooling system outage information. In SSER3, the staff accepted a revised commitment from an October 28, 1983, letter to participate in the nuclear power reliability data system and comply with the requirements of 10 CFR 50.73
				NUREG-0737, I.C.1	**I** - I.C.1, "Short term accident and procedure review" - NRC reviewed in SSER16 (September 1995). Unit 2 Action – Implement upgraded EOPs, including validation and training.
				NUREG-0737, II.K.3.3	**T** - II.K.3.3, "Reporting of SRV Challenges and Failures" (action from GL 82-16) – NRC reviewed in SSER16 (September 1995). Unit 2 Action – Include, as necessary, in Technical Specifications submittal.
13.6	13.6 - Physical Security	13.6 - Outstanding issue to file appropriate revision to the Physical Security Plan	Resolved SSER15 – June 1995		**C** - In the original 1982 SER, the staff identified certain outstanding issues with TVA's Physical Security Plan. In SSER15, NRC provided a safety evaluation that concluded that WBN conforms to the requirements of 10 CFR 50.73.
		13.6.4 - LC – Physical security of fuel in containment	Resolved SSER10 – October 1992		**C** - In the original 1982 SER, part of the Physical Security Plan (PSP) was not in accordance with the regulation. TVA submitted a new PSP on June 17, 1992. In SSER10, the staff concluded that the provisions for protection of the containment during major refueling and maintenance met the intent of the regulation.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
			Chapter 14 – Initial Test Program		
SER 14	14.2 - Initial Plant Test Program – Design Certification and new License Application	14.0 - Confirmatory issues - Availability of preoperational test procedures 60 days before test.	Resolved SSER3 – January 1985		**C** - In SSER3, NRC accepted a 30 day period for making approved preoperational test procedures available to staff.
		14.0 - Confirmatory issue - FSAR references to Regulatory Guides.	Resolved SSER3 – January 1985		**C** - In the original 1982 SER, NRC noted that the FSAR did not reflect conformance of preoperational tests with RG 1.20, Revision 2, RG 1.52, Revision 2 and RG 1.79, Revision 1. The FSAR was subsequently revised. In SSER3, the NRC closed the issue.
		14.0 - Confirmatory issue - Additional systems to be tested as part of the initial test program	Resolved SSER3 – January 1985		**C** - In the original 1982 SER, NRC noted that the FSAR did not include preoperational tests for a number of systems that NRC determined to be important to the safe operation of the plant. The FSAR was subsequently revised. In SSER3, the NRC found the revised preoperational test abstracts acceptable.
		14.2 - Unit 2 issue to verify capability of each common station service transformer to carry load required to supply ESF loads of 1 unit under LOCA condition in addition to power required for shutdown on non-accident unit			**I** - This issue was raised in SSER14 and resolved for Unit 1 only. In SSER14, the NRC stated that before an OL can be issued for Unit 2, TVA would have to demonstrate the capability of each CSST to carry the loads of one unit under LOCA conditions in addition to power required for shutting down the non-accident unit. TVA agreed with the NRC position in a January 5, 1995 letter. Unit 2 action – Amend FSAR Chapter 14 to reflect the capability of each CSST to carry the loads of one unit under LOCA conditions in addition to power required for shutting down the non-accident unit.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		14.2 - LC – Report changes to Initial Test Program	Resolved SSER7 – September 1991		**I** - In the original 1982 SER, this LC was intended to require TVA report to NRC within 30 days of modifying an approved initial test. In SSER7, the NRC accepted a commitment in TVA's July 1, 1991, letter to notify NRC within 30 days of any changes to the Startup Test Program made under 10 CFR 50.59. Unit 2 action – Notify NRC within 30 days of any changes to the Startup Test Program made under 10 CFR 50.59.

Chapter 15 – Accident Analysis

15.1	15 – Introduction – Transient and Accident Analysis	Original 1982 SER			
15.2	15.3.1 - 15.3.2 - Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions	Original 1982 SER			
15.2.1	15.2.1 - 15.2.5 - Loss of External Load; Turbine Trip; Loss of Condenser Vacuum; Closure of Main Steam Isolation Valve (BWR); and Steam Pressure Regulator Failure (Closed)	Original 1982 SER			
15.2.1	15.2.6 - Loss of Nonemergency AC Power to Station Auxiliaries	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
15.2.1	15.2.7 - Loss Normal Feedwater Flow	Original 1982 SER			
15.2.2, 15.2.3	15.1.1 - 15.1.4 - Decrease in Feedwater Temperature, Increase in Feedwater Flow, Increase in Steam Flow, and Inadvertent Opening of a Steam Generator Relief or Safety Valve	Original 1982 SER			
15.2.3	15.5.1 - 15.5.2 - Inadvertent Operation of ECCS and Chemical and Volume Control System Malfunction that Increases Reactor Coolant Inventory	Original 1982 SER			
15.2.4.1	15.4.1 - Uncontrolled Control Rod Assembly Withdrawal from a Subcritical or Low Power Startup Condition	Original 1982 SER			
15.2.4.2	15.4.2 - Uncontrolled Control Rod Assembly Withdrawal at Power	Original 1982 SER			
15.2.4.3	15.4.3 - Control Rod Maloperation (System Malfunction or Operator Error)	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
NA	15.4.4 - 15.4.5 Startup of an Inactive Loop or Recirculation Loop at an Incorrect Temperature, and Flow Controller Malfunction Causing an Increase in BWR Core Flow Rate	Not addressed in SER			
15.2.4.4	15.4.6 - Chemical and Volume Control Systems Malfunction that Results in a Decrease in Boron Concentration in the Reactor Coolant (PWR)	15.2.4.4 - Outstanding issue for evaluation of Boron dilution and single failure criteria	Resolved SSER4 – March 1985		**C** - In a letter dated November 2, 1984, TVA stated that the boron dilution alarm system receives signals from two independent channels which are independently powered. Additionally, testing of these circuits was described. The staff concluded in SSER4 that the system is adequately protected from single failure and closed this item.
15.2.4.5	15.4.7 - Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position	Original 1982 SER			
15.2.6	15.4.8 - Spectrum of Rod Ejection Accidents (PWR)	Original 1982 SER			
15.3.1	15.6.5 - Loss-of-Coolant Accidents Resulting From Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary	Original 1982 SER			
15.3.2	15.1.5 - Steam System Piping Failures Inside and Outside Containment (PWR)	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
15.3.3	15.2.8 - Feedwater System Pipe Breaks Inside and Outside Containment (PWR)	Original 1982 SER			
15.3.4, 15.3.5	15.3.3 - 15.3.4 - Reactor Coolant Pump Rotor Seizure and Reactor Coolant Pump Shaft Break	Original 1982 SER			
15.3.6	15.8 - Anticipated Transients Without Scram	LC - Anticipated Transients Without Scram (Generic Letter 83-28, Item 4.3)	Resolved SSER5 – November 1990		**C** – In SSER5, the staff found TVA's response to a number of items in GL 83-28 acceptable, including Item 4.3, as stated in NRC letter dated June 18, 1990, and thus eliminated this license condition.
15.4.1	15.6.5.A - Radiological Consequences of a Design Basis Loss-of-Coolant Accident Including Containment Leakage Contribution	Original 1982 SER			
15.4.2, 15.4.6	15.6.5.B - Radiological Consequences of a Design Basis Loss-of-Coolant Accident: Leakage from Engineered Safety Feature Components Outside Containment	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
15.4.2	15.1.5.A - Radiological Consequence of Main Steam Line Failures Outside Containment of a PWR	Original 1982 SER			
15.4.3	15.6.3 - Radiological Consequences of Steam Generator Tube Failure	LC – Steam Generator tube rupture	Resolved SSER12 – October 1993, and SSER14 – December 1994		**C** - In SSER12, the staff identified 5 items that required resolution involving 1) operator action times; 2) radiation offsite consequence analysis; 3) systems and 4) associated components credited for accident mitigation in SG tube rupture emergency operating procedures; and 5) system compatibility with bounding analysis. Items 2-5 were resolved in SSER12. In SSER14, the staff stated that a revised SG tube rupture analysis was more conservative and did not alter the conclusions of their original safety evaluation. With regard to operator response times, TVA letters dated April 21, 1994, and August 15, 1994, and NRC letter dated June 28, 1994, dealt with simulator runs to address response times and operator performance during simulated SG tube ruptures. The staff concluded, after review of the TVA letters, that the times assumed in the tube rupture analysis were satisfactorily verified and deleted this condition.
15.4.4	15.4.8.A - Radiological Consequences of a Control Rod Ejection Accident (PWR)	Original 1982 SER			
15.4.5	15.7.4 - Radiological Consequences of Fuel Handling Accidents	Original 1982 SER			

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
15.4.6	15.6.2 - Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment	Original 1982 SER			
15.4.7	15.7.3 - Postulated Radioactive Releases Due to Liquid-Containing Tank Failures	Original 1982 SER			
15.5.1 - 15.5.2	NA - NUREG-0737 items	LC – Effect of high pressure injection for small beak LOCA with no auxiliary feedwater - II.K.2.13	Resolved SSER4 – March 1985		**C** – In SSER4, the staff concluded that there was reasonable assurance that vessel integrity would be maintained for small breaks with an extended loss of all feedwater and that the USI A-49, "Pressurized Thermal Shock," review did not have to be completed to support the full-power license. They considered this condition resolved.
		LC – Voiding in the reactor coolant system - II.K.2.17	Resolved SSER4 – March 1985		**C** – The staff reviewed the generic resolution of this license condition in SSER4 and approved the study in question, thereby resolving this license condition.
15.5.3	15.6.1 - Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve	LC – PORV isolation system - II.K.3.1, II.K.3.2	Resolved SSER5 – November 1990	NUREG-0737, II.K.3.1, II.K.3.2	**C** - II.K.3.1/3.2, "Auto PORV isolation/Report on PORV Failures" - Reviewed in SSER5 and resolved based on NRC conclusion that there is no need for an automatic PORV isolation system (NRC letter dated June 29, 1990).
15.5.4 – 15.5.5	NA - NUREG-0737 items	LC – Automatic trip of reactor coolant pumps during a small break LOCA	Resolved SSER4 – March 1985	GL 85-12; NUREG-0737, II.K.3.5	**I** - GL 85-12/II.K.3.5, "Implementation of TMI Item II.K.3.5" – The staff determined that their review of Item II.K.3.5 did not have to be completed to support the full power license and considered this license condition resolved in SSER4. The item was further reviewed in SSER16 (September 1995). Unit 2 Action – Implement modifications as required.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		LC – Revised small break LOCA analysis	Resolved SSER5 – November 1990	NUREG-0737, II.K.3.30, II.K.3.31	**I** - II.K.3.30/II.K.3.31, "Small break LOCA methods/Plant specific analysis" – The staff determined in SSER4 that their review of Items II.K.3.30 and II.K.3.31 did not have to be completed to support the full-power license and considered this license condition resolved in SSER4. In SSER5, the staff further reviewed responses to these items, and concluded that the Units 1 and 2 FSAR methods and analysis met the requirements of II.K.3.30 and II.K.3.31. This item was further reviewed in SSER16 (September 1995). Unit 2 Action – Complete analysis for Unit 2.

Chapter 16 – Technical Specifications

16	16 – Technical Specifications	Original 1982 SER			**T** - Unit 2 Action – Submit Technical Specifications.

Chapter 17 – Quality Assurance

17.1, 17.2	17.1 – Quality Assurance (QA) During the Design and Construction Phase	Original 1982 SER		B 87-02	**I** - B 87-02, "Fastener Testing to Determine Conformance with Applicable Material Specifications" - NRC closed in letter dated August 18, 1989. Unit 2 Action – Complete for Unit 2, using information used for Unit 1, as applicable.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
17.3, 17.4	17.2 – QA During the Operations Phase	Outstanding issue QA program	Resolved SSER2 – January 1984 Updated SSER5 – November 1990 Resolved SSER13 – April 1994		**C** - The staff reviewed the description of the QA program and concluded in SSER2 that the description was in compliance with NRC regulations. The staff reviewed the organization for the QA program and the NQA Plan, and presented their conclusions in SSER5. They concluded that the program was acceptable for the operations phase of Watts Bar. It was noted, however, that Amendment 63 stated that identification of safety related features would be addressed later and the staff left the outstanding issue unresolved. In SSER13, the staff concluded that TVA had established appropriate programmatic controls for identification of safety related features and considered this issue resolved.
17.3	17.3 – Quality Assurance Program Description	Original 1982 SER			
NA	10 CFR 50.65– Maintenance Rule	Not addressed in SER			**I** – Unit 2 action - Implement Maintenance Rule for Unit 2 systems 1 month prior to fuel load

Chapter 18 – Control Room Design Review

18	18 - Human Factors Engineering	LC – Detailed Control Room Design review I.D.1	Resolved for Unit 1 in SSER15 – June 1995, with onsite audit of Unit 1 control room improvements – same resolution for Unit 2	NUREG-0737, I.D.1	**I** –I.D.1, "Control Room Design Review" - NRC reviewed in SSER5 (November 1990), SSER6 (April 1991), SSER15 (June 1995) and SSER16 (September 1995). Unit 2 Actions – Complete the CRDR process. Perform rewiring in accordance with ECN 5982. Take advantage of the completed Human Engineering reviews to ensure appropriate configuration for Unit 2 control panels. See CRDR Special Program.
				NUREG-0737, III.D.3.4	**I** - III.D.3.4, "Control Room Habitability" - NRC reviewed in SER and SSER16 (September 1995). Unit 2 Action – Complete with CRDR completion.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

1982 SER	SRP TITLE	Approval for WBN Unit 2	Approval Reference	Guidance (GL, Bulletins) Note 1	Additional Information
		LC – Make Safety Parameter Display System operable prior to startup from the first refueling outage	Open item for Unit 2 - resolution requires a functional system before fuel load and on-line testing after Unit 2 is operational; then an operational certification (GL 89-06)	NUREG-0737, I.D.2, GL 82-33, GL 89-06	I –I.D.2/GI 82-33/GL 89-06 – "Safety Parameter Display System" (SPDS)/"Requirements for Emergency Response Capability" - NRC reviewed in SSER5 (November 1990), SSER6 (April 1991) and SSER15 (June 1995). Unit 2 Action – Install SPDS and have it operational prior to start-up after the first refueling outage.

Notes:

1. While a specific Bulletin or Generic Letter may be associated with multiple Standard Review Plan sections, it is only addressed in this table with the first or the most appropriate section.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

Table 2 - Other Generic Communications Affecting WBN Unit 2 License Basis

Item	Title	Additional Information
IEB 74-15	Misapplication of Cutler-Hammer Three Position Maintained Switch Model No. 10250T	**I** – Install modified A3 Cutler-Hammer 10250T switches.
IEB 75-08	PWR Pressure Instrumentation	**T** - Ensure that Technical Specifications and Site Operating Instructions address importance of maintaining temperature and pressure within prescribed limits.
IEB 77-03	On-Line Testing of the W Solid State Protection System	**I** - Include necessary periodic testing in test procedures.
IEB 80-10	Contamination of Non-radioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment	**I** - Include proper monitoring of non-radioactive systems in procedures.
IEB 83-04	Failure of the Undervoltage Trip Function of Reactor Trip Breakers	**I** - Install new undervoltage attachment with wider grooves on the reactor trip breakers.
IEB 85-02	Undervoltage Trip Attachment of W DB-50 Type Reactor Trip Breakers	**I** - Install automatic shunt trip on the Westinghouse DS-416 reactor trip breakers on Unit 2.
IEB 88-10	Nonconforming Molded-Case Circuit Breakers	**I** - Replace those circuits not traceable to a circuit breaker manufacturer.
IEB 90-01	Loss of Fill-Oil in Transmitters Manufactured by Rosemount	**I** - For Unit 2, implement applicable recommendations from this bulletin including identification of potentially defective transmitters and an enhanced surveillance program which monitors transmitters for loss of fill oil.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

Table 2 - Other Generic Communications Affecting WBN Unit 2 License Basis

Item	Title	Additional Information
GL 83-28	Required Actions Based on Generic Implications of Salem ATWS Events (See SRP/SER Review Matrix for additional GL 83-28 items):	
	2.2 – Equipment Classification and Vendor Interface (All SR Components)	**I** - Enter engineering component background data in Equipment Performance and Information Exchange System for Unit 2.
	3.2 – Post-Maintenance Testing (All SR Components)	**I** - Test and maintenance procedures and Technical Specifications will include post-maintenance operability testing of other (than reactor trip system) safety-related components.
GL 88-20	Individual Plant Examination for Severe Accident Vulnerability	**I** - Complete evaluation for Unit 2.
NUREG-0737	TMI Items:	
	II.K.1.10 - Operability status	**I** - Confirm multi-unit operation will have no impact on administrative procedures with respect to operability status.
	II.K.3.10 - Anticipatory trip at high power	**T** - Unit 2 Technical Specifications and surveillance procedures will address this issue.

C - Item closed for WBN Unit 2; **I** - Proposed implementation only item; **L** – NRR approval required; **T** - Part of Technical Specifications submittal

Table 3 – Corrective Action Programs and Special Programs

Program Description	References	Unit 2 Status and TVA Commitments
CAP - Cable Issues: 1. Silicone Rubber Insulated Cables Hi-pot testing of silicone rubber insulated cables manufactured by American Insulated Wire (AIW), Rockbestos, and Anaconda revealed a significant number of failures in AIW cables. TVA decided to replace all AIW cables. Rockbestos and Anaconda cables were successfully tested at Wyle Laboratories for 40 year qualified life.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	Silicone Rubber Insulated Cables – CAP is open (Design & Physical Modification). Replace any AIW cables used on Unit 2.
2. Cable Jamming Since WBN documents did not address cable jam ratio, there was the potential for undetected cable damage. When single conductors with unacceptable jam ratios are pulled into a conduit, the cable may align in a flat configuration with a resultant jamming. For Unit 1, Class 1E conduits were evaluated to identify those segments most likely to have experienced jamming during installation. These segments were ranked according to their calculated percent sidewall bearing pressure. Cables were removed and inspected, and no evidence of damage due to jamming was identified. The inspected cables included those with the highest calculated side wall bearing pressure and were considered to bound the lower ranked cables. This evaluation addressed both Unit 1 and Unit 2 cable populations potentially subject to jamming.		Cable Jamming – CAP is open (Design & Physical Modification). Based on the work performed on Unit 1, *no corrective* actions are required to resolve this issue on Unit 2. See Note 1.
3. Cable Support in Vertical Conduits A concern was raised that cables in long vertical conduits were inadequately supported, and that random failures due to cutting of the insulation and conductor creep may occur during normal service condition, especially for silicone rubber insulated cables. For Unit 1, TVA identified the critical cases of silicone rubber insulated cables in vertical conduits, with cable bearing pressure occurring at the edge of the condulet the determining factor. A comparison was made of WBN critical cases with those already tested at SQN. If SQN conduits enveloped WBN, no cable testing by WBN was performed. If SQN conduits did not envelope WBN, cable was replaced or in situ cable testing was performed; any cable found unacceptable was replaced. TVA also evaluated Class 1E conduits containing cables of all insulation types and added cable supports when acceptance criteria were not satisfied. In addition, cable installation specification and site procedures were revised to incorporate appropriate cable support requirements for cable installed in vertical conduits, and thereby prevent recurrence. Conduits that exceeded the support requirements of General Construction Specification G-38 were analyzed and conduit support points with bearing pressure greater than allowable were inspected and supports added as		Cable Support in Vertical Conduit – CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
required.		
4. Cable Support in Vertical Trays TVA's specifications require that cables in vertical trays be supported in accordance with the National Electric Code to prevent long term cable damage and that this support may be provided by tie wraps. However, TVA had no basis to verify that cable ties could provide adequate support. TVA evaluated the acceptability of various tie wrap configurations as support systems. If a configuration was found to be inadequate, it was shown by analysis, similarity to other installations, or testing that no cable damage had occurred or would occur. Cable support was added when manufacturers' limits were exceeded. To prevent recurrence, TVA revised the cable installation specification and site procedures to identify acceptable methods for support of cables in vertical trays.		Cable Support in Vertical Trays - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
5. Cable Proximity to Hot Pipes Cable design did not include the local effects of hot pipes which increase local temperature and can degrade the cable insulation and shorten the life of the cables. For Unit 1, criteria were developed to detail required clearances between cable/raceways and hot pipes/valves to eliminate this potential impact. Class 1E cables were walked down against the criteria to ensure that adequate separation existed between the cables and hot pipes/valves. Deviations were resolved by analysis, change of pipe insulation or raceway rework.		Cable Proximity to Hot Pipe - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
6. Cable Pullbys Cable insulation damage was found in the Unit 2 Reactor Protection System and determined to be the result of cable pullby. When additional cables were removed, damage was also found. These deficiencies were addressed at the time. For Unit 1, TVA identified those locations where cable pull tension and cable side wall bearing pressure had exceeded certain safe threshold values, and cables were most susceptible to this damage mechanism based on the conduit configuration. All cables that were in high risk conduits were replaced. The threshold between low and high risk categories was validated via hi-pot testing or visual inspection, and cables in the low risk category conduits were accepted as is based on the hi-pot tests performed on a sample of low-risk category conduits.		Cable Pullbys – CAP is open (Design & Physical Modification). TVA will propose a different approach for Unit 2. See Note 1.
7. Cable Bend Radius The minimum bend radius recommended by the Insulated Cable Engineers Association had been violated at WBN. To resolve this issue on Unit 1, TVA established bend radius parameters (upper and lower bounds) for class 1E cables and revised General Construction Specification G-38 to include the bend radius requirements for cable installation. Cable was then categorized based on 10 CFR 50.49 requirements, classification and voltage level; and inspected and replaced, retrained or their qualified life reduced, based on bending or kinking relative to upper and lower bound bend radii.		Cable Bend Radius - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
8. Cable Splices To resolve a concern that the installed splices may not conform to the qualified configurations and materials tested by the vendor, a list of Class 1E cable splices in harsh and mild environments was developed. Cables and splices were identified by reviewing equipment qualification binders and construction records to determine which equipment uses pigtails for field cable connection. All 10 CFR 50.49 harsh environment cable splices requiring Raychem Type N material were replaced and some mild environment cable splices were reworked. A sampling program was implemented to verify that the splice list was complete for intermediate splices.		Cable Splices - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
9. Cable Sidewall Bearing Pressure At WBN, sidewall bearing pressure (SWBP) was not properly addressed in the design and installation process and installations may have exceeded the allowable value. To resolve this issue on Unit 1, TVA conducted a walk down to identify worst case conduit configuration, calculated the expected pulling tension and SWBP for those worst case conduits and performed a test to determine increased allowable SWBP values, based on actual cables used at TVA nuclear plants. TVA revised construction specifications to require that SWBP be limited to the values determined by the above activities and site installation procedures were revised to provide explicit cable SWBP restriction to cable pulling limits. Analysis of the 81 severe case conduits against these limits revealed that the cable in one conduit may have exceeded these values, and this cable was replaced. An additional sample of 40 conduits, all in harsh environment, was examined and none exceeded allowable SWBP.		Cable Sidewall Bearing Pressure (SWBP) – CAP is complete. Based on the results of the Unit 1 program for this issue, which included Unit 1 and 2 cables and did not find excessive SWBP, no corrective action will be required for Unit 2. See Note 1.
10. Pulling Cable Through 90° Condulet and Flexible Conduit A concern was raised for the potential damage to cables in 90° condulets due to the small supporting surface the inside corners of condulets provide for cables under tension. These corners can, in time, cut into the insulation, or the conductor can creep through the insulation, reducing the insulation level of the cables. There was also a concern that when cable is pulled through a flexible conduit segment in a bend, in the middle of a conduit run, it can be subjected to very high frictional forces that can tear the cable jacket and insulation. TVA evaluated cables pulled through mid-route flexible conduits which had been tested for pullby damage, and inspected cables removed, and confirmed that no damage was caused by the mid-route flexible conduits.		Pulling Cable Through 90° Condulet and Flexible Conduit – CAP is complete. Since no cable damage was found during the Unit 1 program due to this activity and no such damage has been found at any of the TVA Nuclear sites, no corrective action is necessary. See Note 1.

Program Description	References	Unit 2 Status and TVA Commitments
11. Computerized Cable Routing System Software and Database Verification and Validation CCRS was used to document information regarding cable routing. The information includes cable route in tray and conduits, cable type, cable weight, cable splices, circuit function and separation. There were concerns for the adequacy of CCRS. CCRS has been replaced by new software called ICRDS.		Computerized Cable Routing System software – CAP is complete. Since all cable data has been transferred to the Integrated Cable and Raceway Design System, no further corrective action is necessary for this issue.
CAP - Cable Tray Supports: Deficiencies with cable trays and their supports included inadequate tray connections, inconsistencies between as-designed versus as-built tray configurations and their orientation, and failure to evaluate all loading on cable tray members. The CAP for Unit 1 assured the structural adequacy and compliance with design criteria and licensing requirements by: • Review and revision of design criteria. • Review or development of design output requirements to comply with design criteria and to adequately translate TVA design requirements. This included validation calculations for typical hardware configurations and critical cases. • Walkdown of field configurations to identify deviations from design output. • Modifications to field conditions, where necessary, to ensure that they are consistent with design output documents.	CAP Plan: • TVA letter dated November 18, 1988, Corrective Action Program Plan for Category I Cable Tray and Cable Tray Supports NRC Approval of Approach: • Safety Evaluation of the WB CAP Plan for Category I Cable Tray and Cable Tray Supports, September 13, 1989 • SSER6, April 1991	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
CAP - Conduit Supports: Specific structural deficiencies with conduit supports including inadequate conduit clamps, conduit runs supported at only one location, and excessively cantilevered conduit fell into four primary categories: • Design Basis discrepancies. • Design output not enveloping all design parameters. • Installed configurations not in compliance with design documents. • Discrepancies between as-installed configurations and inspection documentation. The CAP for Unit 1 assured the structural adequacy and compliance with design criteria and licensing requirements by: • Revisions to design criteria • Updated design output documents including specifications to factor in changes to design criteria, changes to typical support details and new support details. Critical case attributes were defined and critical case evaluations performed to qualify installations. • Walk downs first to support critical case evaluations, then to identify configurations not enveloped by critical cases. • Modifications, as required. • Revisions of implementing procedures to ensure the adequacy of new or modified supports.	CAP Plan: • TVA letter dated November 18, 1988, Corrective Action Program (CAP) Plan for Conduit Support Installation NRC Approval of Approach: • Safety Evaluation of the WB CAP Plan for Electrical Conduit and Conduit Supports, September 1, 1989 • SSER6, April 1991	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP - Design Baseline Verification Program: WBN licensing and design basis documentation as well as plant configuration issues included: • Inconsistencies between the FSAR and WBN design documentation. • Incomplete and some inconsistent design input information. • Missing, incomplete and out-of-date design calculations. • Inconsistencies between the actual plant configuration and the as-constructed drawings. The causes of these conditions were found to be: • Lack of effective procedures and data bases to ensure that design requirements were properly controlled. • Insufficient definition of design criteria and system descriptions. • Lack of a listing to establish the full scope of calculations needed for WBN and inadequate procedures to ensure calculations are properly controlled. • Lack of an effective process to maintain drawings for configuration control and keep appropriate drawings "as-constructed" as plant changes are made.	CAP Plan: • TVA letter dated October 20, 1988, Corrective Action Program (CAP) Plan for the Design Baseline and Verification Program (DBVP) for Unit 1 and Common Features • TVA letter dated March 8, 1994, Revision 7 to the CAP Plan for DBVP NRC Approval of Approach: • Safety Evaluation Report on the WB Nuclear	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
The underlying root cause of this situation was determined to be ineffective design and configuration control measures. Based on these issues, the WBN Design Baseline and Verification Program (DBVP) had four major components, each having objectives that addressed one or more of the above problems. These were: • Licensing Verification – to assure that commitments to NRC are captured in the appropriate controlling document and establish procedures to maintain compatibility between commitments and controlling documents. • Design Basis Development – to establish design basis documents (DBD) that contain or reference appropriate engineering requirements and establish procedures to maintain the design basis consistent with the plant, technical requirements and licensing commitments. • Calculation Verification – to assure the existence and retrievability of calculations that are technically adequate and consistent with the "safety-related" plant design and establish a process to status calculations to maintain them current with plant configuration. • Configuration Control to develop and implement an improved design change control system with a single set of configuration control drawings (CCDs); and to utilize walk downs, evaluations or testing to verify that the functional configurations of the portions of systems that mitigate design basis events are consistent with CCDs.	Performance Plan (WBNPP) – NUREG-1232, Volume 4, December 28, 1989 • Inspection Report 50-390/95-36 dated June 21, 1995	
<u>CAP - Electrical Issues</u>: 1. Flexible Conduit Installation The problems identified with flexible conduits were: • Inadequate length to account for seismic/thermal movement • Lack of compliance with minimum bend radius requirements • Loose Fittings To resolve these issues for Unit 1, TVA revised design output documents to more specifically define flexible conduit requirements for: - Seismic/thermal movement - Minimum bend radius - Tightness of fittings A list of flexible conduits attached to Class 1E pipe mounted devices was then developed to identify those flexible conduits which would experience both seismic and thermal movement. Finally, TVA walked down all Class 1E flexible conduits, and reworked those found to be damaged or in noncompliance with the design output documents.	<u>CAP Plan</u>: • TVA letter dated February 15, 1989, CAP Plan for Electrical Issues <u>NRC Approval of Approach</u>: • Safety Evaluation of the WB Unit 1 CAP Plan for Electrical Issues, September 11, 1989 • NUREG-1232	<u>Flexible Conduit Installations</u> - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
2. Physical Cable Separation and Electrical Isolation There were isolated cases of redundant closed raceways with less than the minimum required 1-inch separation. For Unit 1, this issue was subdivided into three issues, and each was resolved separately. The issues were: • Separation between redundant divisions of Class 1E raceways. • Internal panel separation between redundant divisions of Class 1E cables. • Coil-to-contact and contact-to-contact isolation between Class 1E and non-Class 1E circuits For inadequate separation between redundant divisions of Class 1E raceways, the raceways were reworked to meet the minimum 1-inch separation requirement, and site implementing procedures were revised to require specific signoffs for raceway separation attributes. For inadequate internal panel separation between redundant divisions of Class 1E cables, design criteria were revised to include more detailed requirements for internal panel cable separation, an engineering output document was issued to define these requirements and a list of all panels with redundant divisions of Class 1E cables was developed. Panels containing cables of redundant divisions were walked down to identify cables which did not comply with the revised engineering output document, and these were evaluated to determine acceptability or reworked to meet required separation distances. For coil-to-contact and contact-to-contact isolation between Class 1E and non-Class 1E circuits, a calculation was developed to determine acceptability; design criteria were revised to specify acceptable isolation methods; and the existing Class 1E coil and contact devices used as isolators were reviewed to determine that they were qualified for their intended use.		Physical Cable Separation and Electrical Isolation - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used to address separation between redundant divisions of Class 1E raceways and internal panel separation between redundant divisions of class 1E cable. Since no coil-to-contact or contact-to-contact isolation breakage was identified on Unit 1, no action is required for Unit 2 on this issue. See Note 1.
3. Contact and Coil Rating of Electrical Devices Design and procurements of inductive devices contained in circuits did not consider the inductive load ratings of contacts or the maximum credible voltage available at the device terminals. To resolve this for Unit 1, TVA reviewed devices that performed inductive load switching, and determined if the contacts had acceptable current ratings and reviewed inductive devices to determine if coils were qualified for the highest and lowest credible voltages. If a device could not be qualified, design output documents were issued to require replacement, and qualified devices were installed.		Contact and Coil Rating of Electrical Devices - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
4. Torque Switch and Overload Relay By-Pass Capability for Active Safety Related Valves Thermal overload and torque switch bypass capability was not provided for certain active safety-related valves, as required by Regulatory Guide 1.106. For Unit 1, TVA issued design criteria to provide the basis for determining which active valves were required to have their thermal overload relays and torque switches bypassed and issued a calculation to identify these valves. System design criteria or system descriptions were revised to identify which valves within a system require this capability; design output documents were revised to provide the required capability; and thermal overload and torque switch bypasses were installed where they did not already exist and were required.		Torque Switch and Overload Relay By-Pass Capability for Active Safety Related Valves - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
5. Adhesive Backed Cable Support Mounts Adhesive Back Cable Support Mounts (ABCSMs) were used inside equipment to support and restrain wire and field cables in a neat and orderly fashion. The ABCSMs sometimes separated from the inside of the equipment and, as a result, may not have properly secured the wire or cable. For Unit 1, TVA contacted the vendors of the panels/equipment to ascertain the technical requirements for the ABCSMs for the vendor's wiring, evaluated the use of ABCSMs for field wiring and issued a calculation identifying the technical requirements for existing ABCSMs. TVA then evaluated the as-installed conditions to determine if any corrective action was required, issued and implemented design output documents in the field and revised site implementing procedures to incorporate the necessary installation requirements and to restrict the use of ABCSMs.		Adhesive Backed Cable Support Mounts - CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
CAP - Equipment Seismic Qualification (ESQ): Deficiencies in seismic qualification of equipment involved configuration and document control issues, and specific technical issues identified by TVA internal reviews. To provide assurance that Category I and I (L) equipment is seismically qualified, that the qualification documentation is retrievable, and that this documentation is consistent with the design and licensing basis, the ESQ: • Reviewed design bases to ensure that they were technically adequate and consistent interfaces existed between them and other design bases • Resolved specific technical issues utilizing: - Document retrieval - Walk downs to identify and describe actions required to resolve them - Engineering evaluations and modifications when equipment could not be qualified in the as-built configuration • Developed and populated an ESQ database • Performed process improvements to prevent recurrence.	CAP Plan: • TVA letter dated June 29, 1989 – WBN Equipment Seismic Qualification Corrective Action Program Plan, Revision 1 NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 Corrective Action Program Plan for Equipment Seismic Qualification, September 11, 1989 • NUREG-1232 • SSER15, June 1995	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP – Fire Protection: The issues that resulted in the determination to initiate the Fire Protection CAP included: • Fire-rated walls were breached by HVAC ducts without fire dampers, violating Appendix R requirements for fire rated walls that separate safety-related equipment of redundant trains. • Review of SQN Appendix R discrepancies for applicability to WBN. • Deficiencies with the Safe Shutdown Analysis (SSA). In response to the above issues and other more specific deficiencies, the Unit 1 FP Program (for Unit 1 and common areas) contained the following actions: • Documentation of the measures taken to evaluate violation of the Appendix R requirements and issuance of DCNs to correct the deficiencies. • Review of SQN Appendix R allegations, as well as issues raised by the NRC during SQN inspections, for applicability to WBN and issuance of DCNs to correct the deficiencies. • Fire Protection Compliance Review to ensure WBN conformance with NRC requirements and applicable guidelines. The review included: - Safe Shutdown Analysis (SSA),	CAP Plan: • TVA letter dated March 28, 1990, Revision to CAP Plan for Fire Protection NRC Approval of Approach: • SSER18, October, 1995 • SSER19, November, 1995 Above approval was for both units.	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
- Area Heat-up Analysis, - Fire hazards Analysis, - Lighting and Communication, - Post-Fire procedures, - Associated Circuits, - Modification Compliance Review, and - Fire Protection Training/Administrative Procedures. The results of the Compliance Review were used as the basis for developing the remaining scope of work (calculations/analysis, DCNs and document updates) and the consolidation of fire protection documentation into an organized package to support and substantiate the Compliance Review. The SSA was updated based on the latest as-constructed plant configuration and the lessons learned from the SQN and BFN Appendix R programs.		
CAP – Hanger Update and Analysis Program Piping and support deficiencies identified during the design and construction of WBN, as a result of responses to Bulletins 79-02 and 79-14 and internal findings, were incorporated into the following categories: • Control of Design Input/Output - Design input was not consistently defined and controlled. - Design output was not clearly defined and, thus, was not consistently implemented by Construction. • Design/Analysis Methodology Design criteria for piping analysis and pipe support design did not specify a consistent and comprehensive set of design/analysis methods. In some cases, relevant industry issues were not considered. • Level of Design Documentation Requirements for closure of unverified assumptions and documentation of engineering judgments were neither fully defined nor procedurally controlled. The scope of the HAAUP activities for Unit 1 included Seismic Category I piping, Seismic Category I (L) piping and those instrument lines that could not be decoupled from their process piping, and associated supports. Those instrument lines that could be decoupled were addressed in the Instrument Line CAP. The following corrective actions were taken to address the deficiencies: • Review of governing criteria and procedures to ensure compliance with industry practices and, where necessary,	CAP Plan: • TVA letter dated June 29, 1989, WBNP – Revision to Corrective Action Program Plan for Hanger and Analysis Update Program NRC Approval of Approach: • NUREG-1232 • SSER6, April 1991 • SSER8, January 1992	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
revision of the implementing criteria and procedures. • Walkdowns of installed piping and associated pipe supports to obtain as-built information. • Updating or regeneration of pipe stress and support calculations to: - Incorporate changes in the seismic response spectra input to envelope sets B and C, and to add consideration of mass participation above 33 hz. - Qualify as-built conditions in design documents. - Ensure drawings and calculations are in compliance with current design criteria and procedures • Update of design documents to incorporate as-built piping and support configurations, and other open items. • Perform modifications, as required		
CAP - Heat Code Traceability: Traceability concerns involved ASME loose piping and fitting material and ASTM material installed as welded attachments on ASME piping systems, and were categorized as: • ASME Class 1 systems that may contain ASME Class 2, Class 3 and/or ASTM piping for which adequate NDE may not have been performed • ASME Class 2 systems that may contain class 3 piping, and ASME Class 2 and Class 3 systems that may contain ASTM piping for which adequate NDE may not have been performed • ASME systems that may have ASTM plate material attached (welded). For the Unit 1 program, which included common systems, the following corrective actions were taken: • Accuracy of the information contained in the Heat Code Database (HCDB) was verified, and this information was used to flag situations where the same ASME material was used in systems of different classifications. • For Class 1 piping, surface NDE was performed on all piping materials where the heat number was the same as for material used in a non-Class 1 system. When NDE was not feasible, alternate analysis prescribed by the ASME Code was performed. Material which could not be examined or technically justified was replaced. • For Class 2 and 3 piping, required NDE was performed when classification traceability was questionable and items were installed in locations where stress ratios exceeded 0.80 for welded carbon steel and 0.85 for welded stainless steel. For cases involving ASTM, ASME Section II, and ASME Section III material which may have been upgraded to ASME Section III, Class 2 or 3 materials, the items were re-verified as meeting all other requirements of Section III on a sampling basis. Engineering evaluations were performed on non-complying items to provide a basis of acceptance. Material determined to be unacceptable was replaced.	CAP Plan: • TVA letter dated September 21, 1989, Revision to the CAP Plan for Heat Code Traceability NRC Approval of Approach: • Inspection Report 50-390/89-09 and 50-391/89-09 dated September 20, 1989 • NUREG-1232	CAP is open (Design and Physical Modifications). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
• ASTM plate attachment material used in ASME applications was determined to be acceptable by verifying equivalence to an ASME specification, that it was supplied to an acceptable QA program and the necessary NDE was performed. Material that could not be verified or justified as being acceptable was replaced. • Recurrence control included revising the General Construction Specification to include specific ASME requirements for reclassification of material and site implementing procedures to require CMTR traceability of materials to be installed.		
CAP - HVAC Duct Supports: Adverse conditions involving HVAC Duct and Duct Supports can be programmatically characterized as: incomplete design basis; inadequate design documents; as-built configurations not in conformance with existing design documents; inadequate or incomplete inspection documentation; and incomplete instructions. For Unit 1, TVA resolved these issues via the following four tasks: • Completing the design basis by reviewing and revising the design criteria; issuing supporting calculations and updating the FSAR to be consistent with the upgraded design criteria. • Updating design output documents to be consistent with the completed design basis. • Revising construction, maintenance and QA procedures to incorporate design output documents. • Developing bounding critical cases of existing installations and evaluating their adequacy, and performing unique evaluations or modifying installations when they could not be qualified by the critical case evaluations.	CAP Plan: • TVA letter dated November 18, 1988, Corrective Action Program for Heating, Ventilation, and Air Conditioning Duct and Duct Supports NRC Approval of Approach: • Safety Evaluation of the WB CAP Plan for Safety-Related Heating, Ventilation and Air Condition Duct and Duct Supports, October 24, 1989 • NUREG-1232 • SSER6, April 1991	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP - Instrument Sensing Lines: The problems identified with instrument lines fell into two categories: • Functional problems related to instrument line minimum slope requirements. The number of lines involved and the lack of adequate configuration control for these lines resulted in preparation of an Engineering Requirements (ER) *Specification; isometric and support drawings; analysis of lines identified for rework; and installation and inspection* per design output requirements. In addition to the ER Specification, other recurrence control measures included site implementing procedures to incorporate ER requirements in the process for the installation, maintenance, and inspection.	CAP Plan: • TVA letter dated March 11, 1994, WBN Unit 1 – Revision to Corrective Action Program Plan for Instrument Lines (R3)	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	*Unit 2 Status and TVA Commitments*
• Structural problems related to: - Thermal effects - Pipe and tube bending devices - Compression fittings - Installation documentation discrepancies The scope of the structural issues included Seismic Category I and I (L) instrument lines, and their associated supports, which are analytically decoupled from the process lines. <u>Thermal Effects</u> Instrument lines and associated supports were not designed to consider the effects of thermal expansion and operating modes indicated that portions of systems will be subjected to thermal effects. These Unit 1 lines were field sketched to identify material and configuration; then analyzed for dead weight, seismic and thermal effects; line isometric drawings prepared showing required line configuration and material; and deficiencies corrected by design changes. <u>Pipe and Tube Bending Devices</u> Site implementing procedures used to qualify pipe and tube bending devices were not rigorously executed and qualification records for the bending were not always maintained. A sample of bends was evaluated considering wall thickness reduction, ovality, acceptable bend contour, and surface condition and found to be acceptable, and bender qualification records were updated to incorporate the results of the evaluation. <u>Compression Fittings</u> Compression fitting installations were found that did not satisfy the manufacturer's installation requirements. Discrepancies included: tubing cuts that were not deburred, tubing that was not bottomed out inside the fittings, nuts that were not properly tightened, and ferrules that were unidentifiable, missing, or reversed. Discrepant compression fitting installations were vibration and pressure tested. This included testing of the effect on flow rate due to the presence of tubing burrs and testing of the integrity of fittings with various installation deficiencies by tensile pullout, and vibration and seismic tests. The results demonstrated that for the instances where tube ends were not deburred, tubes were not bottomed out, or nuts were not properly tightened, fitting performance was still satisfactory. Also, normal operation vibration testing did not result in leaks in any of the samples tested and seismic testing only produced very slight leakage in 2 of the 47 samples. The test program for fittings with missing, reversed, or unidentified ferrules determined that: missing ferrules would cause a definite leak during pressure testing; reversed ferrules would leak if they are "CPI" fittings and would not	<u>NRC Approval of Approach</u>: • NUREG-1232 • SSER6, Appendix K, April 1991 • Supplemental SER May 6, 1994	

Program Description	References	Unit 2 Status and TVA Commitments
leak if they are reversed "Hi-Seal" ferrules. It was determined that for these questionable ferrule installations, unacceptable installations would be detected during pressure testing due to leakage and for instrument lines that are not pressure tested, there would be no driving force to create any significant leakage. Therefore, the following corrective actions were taken: - Instrument lines designated as Seismic Category I or I(L) were pressure tested in accordance with appropriate piping code requirements - Fittings seeing radioactive service in lines not pressure tested (i.e., drains) were re-inspected to verify installation in accordance with manufacturer's recommendations, and discrepancies repaired or replaced. Since pressure testing was performed as required and leaking compression fittings were repaired or replaced, the final configurations were ultimately acceptable. <u>Installation Discrepancies</u> Support documentation for some instrument lines was determined to be lost or incorrect. A sample of instrument line supports was selected for a detailed evaluation to determine the acceptability of the as-built condition, and it was determined that the instrument lines and supports would comply with existing design basis requirements provided all attachment clamps and bolts were properly installed. The supports were then walked down and, when necessary, they were reworked. Recurrence controls for each of the above structural issues consisted of revising specifications, design drawings and procedures, and required training.		

Program Description	References	Unit 2 Status and TVA Commitments
CAP - QA Records: A number of the quality records required for licensing: • Were not retrievable in a timely manner or potentially missing • Were not maintained in proper storage • Had quality problems (were incomplete, technically or administratively deficient) To address these issues, the QA Records CAP was developed with the following objectives for these records: • Ensure adequate storage and retrievability. • Resolve quality and technical problems. • Ensure programs are established which are adequate to prevent reoccurrence of records problems. During the course of implementation of the CAP, additional records issues were identified. Evaluation of these issues indicated a need to expand the scope to address the full extent of condition by including a broader set of records categories. This was accomplished through incorporating an Additional Systematic Records Review (ASRR) of all ANSI N45.2.9, Appendix A record types into the CAP. This review involved both records and hardware and was based on sampling and statistical analysis. It provided a high level of confidence in the adequacy of QA Records.	CAP Plan: • TVA letter dated April 6, 1994, WBN Unit 1 – CAP Plan for QA Records, Revision 6 NRC Approval of Approach: • SSER9, June 1992 • WB Unit 1 - Staff Position on Certain Aspects of QA Records CAP, January 12, 1993 • Supplemental Safety Evaluation on the QA Records CAP Plan, April 25, 1994	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.
CAP - Q-List: The problems associated with the WBN Q-List Program included: • Multiple Q-Lists • Inadequate training • Lack of and improper classifications • Wrong component identification. The objectives of the Q-List CAP were to: • Develop a new Q-List. • Compare this new Q-List to the old Q-List to identify upgraded components. • Review maintenance and modification activities performed since 1984 to assure that those activities had the appropriate QA program controls applied. As part of corrective action for this CAP, over 5000 component classification upgrades were identified during the comparison of the new and old Q-Lists. No field work resulted from these upgraded components.	CAP Plan: • TVA letter dated July 8, 1993, WBN CAP Plan for Q-List (R5) NRC Approval of Approach: • NRC letter – CAP Plan for Quality Assurance List, September 11, 1989 • SSER6, April 1991 • SSER13, April 1994 • Supplemental SER March 17, 1994	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
CAP – Replacement Items: Previous TVA policies and procedures had not adequately directed and controlled engineering involvement in the procurement process used to purchase replacement items, and had not incorporated industry guidance or complied with NRC Generic Letters 89-02 and 91-05. The CAP grouped the issues into four categories: • Current and future purchases, • Current warehouse inventory, • Plant installed items from previous maintenance activity, and • Replacement items installed by previous construction activities. To address these categories, TVA: • Created the Procurement Engineering Group, which reviewed and evaluated procurements made for safety-related applications, and developed a process for these activities. • Created the Material Improvement Project to evaluate the adequacy of current inventory with respect to technical adequacy, QA receipt inspection and material storage. • Back checked materials installed from previous maintenance activities to ensure that a proper documentation trail existed from the warehouse to maintenance history for each item. • Reviewed the construction group's procurements of replacement items. This review indicated that all required documentation for parts traceability was available and that the materials were procured properly with engineering involvement. This also included a review of material staged for Unit 2.	CAP Plan: • TVA letter dated August 7, 1989, WBN Unit 1 – Revision to CAP Plan for Replacement Items Program (Piece Parts) • TVA letter dated January 20, 1995, WBN Unit 1 – Revision 6 to CAP Plan for Replacement Items Program NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for the Replacement Items Program, November 22, 1989 • NUREG-1232 • SSER6, April 1991 • NRC letter dated February 6, 1995	CAP is open (Design). For Unit 2, the Unit 1 approach will be used. The Procurement Engineering Group function will be embedded in the Engineering organization.

Program Description	References	Unit 2 Status and TVA Commitments
CAP - Seismic Analysis: Concerns were identified with the following aspects of seismic analysis calculations for Category I structures: • Integration time step used in time history analysis. • Soil properties and soil-structure interaction. • Torsional modeling of structures. • Criteria for the Additional Diesel Generator Building. • The effect of floor and wall flexibility on design of structures, systems and components (SSCs) in Category I buildings. To address these categories, TVA: • Reviewed seismic analysis criteria and licensing requirements for Category I structures. • Reviewed seismic analysis calculations for Category I structures and revisions as required, or prepared new calculations when necessary. • Dispositioned identified issues. • Defined criteria or future evaluations and new designs or modifications of structures, systems and components.	CAP Plan: • TVA letter dated May 9, 1990, Revision to the CAP Plan for Seismic Analysis (R2) NRC Approval of Approach: • Safety Evaluation of WBN Unit 1 – CAP for Seismic Analysis, September 7, 1989 • Safety Evaluation of WBNP Unit 1 – Validation of SASSI Computer Code for Soil-Structure Interaction Analysis, October, 31, 1989 • NUREG-1232 • SSER6, April 1991	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.
CAP - Vendor Information: Problems with vendor information included: • Vendor information didn't match the plant configuration. • Vendor information was inconsistent with associated TVA-developed design input/output documents. • Vendor documents were incorrect or out of date. • Vendor manuals were lost or were uncontrolled. The Vendor Information CAP for Unit 1 addressed the problems and their causes via the following actions: • Relevant vendor information for safety-related and quality-related Unit 1, common, and Unit 2 components needed for Unit 1 operation was identified, reviewed for technical adequacy, and consolidated into applicable vendor technical manuals and documents, which were issued as controlled documents. • A TVA procedure was issued to control vendor manual update activities. • Open item reports were generated, tracked, and controlled to resolve the inconsistencies found in the vendor	CAP Plan: • TVA letter dated February 4, 1993, WBN Unit 1 – Revision 4 to CAP Plan for Vendor Information NRC Approval of Approach: • WB Unit 1 - Volume 4 NPP, Chapter III, Vendor Information, Safety Evaluation, September 11, 1990 • SSER11, April 1993	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
documents. • Vendor drawings which included information necessary to support safety-related plant activities, but were not in "Approved" status, were reviewed and approved. • DCNs were issued to resolve identified design discrepancies/open items.		
CAP - Welding: Programmatic and implementation deficiencies associated with safety-related welding activities resulted in initiation of the TVA Welding Project to review and determine the adequacy of the overall welding program. Subsequently, the Welding CAP was established to ensure that Unit 1 safety-related welds met licensing requirements and that corrective actions were implemented to address the prior issues and those identified by the Welding Project. The CAP included deficiencies which were related to weld quality, inspections, NDE, fabrication/installation code compliance, and associated documentation. The CAP consisted of three phases: • A programmatic assessment. • An in depth review of the implementation of the welding program and corrective actions to address specific discrepancies. • Program enhancements to prevent recurrence. The programmatic assessment and program enhancements to prevent recurrence applied to Unit 2 as well as Unit 1. The specific deficiencies that had to be addressed for Unit 1 involved structural steel, piping components, pipe supports, instrument panels, HVAC ductwork and vendor supplied component such as tanks and heat exchangers. The types of deficiencies included: • Designs that did not satisfy design criteria for welding. • Lack of documentation of required visual inspections. • Indications or weld discontinuities. • Radiographs accepted with rejectable indications, inadequate radiographic techniques, and identification discrepancies. • Misinterpretation of the ASME Code. • Discrepancies on vendor performed welds. • Errors on installation documentation. These problems were addressed by a combination of techniques that included the following:	CAP Plan: • TVA letter dated July 31, 1990, WBN – Welding CAP Program – Revisions to CAP Plan and Plant I Weld Report NRC Approval of Approach: • Inspection Report Nos. 50-390/89-04 and 50-391/89-04, August 9, 1989 • Inspection Report Nos. 50-390/90-04 and 50-391/90-04, May 17, 1990 • Letter dated March 5, 1991, WB Unit 1 – Review of Two Submittals Regarding the Welding CAP • NUREG-1232	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
• Re-inspections to validate results and support analysis. • Conservative bounding analysis. • Evaluation of as-is condition to determine acceptability. • Repairs, if necessary.		
SP - Containment Cooling: Post-accident pressure and temperature analysis for the lower compartment in containment failed to consider the long-term effects of a main steam line break inside containment for a plant going to hot standby conditions as opposed to cold shutdown. In order to ensure that 10 CFR 50.49(e).1 is satisfied, TVA performed the Containment Cooling Special Program to develop time dependent temperature profiles for the lower compartment, which were then used for EQ. This was accomplished by the following tasks: • Correcting the long-term containment temperature profile for the lower compartment considering the design basis Main Steam Line Break (MSLB) event. • Upgrading the Lower Compartment Cooler (LCC) units and associated ducting. • Evaluating containment coatings transport and replacing non-qualified coatings. • Using the revised calculated MSLB temperature profile to qualify components in the lower containment that are important to safety. • Replacing components in the lower compartment to meet 10 CFR 50.49 requirements.	SP Plan: • Nuclear Performance Plan Vol 4, R1(NPP), Section III.3.2, Containment Cooling, September 6, 1991 NRC Approval of Approach: • WB Unit 1 – Supplemental Safety Evaluation of the Special Program on Containment Cooling, May 21, 1991	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
SP - Control Room Design Review: The Control Room Design Review (CRDR) program was developed to identify and correct human factor discrepancies in the control room. The CRDR included a Preliminary Design Assessment (PDA) to identify any Human Engineering Discrepancies (HEDs) and completion of a full CRDR at a later date. TVA performed a PDA, and discrepancies identified resulted in commitments to implement corrective actions to resolve these discrepancies and a CRDR Summary Report was identified as a license condition. TVA conducted the CRDR and submitted a CRDR Summary Report in October 1987. The CRDR addressed the man-machine interfaces and potential misapplication of human factor principles in the main control room, the auxiliary control room, and the adjacent switch transfer rooms. TVA established a review program plan incorporating accepted human factor principles, gathered and reviewed required plant design information, surveyed the Control Room, identified and assessed HEDs, determined design improvements required, and verified that improvements would address deficiencies and not create new ones. The CRDR Program ultimately included development of HED corrective actions for Unit 1, common equipment	SP Plan: • TVA letter dated October , 1987, WBN – Detailed Control Room Design Review Summary Report • NPP, Section III.3.3, Detailed Control Room Design Review NRC Approval of Approach: • NUREG-1232 • SSER5, November 1990	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
needed for Unit 1, and Unit 2 equipment needed to support Unit 1. Actions to ensure recurrence controls included issuing Human Factor Design Guides and Human Factor Design Criteria, and the Design Change Process requiring human factors to be addressed.	• SSER6, April 1991 • SSER15, June 1995	
SP – Equipment Qualification: TVA determined that much of the equipment qualification documentation to support 10 CFR 50.49 requirements was not fully auditable and, in some cases, the documentation available did not demonstrate full qualification. The Equipment Qualification Special Program was initiated to document that safety-related electrical equipment installed in the plant was qualified to perform its designated function in the environment to which it will be subjected during normal plant operation as well as during postulated accidents; and that programs and procedures have been established to ensure that qualification is maintained as future plant modifications are made. The processes put in place to accomplish these objectives included: • Procedures to maintain EQ over the operating life of the plant. • Consistent documentation requirements for electrical equipment located in harsh environments and required to function after an accident, and the EQ Documentation Package providing evidence of the qualification of equipment for its specific application and environment. • Incorporation of EQ considerations into maintenance activities The activities performed using these processes were: • Analyses of the effects of pipe breaks on temperature, humidity, dose and water level at various locations in containment and auxiliary buildings to establish the environmental parameters for all areas of the plant containing equipment that must meet 10 CFR 50.49 requirements. • Identification of all 10 CFR 50.49 equipment in these areas, the 50.49 list, including electrical equipment located in harsh environment and required to function after an accident. It was developed through a series of steps: - A systems analysis to determine for each DBA those equipment items required to ensure completion of a safety-related function. - For each item, a review of drawings to identify those ancillary devices and cable required to operate or maintain electrical integrity to ensure completion of the item's safety-related function. - Reduction of this list by failure analysis to eliminate those components whose failure would not prevent achievement of the required safety action. • Establishment of EQ binders that contain the qualification information in an auditable manner. A package was developed for each Unit 1 equipment type. The package included: - Items comprising the equipment type - Checklist for evaluation of qualification	SP Plan: • NPP, Section III.3.4, Equipment Qualification Program NRC Approval of Approach: • NUREG-1232	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
- Analysis and justification of qualification - Qualification documents - Field verification data - Qualification Maintenance Data Sheets - Open items and deficiencies		
SP - Master Fuse List: Lack of control of over current protection devices and the misapplication of Bussman KAZ actuators as protective devices on the master fuse list and the lack of procedural guidance for the development of the Master Fuse List resulted in design and configuration control deficiencies. This Special Program included three primary elements to resolve these deficiencies: • To address configuration control deficiencies, a baseline master fuse list was developed using design input to establish a comprehensive list of 1E fuses needed to support the operation of Unit 1 systems; then walk downs were performed to gather as-installed information to be included on the list. • To resolve the Bussman KAZ actuator misapplication, a review of schematic and connection drawings identified KAZ locations, and a DCN was developed to replace KAZ devices with conventional fuses. • To correct deficiencies involving redundancy provided to electrical penetration assemblies, an analysis was conducted to verify that redundant protection was provided and, when not the case, identified deficiencies were corrected. While the principle focus of the program was on 1E safety-related equipment, the program has evolved to establish similar controls and practices for all fuses needed to support the operation of the station.	SP Plan: • NPP, Section III.3.5 – Master Fuse List • TVA letter dated July 31, 1990, Response to Concerns in NRC SER for WBN NPP Volume 4 - Master Fuse List • TVA letter dated May 31, 1991, Response to NRC Supplemental SER Concerning the WBN NPP on the Master Fuse List NRC Approval of Approach: • NUREG-1232 • NRC letter dated February 6, 1991, WB Unit 1 – Special Program on Master Fuse List • SSER9, June 1992	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
SP - Mechanical Equipment Qualification (MEQ): The MEQ Program included a documented evaluation of the ability of safety-related mechanical equipment located in harsh environment to perform its intended functions, as required by GDC-4 of Appendix A of 10 CFR50. The Unit 1 program utilized existing temperature and dose conditions developed for electrical equipment to satisfy 10 CFR 50.49. The program then identified active safety-related mechanical equipment located in harsh environments; analyzed the non-metallic subcomponents for effect of thermal and radiation conditions; produced controlled binders to establish and maintain qualified status for life of plant; and issued DCNs to modify the plant consistent with qualification tests and analyses.	SP Plan: • NPP, Section III.3.6 – Mechanical Equipment Qualification NRC Approval of Approach: • NUREG-1232 • SSER15, June 1995	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
SP - Microbiologically Induced Corrosion (MIC): Due to leakage events in several water systems including Essential Raw Cooling Water and MIC degradation at other TVAN plants, TVA committed to a corporate program to address MIC in 1987. In addition, TVA committed to specific actions to address requirements of NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-related Equipment," and the potential for existing MIC conditions in Unit 1. The special program for Unit 1 included: • Identifying systems potentially affected by MIC. • Performing visual inspections and assessing MIC-infested locations. • Using pre-existing NDE results to identify vulnerable locations. • Repairing unacceptable damage to Code requirements. • Installing improved biocide treatment and a long term chemical clean up system. This was later augmented by the implementation of SPP-9.7, Corrosion Control Program, which specifies the programmatic and organizational requirements for management of the MIC and Macrofouling Program.	SP Plan: • TVA letter dated February 26, 1991, WBN - Microbiologically Induced Corrosion Program Report • NPP, Section III.3.7 – Microbiologically Induced Corrosion NRC Approval of Approach: • SSER8, January, 1992 • SSER10, October, 1992	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
SP - Moderate Energy Line Break (MELB) Flooding: For moderate energy lines, documentation did not adequately justify that there were no unacceptable consequences as a result of flooding in a Category I structure outside of containment following an MELB. For Unit 1, essential equipment and structures were evaluated to ensure that they were either unaffected by postulated flooding due to an MELB, or were designed, specified, and/or qualified for the environment caused by such flooding. The evaluation involved pipe break analyses, determination of postulated break locations, determination of postulated flooding levels, and equipment qualification evaluations. In those instances where it was determined that an item was impacted and it could not be qualified, modifications providing curbs, raising junction boxes, and adding or removing weather stripping were performed.	SP Plan: • NPP, Section III.3.8 – Moderate Energy Line Break (MELB) Flooding NRC Approval of Approach: NUREG-1232 SSER11, April 1993	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
SP - Radiation Monitoring System: Radiation Monitoring System (RMS) deficiencies involved RMS design, documentation, installation, and hardware, and are categorized in three areas of concern. These are: • Sample line deficiencies involved line length, heat tracing, minimum bend radius, slope, and separation requirements. • Design and documentation deficiencies involved: - Design of sample flow equipment - Purge capability following an accident - System interlocks with containment isolation in the containment upper and lower compartment monitor design - Documentation of modifications to RMS rate meters - RMS rate meter cable damage. • Inadequate documentation of primary calibration records and uncertainty in the validity of equipment calibration. The actions to address these deficiencies for Unit 1 were to review and update the RMS design basis, including applicable requirements of Regulatory Guide 1.97; evaluate the RMS against this design basis; and implement modifications to correct RMS deficiencies. This also included an evaluation of the RMS design, documentation, and installations against the updated design criteria to verify the acceptability of the installation or to identify required modifications for those monitors included in the Technical Specifications and modifications or reworking of existing documentation to correct identified documentation deficiencies.	SP Plan: • NPP, Section III.3.9 – Radiation Monitoring NRC Approval of Approach: • NUREG-1232	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Program Description	References	Unit 2 Status and TVA Commitments
SP - Use-as-is CAQs: Engineering at WBN identified that use-as-is and repair non-conformance dispositions were not reflected on drawings; there was inadequate justification for disposition of these types of non-conformances; and no project level procedural guidance was provided for use-as-is and repair dispositions. The Use-As-Is CAQs special program was initiated to address these issues. To prevent recurrence, engineering procedures were issued to establish the requirements for handling CAQs including ensuring that design documents reflect the approved configuration for any use-as-is or repair disposition, and that the basis for approval of any use-as-is or repair dispositions be documented. For Unit 1, this was followed by the identification of CAQs that had a final disposition of either use-as-is or repair and technical reviews of the latest revision of design documents considering the impact of the CAQ.	SP Plan: • TVA letter dated September 14, 1988, WB Unit 1 and Unit 2 Use-As-Is and Repair Dispositions for Construction Nonconformance Reports – WBRD-50-390/87-05 and WBRD-50-391/87-05 Final Report • TVA letter dated September 6, 1991, WBN - NPP Volume 4, Revision 1, Section III.3.11, Use-As-Is Special Program NRC Approval of Approach: • NUREG-1232	SP is open (Design and Physical Modifications). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

Table 4 – Items Requiring No Further Action

ITEMS REQUIRING NO FURTHER ACTION

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
SER 14 Resolved SSER3 – January 1985	14.0: CONFIRMATORY ISSUE - FSAR references to Regulatory Guides.		C	In the original 1982 SER, NRC noted that the FSAR did not reflect conformance of preoperational tests with RG 1.20, Revision 2, RG 1.52, Revision 2 and RG 1.79, Revision 1. The FSAR was subsequently revised. In SSER3, the NRC closed the issue.
SER 14 Resolved SSER3 – January 1985	14.0: CONFIRMATORY ISSUE - Additional systems to be tested as part of the initial test program		C	In the original 1982 SER, NRC noted that the FSAR did not include preoperational tests for a number of systems that NRC determined to be important to the safe operation of the plant. The FSAR was subsequently revised. In SSER3, the NRC found the revised preoperational test abstracts acceptable.
NA 10 CFR 50.61 Fracture Toughness Requirements	Not addressed in original 1982 SER		C	NRC SE for both units March 11, 1993 concluded that the Watts Bar reactor vessels satisfy the requirements of 10 CRF 50.61
NA 10 CFR 50.68: Criticality Accident Requirements	Not addressed in original 1982 SER		C	The new fuel storage vault and the spent fuel storage racks are shared equipment that is in service to support operation of Unit 1. Criticality of fuel assemblies outside the reactor is precluded by adequate design of fuel transfer and storage facilities and by administrative control procedures in accordance with 10 CFR 50.68(b).
10.2.2 10.2.3: Turbine Rotor Integrity	Original 1982 SER		C	See "Approval for Unit 2" column.
10.2.1, 10.2.2 10.2: Turbine Generator	Original 1982 SER		C	See "approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
10.3.3 10.3.6: Steam and Feedwater System Materials	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.1 10.4.1: Main Condensers	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.2 10.4.2: Main Condenser Evacuation System	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.3 10.4.3: Turbine Gland Sealing System	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.4 10.4.4: Turbine Bypass System	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.5 10.4.5: Circulation Water System	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.6 10.4.6: Condensate Cleanup System	Original 1982 SER		C	See "Approval for Unit 2" column.
10.4.7 10.4.7: Condensate and Feedwater System	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
10.4.8 10.4.8: Steam Generator Blowdown System (PWR)	Original 1982 SER		C	See "Approval for Unit 2" column.
11.1 11.1: Source Terms	Original 1982 SER		C	See "Approval for Unit 2" column.
11.2 11.2: Liquid Waste Management System	Original 1982 SER		C	See "Approval for Unit 2" column.
11.3 11.3: Gaseous Waste Management System	Original 1982 SER		C	See "Approval for Unit 2" column.
11.4 11.4: Solid Waste Management System	Original 1982 SER		C	See "Approval for Unit 2" column.
12.2 12.1: Assuring that Occupational Radiation Exposures are As Low As Reasonably Achievable	Original 1982 SER		C	See "Approval for Unit 2" column.
12.3 12.2: Radiation Sources	Original 1982 SER		C	See "Approval for Unit 2" column.
12.4 12.3, 12.4: Radiation Protection Design Features	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
12.5, 12.6 12.5: Operational Radiation Protection Program	12.6: OUTSTANDING ISSUE involving Health Physics Program Resolved SSER10 – October 1992		C	The staff reviewed TVA's RADCON program (formerly the HP program) and found that the WBN organizational structure can provide adequate support for the RADCON program and that organizational changes described in the FSAR amendments met the staff's acceptance criteria. They considered this issue resolved in SSER10.
13.1.1 13.1.1: Management and Technical Support Organization	Original 1982 SER		C	See "Approval for Unit 2" column.
13.1.2, 13.1.3 13.1.2, 13.1.3: Operating Organization	13.1.3: LICENSE CONDITION – Use of experienced personnel during startup Resolved SSER8 – January 1992		C	In the original 1982 SER, NRC provided for an LC to ensure TVA augmented the shift staff with individuals that had prior experience with large pressurized water reactor operations. TVA's commitment to comply with RG 1.8, "Personnel Selection and Training," provided adequate assurance, and in SSER8, NRC eliminated the LC.
13.2.1 13.2.1: Reactor Operator Requalification Program, Reactor Operator Training	Original 1982 SER		C	See "Approval for Unit 2" column.
13.2.2 13.2.2: Non-Licensed Plant Staff Training	Original 1982 SER		C	See "Approval for Unit 2" column.
13.3 13.3: Emergency Planning	13.3: LICENSE CONDITION – Emergency Preparedness III.A.1, III.A.2, III.A.2 Resolved SSER13 – April 1994		C	The NRC review of Emergency Preparedness in SSER13 superseded the review in the original 1982 SER. In SSER13, the staff concluded that the WBN Radiological Emergency Plan (REP) provided an adequate planning basis for an acceptable state of onsite emergency preparedness, and the LC was deleted. The NRC completed the review of the REP in SSER20.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
13.5.1, 13.5.2 13.5.1: Administrative Procedures	13.5.2: OUTSTANDING ISSUE involving operating, maintenance and emergency procedures Resolved SSER9 – June 1992		C	In the original 1982 SER, this issue was used to track the staff's review of the emergency operating procedures generation package. In SSER9, the staff concluded that the outstanding issue was no longer needed as the staff no longer performed such reviews. The emergency operating procedure development program review is performed under IP 42000, "Emergency Operating Procedures." This inspection will be performed before issuance of an operating license.
13.6 13.6: Physical Security	13.6.4: LICENSE CONDITION – Physical security of fuel in containment Resolved SSER10 – October 1992		C	In the original 1982 SER, part of the Physical Security Plan (PSP) was not in accordance with the regulation. TVA submitted a new PSP on June 17, 1992. In SSER10, the staff concluded that the provisions for protection of the containment during major refueling and maintenance met the intent of the regulation.
13.6 13.6: Physical Security	13.6: OUTSTANDING ISSUE to file appropriate revision to the Physical Security Plan Resolved SSER15 – June 1995		C	In the original 1982 SER, the staff identified certain outstanding issues with TVA's Physical Security Plan. In SSER15, NRC provided a safety evaluation that concluded that WBN conforms to the requirements of 10 CFR 50.73.
SER 14 14.2: Initial Plant Test Program – Design Certification and new License Application	14.0: CONFIRMATORY ISSUEs - Availability of preoperational test procedures 60 days before test. Resolved SSER3 – January 1985		C	In SSER3, NRC accepted a 30 day period for making approved preoperational test procedures available to staff.
15.1 15 – Introduction – Transient and Accident Analysis	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
15.2.2, 15.2.3 15.1.1 thru 15.1.4: Decrease in Feedwater Temperature, Increase in Feedwater Flow, Increase in Steam *Flow, and Inadvertent Opening of a* Steam Generator Relief or Safety Valve	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.2 15.1.5.A : Radiological Consequence of Main Steam Line Failures Outside Containment of a PWR	Original 1982 SER		C	See "Approval for Unit 2" column.
15.3.2 15.1.5: Steam System Piping Failures Inside and Outside Containment (PWR)	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2.1 15.2.1 thru 15.2.5: Loss of External Load; Turbine Trip; Loss of Condenser Vacuum; Closure of Main Steam Isolation Valve (BWR); and Steam Pressure Regulator Failure (Closed)	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2.1 15.2.6: Loss of Nonemergency AC Power to Station Auxiliaries	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2.1 15.2.7: Loss Normal Feedwater Flow	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
15.3.3 15.2.8: Feedwater System Pipe Breaks Inside and Outside Containment (PWR)	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2 15.3.1 thru 15.3.2: Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions	Original 1982 SER		C	See "Approval for Unit 2" column.
15.3.4, 15.3.5 15.3.3 thru 15.3.4: Reactor Coolant Pump Rotor Seizure and Reactor Coolant Pump Shaft Break	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2.4.1 15.4.1: Uncontrolled Control Rod Assembly Withdrawal from a Subcritical or Low Power Startup Condition	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2.4.2 15.4.2: Uncontrolled Control Rod Assembly Withdrawal at Power	Original 1982 SER		C	See "Approval for Unit 2" column.
15.2.4.3 15.4.3: Control Rod Maloperation (System Malfunction or Operator Error)	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
NA	Not addressed in SER		C	See "Approval for Unit 2" column.
15.4.4: 15.4.5 Startup of an Inactive Loop or Recirculation Loop at an Incorrect Temperature, and Flow Controller Malfunction Causing an Increase in BWR Core Flow Rate				
15.2.4.4	15.2.4.4: OUTSTANDING ISSUE for evaluation of Boron dilution and single failure criteria		C	In a letter dated November 2, 1984, TVA stated that the boron dilution alarm system receives signals from two independent channels which are independently powered. Additionally, testing of these circuits was described. The staff concluded in SSER4 that the system is adequately protected from single failure and closed this item.
15.4.6: Chemical and Volume Control Systems Malfunction that Results in a Decrease in Boron Concentration in the Reactor Coolant (PWR)	Resolved SSER4 – March 1985			
15.2.4.5	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.7: Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position				
15.4.4	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.8.A : Radiological Consequences of a Control Rod Ejection Accident (PWR)				
15.2.6	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.8: *Spectrum of Rod Ejection* Accidents (PWR)				

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
15.2.3 15.5.1 thru 15.5.2: Inadvertent Operation of ECCS and Chemical and Volume Control System Malfunction that Increases Reactor Coolant Inventory	Original 1982 SER		C	See "Approval for Unit 2" column.
15.5.3 15.6.1: Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve	LICENSE CONDITION – PORV isolation system - II.K.3.1, II.K.3.2 Resolved SSER5 – November 1990	NUREG-0737, II.K.3.1, II.K.3.2	C	II.K.3.1/3.2, "Auto PORV isolation/Report on PORV Failures" - Reviewed in SSER5 and resolved based on NRC conclusion that there is no need for an automatic PORV isolation system (NRC letter dated June 29, 1990).
15.4.6 15.6.2: Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.3 15.6.3: Radiological Consequences of Steam Generator Tube Failure	LICENSE CONDITION – Steam Generator tube rupture Resolved SSER12 – October 1993, and SSER14 – December 1994		C	In SSER12, the staff identified 5 items that required resolution involving 1) operator action times; 2) radiation offsite consequence analysis; 3) systems and 4) associated components credited for accident mitigation in SG tube rupture emergency operating procedures; and 5) system compatibility with bounding analysis. Items 2-5 were resolved in SSER12. In SSER14, the staff stated that a revised SG tube rupture analysis was more conservative and did not alter the conclusions of their original safety evaluation. With regard to operator response times, TVA letters dated April 21, 1994, and August 15, 1994, and NRC letter dated June 28, 1994, dealt with simulator runs to address response times and operator performance during simulated SG tube ruptures. The staff concluded, after review of the TVA letters, that the times assumed in the tube rupture analysis were satisfactorily verified and deleted this condition.

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1982 SER	APPROVAL FOR UNIT 2	Guidance (GL, Bulletins)	*	Additional Information
SRP TITLE	Approval Reference	Note 1		
15.4.1 15.6.5.A : Radiological Consequences of a Design Basis Loss-of-Coolant Accident Including Containment Leakage Contribution	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.2, 15.4.6 15.6.5.B : Radiological Consequences of a Design Basis Loss-of-Coolant Accident: Leakage from Engineered Safety Feature Components Outside Containment	Original 1982 SER		C	See "Approval for Unit 2" column.
15.3.1 15.6.5: Loss-of-Coolant Accidents Resulting From Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.7 15.7.3: Postulated Radioactive Releases Due to Liquid-Containing Tank Failures	Original 1982 SER		C	See "Approval for Unit 2" column.
15.4.5 15.7.4: Radiological Consequences of Fuel Handling Accidents	Original 1982 SER		C	See "Approval for Unit 2" column.
9.1.4 15.7.5 -Spent Fuel Cask Drop Accidents	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
15.3.6 15.8: Anticipated Transients Without Scram	*LICENSE CONDITION* - Anticipated Transients Without Scram (Generic Letter 83-28, Item 4.3) Resolved SSER5 – November 1990		C	*In SSER5, the staff found TVA's response to a number of items* in GL 83-28 acceptable, including Item 4.3, as stated in NRC letter dated June 18, 1990, and thus eliminated this license condition.
17.3, 17.4 17.2 – QA During the Operations Phase	OUTSTANDING ISSUE QA program Resolved SSER2 – January 1984 Updated SSER5 – November 1990 Resolved SSER13 – April 1994		C	The staff reviewed the description of the QA program and concluded in SSER2 that the description was in compliance with NRC regulations. The staff reviewed the organization for the QA program and the NQA Plan, and presented their conclusions in SSER5. They concluded that the program was acceptable for the operations phase of Watts Bar. It was noted, however, that Amendment 63 stated that identification of safety related features would be addressed later and the staff left the outstanding issue unresolved. In SSER13, the staff concluded that TVA had established appropriate programmatic controls for identification of safety related features and considered this issue resolved.
17.3 17.3 – Quality Assurance Program Description	Original 1982 SER		C	See "Approval for Unit 2" column.
2.1.1 2.1.1: Site Location and Description	Original 1982 SER		C	See "Approval for Unit 2" column.
2.4.3 2.1.1: Site Location and Description	Original 1982 SER		C	See "Approval for Unit 2" column.
2.1.2 2.1.2: Exclusion Area Authority and Control	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
2.2.3 2.2.3: Evaluation of Potential Accidents	Original 1982 SER		C	See "Approval for Unit 2" column.
2.3.1 2.3.1: Regional Climatology	Original 1982 SER		C	See "Approval for Unit 2" column.
2.3.2 2.3.2: Local Meteorology	Original 1982 SER		C	See "Approval for Unit 2" column.
2.3.3 2.3.3: Onsite Meteorological Measurements Programs	Original 1982 SER		C	See "Approval for Unit 2" column.
2.3.4 2.3.4: Short-term Dispersion Estimates for Accidental Atmospheric Releases	Original 1982 SER		C	See "Approval for Unit 2" column.
2.3.5 2.3.5: Long-term Diffusion Estimates	Original 1982 SER		C	See "Approval for Unit 2" column.
2.4.2 2.4.1: Hydrologic Description	Original 1982 SER		C	See "Approval for Unit 2" column.
2.4.3, 2.4.10 2.4.10: Flooding Protection Requirements	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
2.4.6 2.4.11: Cooling Water Supply	Original 1982 SER		C	See "Approval for Unit 2" column.
2.4.7 - 2.4.8 2.4.12: Groundwater	2.4.8: CONFIRMATORY ISSUE for design basis groundwater level for ERCW pipeline SSER3 – January 1985		C	Amendment 50 to the FSAR (May 1, 1984) provided a description of the analysis used to determine the 25-year groundwater level for the ERCW pipeline. Staff closed issue in SSER3.
2.4.2 - 2.4.3 2.4.14 – Technical Specifications and Emergency Operation Requirements	Original 1982 SER		C	See "Approval for Unit 2" column.
2.4.3 2.4.2: Floods	Original 1982 SER	GL 89-22	C	GL 89-22, "Potential For Increased Roof Load Due to Changes in Maximum Precipitation" – Answer to informal question provided in TVA letter dated December 16, 1981, and subsequently included in FSAR. GL did not require a response. No further action required.
2.4.3 2.4.3: Probable Maximum Flood (PMF) on Streams and Rivers	Original 1982 SER		C	See "Approval for Unit 2" column.
2.4.3 2.4.4: Potential Dam Failures	Original 1982 SER		C	See "Approval for Unit 2" column.
2.5, 2.5.1 2.5.1: Basic Geologic and Seismic Information	Original 1982 SER		C	See "Approval for Unit 2" column.
2.5 2.5.2: Vibratory Ground Motion	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
2.5 2.5.3: Surface Faulting	Original 1982 SER		C	See "Approval for Unit 2" column.
2.5.4 2.5.4: Stability of Subsurface Materials and Foundations	2.5.4: CONFIRMATORY ISSUE for design differential settlement of piping and electrical components SSER3 – January 1985		C	Analysis was presented to staff in September 1983. Staff found analysis and results acceptable. Staff closed issue in SSER3.
2.5.4 2.5.4: Stability of Subsurface Materials and Foundations	2.5.4: OUTSTANDING ISSUE (1) on liquefaction beneath ERCW pipelines and Class 1E electrical conduit. SSER3 – January 1985		C	Amendment 50 to the FSAR (May 1, 1984) provided a description of the underground barriers along the ERCW pipelines. Staff agreed the barriers provide sufficient confinement to any liquefied soil. Staff closed issue in SSER3.
2.5.4 2.5.4: Stability of Subsurface Materials and Foundations	2.5.4: CONFIRMATORY ISSUE for material and geometric damping in soil-structure interaction (SSI) analysis SSER3 – January 1985		C	Staff performed audit in September 1982, and determined TVA had used reasonable assumptions. Staff closed issue in SSER3.
2.5.4 2.5.4: Stability of Subsurface Materials and Foundations	2.5.4: CONFIRMATORY ISSUE for analysis of sheetpile walls SSER3 – January 1985		C	Staff performed audit in September 1982, and determined TVA had used reasonable assumptions. Staff closed issue in SSER3.
2.5.5 2.5.5: Stability of Slopes	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.10	3.10: Generic outstanding issues involving adequacy of frequency test, peak broadening of response spectra, reconciling actual field mounting by welding vs. testing configuration mounted by bolting and need for surveillance and maintenance programs to address aging.		C	For reconciling the impact for equipment actually mounted using welding but tested with mounting by bolting, in-situ test results were provided to NRC (in letters dated April 30, 1985, and January 30, 1986) along with Westinghouse report on seismic qualification by analysis and testing for the main control board. The staff reviewed these results and on the basis of the consistency of all results provided, concluded that the issue was resolved in SSER6.
3.10: Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	Approved all but adequacy of frequency test SSER6 – April 1991; adequacy of frequency test SSER9 – June 1992			
3.10	3.10: OUTSTANDING ISSUE involving seismic classification of cable tray and conduits		C	In its May 8, 1991, letter, TVA proposed to analyze conduits as Seismic Category I subsystems. Additionally, in a September 18, 1991 letter, TVA agreed to perform cable tray qualification using conventional linear elastic analysis methods, considering nonlinear response behavior on a case-by-case basis and to submit these cases to the staff for approval. The staff resolved this issue in SSER8.
3.10: Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	SSER8 – January 1992			
3.10	3.10: Generic outstanding issues involving adequacy of frequency test, peak broadening of response spectra, reconciling actual field mounting by welding vs. testing configuration mounted by bolting and need for surveillance and maintenance programs to address aging.		C	With regard to the overall issue on adequacy of testing, the staff performed an audit as part of SSER9 (Appendix S). This included a review of the TVA approach, criteria and action plan to address effect of directional coupling and verification that acceleration at each device location is less than .95g because relay chatter at higher acceleration levels is expected. TRS enveloped RRS for all directions. The staff found the above to be in accordance with SRP 3.10 and IEEE 344-1975 and closed the issue.
3.10: Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	Approved all but adequacy of frequency test SSER6 – April 1991; adequacy of frequency test SSER9 – June 1992			

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1982 SER	APPROVAL FOR UNIT 2	Guidance (GL, Bulletins) Note 1	*	Additional Information
SRP TITLE	Approval Reference			
3.10	3.10: Generic outstanding issues involving adequacy of frequency test, peak broadening of response spectra, reconciling actual field mounting by welding vs. testing configuration mounted by bolting and need for surveillance and maintenance programs to address aging.		C	There was a specific issue on installing spacers for the 125-V-DC vital batteries as was done during qualification testing and required by the manufacturer. The issue was closed in SSER6 when it was determined that spacers had been installed.
3.10: Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	Approved all but adequacy of frequency test SSER6 – April 1991; adequacy of frequency test SSER9 – June 1992			
3.10	3.10: Generic outstanding issues involving adequacy of frequency test, peak broadening of response spectra, reconciling actual field mounting by welding vs. testing configuration mounted by bolting and need for surveillance and maintenance programs to address aging.		C	Staff concerns on the impact of aging on seismic performance were resolved in SSER6 based on discussions with TVA technical personnel and review of maintenance and surveillance instruction manuals.
3.10: Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	Approved all but adequacy of frequency test SSER6 – April 1991; adequacy of frequency test SSER9 – June 1992			

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1982 SER	APPROVAL FOR UNIT 2	Guidance (GL, Bulletins) Note 1	*	Additional Information
SRP TITLE	Approval Reference			
3.10	3.10: Generic outstanding issues involving adequacy of frequency test, peak broadening of response spectra, reconciling actual field mounting by welding vs. testing configuration mounted by bolting and need for surveillance and maintenance programs to address aging.		C	In a letter dated December 1, 1982, TVA provided justification for single-frequency tests to seismically qualify the Reactor Protection System cabinet. This showed that test response spectra (TRS) were substantially higher than broadened required response spectra (RRS) throughout the required frequency range. The staff evaluated test results and building seismic behavior and considered this aspect of the testing issue closed in SSER6.
3.10: Seismic and Dynamic Qualification of Mechanical and Electrical Equipment	Approved all but adequacy of frequency test SSER6 – April 1991; adequacy of frequency test SSER9 – June 1992			
3.11	3.11: OUTSTANDING ISSUE - TVA program not submitted at time of SER		C	The EQ program was submitted after issuance of the SER. It was reviewed and found acceptable in SSER15.
3.11: Environmental Qualification of Mechanical and Electrical Equipment	SSER15 – June 1995			
3.2.1	3.2.1: CONFIRMATORY ISSUE for seismic classification of structures, systems, and components important to safety		C	Staff closed issue on ERCW seismic category upgrade and seismic classification in SSER5.
3.2.1: Seismic Classification	SSER5 – November 1990			
3.2.1	3.2.1: CONFIRMATORY ISSUE for ERCW upgrade to seismic category 1		C	Staff verified that required portion of ERCW had been upgraded or replaced satisfactorily in SSER5 and closed this issue.
3.2.1: Seismic Classification	SSER5 – November 1990			
3.3.1	Original 1982 SER		C	See "Approval for Unit 2" column.
3.3.1: Wind Loadings				

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.3.2 3.3.2: Tornado Loadings	Original 1982 SER		C	See "Approval for Unit 2" column.
3.4 3.4.1 – Flood Protection	Original 1982 SER		C	See "Approval for Unit 2" column.
3.5.1.1 3.5.1.1: Internally Generated Missiles (Outside Containment)	Original 1982 SER		C	See "Approval for Unit 2" column.
3.5.1.2 3.5.1.2: Internally Generated Missiles (Inside Containment)	Original 1982 SER		C	See "Approval for Unit 2" column.
3.5.1.3 3.5.1.3: Turbine Missiles	Original 1982 SER		C	See "Approval for Unit 2" column.
3.5.1.4 3.5.1.4: Missiles Generated by Natural Phenomenon	Original 1982 SER		C	See "Approval for Unit 2" column.
3.5.1.4 3.5.1.5: Site Proximity Missiles (Except Aircraft)	Original 1982 SER		C	See "Approval for Unit 2" column.
3.5.2 3.5.2: Structures, Systems, and Components to be protected from Externally Generated Missiles	3.5.2: CONFIRMATORY ISSUE for modifications to protect Diesel Generators SSER2 – January 1984		C	TVA submitted a proposed design modification for installation of a reinforced concrete curb around the diesel exhaust stacks to protect them from damage in a letter dated November 24, 1982. The staff found this acceptable and closed this issue in SSER2.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.5.3 3.5.3: Barrier Design Procedures	Original 1982 SER		C	See "Approval for Unit 2" column.
3.6.1 3.6.1: Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment	3.6.1: OUTSTANDING ISSUE involving main steam line break (MSLB) outside containment SSER14 – December 1994		C	In a letter dated November 30, 1992, TVA submitted a new evaluation for both Units 1 and 2 accounting for increased environmental temperatures in the MSVV rooms due to release of superheated steam and later submitted, by letter dated March 28, 1994, additional information related to the assumptions made in this analysis. The staff reviewed this information together with their detailed evaluation and acceptance of the same methodology applied at Sequoyah and concluded that the MSLB analysis for the WBN MSVV rooms, including the effects of superheated steam, was acceptable and identified this issue as resolved in SSER14.
NA 3.6.3: Leak-Before- Break Evaluation Procedures	Not addressed in Original 1982 SER New section SRP 1987 - Approved in SSER5 – November 1990		C	See "Approval for Unit 2" column.
3.7.1 3.7.1: Seismic Design Parameters	3.7: OUTSTANDING ISSUE involving update of FSAR for seismic design issues SSER8 – January 1992		C	The staff reviewed FSAR Amendment 68 and found that required changes had been incorporated into the FSAR, as committed to in TVA letter dated December 18, 1990, and issue was deemed resolved in SSER8.
3.7.2 3.7.2: Seismic System Analysis	3.7.2.1.2: OUTSTANDING ISSUE involving mass eccentricity SSER8 – January 1992		C	In a letter dated May 8, 1991, TVA provided clarification that actual mass eccentricities from such items as equipment hatch and lock used in evaluating the steel containment vessel for an earthquake load were replaced by a 5% accidental eccentricity. This was demonstrated to be conservative. TVA also proposed a revision to the FSAR to document this change. The staff found this acceptable and resolved this issue in SSER8.
3.7.2 3.7.2: Seismic System Analysis	3.7.2.12: OUTSTANDING ISSUE involving comparison of Set A vs. Set B response SSER11 – April 1993		C	The staff considered this item (opened in SSER6) resolved in SSER11 based on audits and inspections since SSER6.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.7.3 3.7.3: Seismic Subsystem Analysis	3.7.3: OUTSTANDING ISSUE involving 1.2 multi-mode factor SSER9 – June 1992		C	The staff reviewed verification studies performed by TVA to justify the use of a 1.2 multi-mode factor in seismic evaluation of certain subsystems in SSER8 and SSER9 and, after TVA provided further confirmation of supporting calculations, the use of Complete Quadratic Combinations and validity of two degree *of freedom predictions in a letter dated October 10, 1991, the* staff considered this issue resolved in SSER9.
3.7.3 3.7.3: Seismic Subsystem Analysis	3.7.3: OUTSTANDING ISSUE involving use of code cases, damping factors for conduit and use of worst case, critical case and bounding case Code case use, damping factors for conduit SSER8 – January 1992, (CAP/SP implementation issue resolved in IR 390/93-201)		C	The staff reviewed the list of specific ASME Code cases TVA intended to use and found that they were either incorporated into the ASME Code or endorsed in Position C.1 of RG 1.84. This issue was considered resolved in SSER8. For damping, the staff found the use of 4% damping for OBE and 7% damping for SSE acceptable based on the information in a TVA letter dated August 22, 1991, and considered the issue resolved in SSER8.
3.7.3 3.7.3: Seismic Subsystem Analysis	3.7.3: OUTSTANDING ISSUE involving number of peak cycles to be used for OBE SSER8 – January 1992		C	In a letter dated May 8, 1991, TVA proposed to revise the FSAR for ASME Section III Class I piping analysis to include the assumption of 5 OBEs and 1 SSE and a minimum of 10 peak stress cycles per event. The staff accepted this in SSER8.
3.7.4 3.7.4: Seismic Instrumentation	Original 1982 SER		C	See "Approval for Unit 2" column.
NA 3.8.1: Concrete Containment			C	*Reviewed using SRP 3.8.2 and 3.8.3*
3.8.1 3.8.2: Steel Containment	3.8.1: CONFIRMATORY ISSUE - verify buckling methodology SSER3 – January 1985		C	In response to staff concern, TVA submitted a letter dated May 16, 1984, stating that TVA calculations already accounted for new information from NRC-sponsored research programs, particularly information concerning reinforcement around shell (vessel) opening. Based on their review of the response, the staff closed this issue in SSER3.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.8.1 3.8.2: Steel Containment	3.8: OUTSTANDING ISSUE involving load combinations and stress allowables SSER9 – June 1992		C	In response to staff concerns regarding use of ductility ratio when considering thermally induced stresses, TVA stated in a letter dated April 6, 1992, that they would use a methodology consistent with SRP 3.8.4 for the design of steel members and use the linear elastic provision of DG-C 1.6.12, Rev. 1, "Evaluation of Steel Structures with Thermal Restraint," except for the energy balance provision of Section C.2.3.1. The staff found this acceptable. TVA also agreed, in its May 8, 1991, letter, that any further sampling of structural welds after the issuance of NCIG-2, Rev. 2 would be to that revision. This issue was resolved in SSER9.
3.8.2 3.8.3: Concrete and Steel Internal Structures of Steel or Concrete Containments	Original 1982 SER		C	See "Approval for Unit 2" column.
3.8.4 3.8.5: Foundations	Original 1982 SER		C	See "Approval for Unit 2" column.
3.9.1 3.9.1: Special Topics for Mechanical Components	3.9.1: OUTSTANDING ISSUE involving assumption in piping analysis for water-hammer due to check valve slam SSER13 – April 1994		C	In response to NRC concern regarding TVA's piping analysis that postulated failure of certain supports, TVA submitted an August 4, 1992, letter stating that, where possible, supports were upgraded in the analysis to maintain structural integrity during the postulated loading scenario. The issue was resolved in SSER13.
3.9.2.1, 3.9.2.2, 3.9.2.3 and 3.9.2.4 3.9.2: Dynamic Testing and Analysis of Systems, Components, and Equipment	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components	3.9.3.4: CONFIRMATORY ISSUE involving baseplate flexibility and its effect on anchor bolt loads SSER8 – January 1992		C	The TVA response to this issue, in a letter dated July 26, 1991, described an update to the previous response for B 79-02 and its civil design standard for concrete anchorage, which incorporated an increase in anchor stiffness and consideration of prying forces for thin baseplates analyzed by hand. The staff determined that this adequately resolved the issue in SSER8.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		GL 80-46/47	C	GL 80-46/47, "Fracture Toughness and Additional Guidance on Potential for Low Fracture Toughness and Lamellar Tearing on PWR Steam Generator and Coolant Pump Supports." – No response was required for this GL and NUREG-0577 states that the lamellar tearing aspect of this issue was resolved by the NUREG. Further, the NUREG states that for plants under review, the fracture toughness issue was resolved.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components	3.9.3.4: OUTSTANDING ISSUE involving stiffness and deflection limits for seismic Category I pipe supports SSER8 – January 1992		C	TVA program to demonstrate that change in design criteria which uses stiffness and deflection limits for Category I pipe supports did not compromise the adequacy of pipe supports was found to be acceptable by the staff and the issue was resolved in SSER8.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		GL 78-02	C	GL 78-02, "Asymmetric Loads Background and Revised Request for Additional Information" - NRC reviewed in SSER15 – Appendix C (June 1995) – Resolved by approval of leak-before-break analysis.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components	3.9.3.4: OUTSTANDING ISSUE, staff was awaiting TVA concurrence on their position with respect to margin for critical buckling of pipe supports SSER4 – March 1985		C	In a letter dated May 14, 1984, TVA provided results of a sampling program and determined that compressive stresses for pipe supports did not exceed acceptance criteria established by NRC and staff considered this issue resolved in SSER4.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components	3.9.3.3: *OUTSTANDING ISSUE* involving operating characteristics of main steam safety valves SSER7 – September 1991		C	*In a letter dated June 21, 1991, TVA responded to NRC* concerns regarding the design and installation of MSSVs stated that all valves and piping components were analyzed for all MSSV discharge loads acting simultaneously, combined with other required loads and this was accepted by the staff. In the same letter, TVA also provided the method used to establish the MSSV adjustment ring settings for plant valves and this was acceptable to the staff. This resolved the issue in SSER7.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components	3.9.3.1: OUTSTANDING ISSUE involving use of experience data to qualify category I(L) piping SSER8 – March 1985		C	TVA stated in a letter dated December 18, 1990, that it was performing a verification program to validate the original seismic design basis for Category I(L) piping, including a screening criteria based on earthquake experience data to identify items requiring further evaluation and bounding case analysis to demonstrate the conservatism of the screening criteria. In a September 20, 1991, letter, TVA provided revised criteria for the bounding case analysis. Based on the staffs' evaluation, the issue was considered resolved in SSER8.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components	3.9.3.3: LICENSE CONDITION - Relief and safety valve testing (II.D.1) SSER3 –January 1985		C	Staff found TVA approach in response to this issue, using information from EPRI valve test program and performing modifications to safety and relief discharge piping and supports, was acceptable. Issue was considered resolved in SSER3.
3.9.4 3.9.4: Control Rod Drive Systems	Original 1982 SER		C	See "Approval for Unit 2" column.
3.9.5 3.9.5: Reactor Pressure Vessel Internals	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.9.6 3.9.6 – Inservice Testing of Pumps and Valves	3.9.6: LICENSE CONDITION – Inservice testing of pumps and valves SSER12 – October 1993		C	TVA committed to submit a revised ASME Section XI Inservice Pump and Valve Test Program six months before the projected date of operating license issuance in an August 21, 1989, letter. On this basis, the staff considered that the proposed license condition was no longer required in SSER12.
4.2.1, 4.2.2, 4.2.3, 4.2.4 4.2: Fuel System Design	4.2.3: CONFIRMATORY ISSUE - identify margins and to offset reduction in DNBR due to fuel rod bowing and incorporating residual bow penalty into the Technical Specifications. SSER2 – January 1984		C	In SSER2, the staff concluded TVA had an acceptable means of analyzing the effects of fuel rod bowing and determining any residual rod bowing penalties on the departure from nucleate boiling ratio and total peaking power. Staff closed issue in SSER2.
4.2.1, 4.2.2, 4.2.3, 4.2.4 4.2: Fuel System Design	4.2.2: CONFIRMATORY ISSUE on thermal performance analysis code. SSER2 – January 1984		C	Thermal performance analysis was performed using a revised model (PAD-3.3) and found acceptable. Staff closed issue in SSER2.
4.3.1, 4.3.2, 4.3.3 4.3: Nuclear Design	Original 1982 SER		C	See "Approval for Unit 2" column.
4.5.1 4.5.1: Control Rod Drive Structural Materials	Original 1982 SER		C	See "Approval for Unit 2" column.
4.5.2 4.5.2: Reactor Internal and Core Support Materials	Original 1982 SER		C	See "Approval for Unit 2" column.
4.6 4.6: Functional Design of Control Rod Drive System	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.2.1.1 5.2.1.1: Compliance with the Codes and Standards Rule, 10CFR50.55a	Original 1982 SER		C	See "Approval for Unit 2" column.
5.2.1.2 5.2.1.2: Applicable Code Cases	Original 1982 SER		C	See "Approval for Unit 2" column.
5.2.2 5.2.2: Overpressure Protection	5.2.2: OUTSTANDING ISSUE on staff review of sensitivity study of required safety valve flow rate versus trip parameter SSER2 – January 1984		C	TVA letter dated April 18, 1983, provided the safety valve sizing information and information on differences with the reference plant. Staff closed issue in SSER2.
5.2.3 5.2.3: Reactor Coolant Pressure Boundary Materials	Original 1982 SER		C	See "Approval for Unit 2" column.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		NRC Order EA-03-009	C	NRC Order EA-03-009 – NA to Unit 2
5.4.5 5.2.5: Reactor Coolant Pressure Boundary Leakage Detection	Original 1982 SER		C	See "Approval for Unit 2" column.
5.3.1 5.3.1: Reactor Vessel Materials	Original 1982 SER		C	See "Approval for Unit 2" column.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.3.3 5.3.3: Reactor Vessel Integrity		GL 92-01	C	GL 92-01, R1, "Reactor Vessel Structural Integrity" –By letter *dated May 11, 1994, for both units NRC confirmed TVA had* provided the information requested in GL 92-01. NRC issued GL 92-01 revision 1, supplement 1 on May 19, 1995. By letter dated July 26, 1996, NRC closed GL 92-01, revision 1, supplement 1 for both Watts Bar units.
5.4.1.1, 5.4.2.1, 5.4.2.1 5.4 – Reactor Coolant System Components and Subsystem Design	Original 1982 SER		C	See "Approval for Unit 2" column.
5.4.1.1 5.4.1.1: Pump Flywheel Integrity (PWR)	Original 1982 SER		C	See "Approval for Unit 2" column.
5.4.4 5.4.11: Pressurizer Relief Tank	Original 1982 SER		C	See "Approval for Unit 2" column.
5.4.2.1 5.4.2.1: Steam Generator Materials	Original 1982 SER		C	See "Approval for Unit 2" column.
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection	5.4.2.2: OUTSTANDING ISSUE for staff to evaluate TVA's proposed resolution to concerns about flow induced vibrations in Model D-3 SGs pre-heat region SSER4 – March 1985		C	In the original 1982 SER, the staff concluded that because of the generic problem of tube degradation caused by flow induced vibration in Westinghouse model D steam generators, operation would be limited to 50%. TVA's May 27, 1983, letter committed to implement the NUREG-0966 modifications. In SSER4, staff concluded the modification was acceptable to operate at 100%.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.4.3 5.4.7: Residual Heat Removal (RHR) System	5.4.3: CONFIRMATORY ISSUEs to verify installation of an RHR flow alarm and proper function of dump valves when actuated manually SSER2 resolved testing of dump valves		C	In SSER2, based on the relief capacity of 3 of the 4 valves, NRC agreed that manual actuation testing of the atmospheric relief valves was not necessary.
5.4.3 5.4.7: Residual Heat Removal (RHR) System	5.4.3: OUTSTANDING ISSUE involving natural circulation test to demonstrate ability to cool down and depressurize the plant, and that boron mixing is sufficient under such circumstances; or, if necessary, other applicable tests before startup after first refueling SSER10 – October 1992		C	Branch Technical Position requires a natural circulation test with supporting analysis to demonstrate the ability to cool down and depressurize the plant and that boron mixing is sufficient. Comparison with performance of previously tested plants of similar design is acceptable, if justified. July 11, 1991, TVA letter provided an assessment of the acceptability of the Diablo Canyon natural circulation tests to WBN. In SSER10, the NRC found the methods and conclusions acceptable.
5.4.3 5.4.7: Residual Heat Removal (RHR) System		GL 87-12	C	GL 87-12, "Loss of Residual Heat Removal While the Reactor Coolant System is Partially Filled" – This GL was superseded by GL 88-17 per NRC letter dated December 5, 1988
6.1.1 6.1.1: Engineered Safety Features Materials	Original 1982 SER		C	See "Approval for Unit 2" column.
6.1.2 6.1.2: Protective Coating Systems (Paints) Organic Materials	Original 1982 SER		C	See "Approval for Unit 2" column.

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6.2.1.1 6.2.1.1.B: Ice Condenser Containments	6.2.1.1: CONFIRMATORY ISSUE involves reviewing analysis that ensures that containment external pressure will not exceed design value of 2.0 psi SSER3 – January 1985		C	In the original 1982 SER, NRC indicated it would confirm the contention that containment external pressure transients could not exceed the design value of 2.0 psig. TVA submitted the information June 4, 1982. In SSER3, NRC concluded that the design provided adequate protection against damage from external pressure transients.
6.2.1.2 6.2.1.2: Subcompartment Analysis	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.1.1.1 6.2.1.3: Mass and Energy Release Analysis for Postulated Loss-of-Coolant Accidents (LOCAs)	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.1.1.1 6.2.1.4: Mass and Energy Release Analysis for Postulated Secondary System Pipe Ruptures	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.1.3 6.2.1.5: Minimum Containment Pressure Analysis for Emergency Core Cooling System Performance Studies	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.1 (contains 6.2.1.1 to 6.2.2.5) 6.2.1: Containment Functional Design	Original 1982 SER		C	See "Approval for Unit 2" column.

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6.2.2 6.2.2: Containment Heat Removal Systems	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.3 6.2.3: Secondary Containment Functional Design	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.4 6.2.4: Containment Isolation System	6.2.4: CONFIRMATORY ISSUE - install safety-grade isolation valves on 1" chemical feed lines joining feedwater lines to main steam line. LICENSE CONDITION - Modification of chemical feedlines SSER5 – November 1990		C	In the original 1982 SER, the containment isolation provisions for the main and auxiliary feedwater lines, feedwater bypass lines and the chemical feedlines to the steam generators did not meet GDC 57. This was resolved by FSAR Amendment 55. In SSER5, the NRC concluded that the containment isolation provisions for the main and auxiliary feedwater lines, feedwater bypass lines and the chemical feedlines were acceptable.
6.2.4 6.2.4: Containment Isolation System	6.2.4: OUTSTANDING ISSUE involving containment isolation using closed systems SSER12 – October 1993		C	This outstanding issue was opened in SSER7. In SSER12, the NRC concluded that the systems in question were "closed loops outside containment" and reaffirmed the previous conclusion of acceptability.
6.2.5 6.2.5: Combustible Gas Control in Containment	6.2.5: OUTSTANDING ISSUE for review of TVA-provided additional information relative to discussion added to FSAR to address analysis of the production and accumulation of hydrogen within containment following onset of a LOCA SSER4 – March 1985		C	In the original 1982 SER, NRC indicated that additional information was required concerning the analysis of the production and accumulation of hydrogen within the containment during a design basis LOCA. This information was provided in FSAR amendments and evaluated by NRC in SSER4. In SSER4, the NRC concluded that the design of the combustible gas control system was acceptable and the outstanding issue closed.

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6.2.5 6.2.5: Combustible Gas Control in Containment	LICENSE CONDITION – (9) Hydrogen control measures SSER8 – January 1992		C	In the original 1982 SER, an LC was raised to track resolution of Unresolved Safety Issue A-48, "Hydrogen Control Measures and Effects of Hydrogen Burns on Safety Equipment." In SSER8, the NRC reviewed the hydrogen mitigation system (igniters) and concluded it met the requirements of the final rule {10 CFR 50.44(c)(3)}.
6.2.6 6.2.6: Containment Leakage Testing	Original 1982 SER		C	See "Approval for Unit 2" column.
6.2.7 6.2.7: Fracture Prevention of Containment Pressure Boundary	6.2.7: CONFIRMATORY ISSUE for TVA to confirm that the lowest temperatures which will be experienced by the limiting materials of the reactor containment pressure boundary under the conditions cited by GDC 51 will be in compliance with the temperatures identified in the staff's analysis of fracture toughness requirements for load bearing component of the containment system SSER4 – March 1985		C	In SSER4, NRC reviewed the confirmatory information submitted and concluded for both units that the reactor containment pressure boundary materials will behave in a non-brittle manner and the requirements of GDC 51 were satisfied. NRC provided the technical basis in SSER4, Appendix H.
6.3 6.3: Emergency Core Cooling System	6.3.1: OUTSTANDING ISSUE - involving removal of upper head injection system SSER7 – September 1991		C	The Upper Head Injection (UHI) system design was approved in the original 1982 SER. TVA letter dated September 19, 1985, informed NRC that UHI would not be installed on Unit 2. In SSER7, NRC concluded it was acceptable to delete UHI from both units.
6.3 6.3: Emergency Core Cooling System	6.3.3: OUTSTANDING ISSUE involving containment sump screen design SSER9 – June 1992		C	In the original 1982 SER, the staff approved the proposed sump design in the FSAR. A deviation between the installed and proposed design was discovered during an NRC inspection. In SSER9, the staff concluded that the as-installed sump screen was acceptable.

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6.3 6.3: Emergency Core Cooling System	6.3.3: CONFIRMATORY ISSUE - provide a detailed survey of insulation material that could become debris post-LOCA SSER2 – January 1984		C	In the original 1982 SER, NRC found the design of the containment sump against debris acceptable subject to the acceptability of a detailed survey of insulation materials. In SSER2, the NRC review of the survey confirmed the staff's initial conclusion that the design to provide protection against sump debris was acceptable.
6.5.1.1 to 6.5.1.4 6.5.1: ESF Atmosphere Cleanup Systems	Original 1982 SER		C	See "Approval for Unit 2" column.
6.5.2 6.5.2: Containment Spray as a Fission Product Cleanup System	Original 1982 SER		C	See "Approval for Unit 2" column.
6.5.3 6.5.3: Fission Product Control Systems and Structures	Original 1982 SER		C	See "Approval for Unit 2" column.
6.5.4 6.5.4: Ice Condenser as a Fission Product Cleanup System	Original 1982 SER		C	See "Approval for Unit 2" column.
7.1.1 7.1: Instrumentation and Controls - Introduction	7.1.3.1: Confirmatory issue to provide a list of all safety related functions and a summary of the setpoint analysis SSER4 – March 1985		C	In the original 1982 SER, the staff indicated the intent to perform an audit of the setpoint methodology. TVA provided information in letters dated April 25, 1983, September 4, 1984, and October 16, 1984. The NRC reviewed the information and found the methodology acceptable in SSER4.

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7.2.1 to 7.2.6	7.2.5: CONFIRMATORY ISSUE - address IEB 79-21 to alleviate temperature dependence problem associated with measuring SG water level		C	See "Approval for Unit 2" column.
7.2: Reactor Trip System	SSER2 – January 1984 SSER14 - December 1994			
7.3.1 to 7.3.6	7.3.5: CONFIRMATORY ISSUE - perform confirmatory tests to satisfy IEB 80-06 (to ensure that no device will change position solely due to reset action) and staff review of electrical schematics for modifications that ensure that valves remain in emergency mode after ESF reset		C	In the original SER, staff concluded that the design modifications for Bulletin 80-06 were acceptable subject to review of the electrical schematics that were not available at the time. In SSER3, the staff found the modifications acceptable and closed the confirmatory issue.
7.3: Engineered Safety Features Systems	SSER3 – January 1985			
7.3.1 to 7.3.6	7.3.2: CONFIRMATORY ISSUE is commitment to make a design change to provide protection that prevents debris from entering containment sump level sensors		C	In the original SER, staff identified a concern that debris in the containment sump could block the inlets to the differential pressure transmitters and result in a loss of the permissive signal to the initiation logic for the automatic switchover from the injection to the recirculation mode of the emergency core cooling system. In a September 15, 1983, letter TVA notified NRC that the level sensors had been moved from inside the sump wall to outside the sump wall with the sense line opening protected by a cap with small holes. Staff closed the issue in SSER2.
7.3: Engineered Safety Features Systems	SSER2 – January 1984			
7.4.1 to 7.4.3	Original 1982 SER		C	See "Approval for Unit 2" column.
7.4: Safe Shutdown Systems				

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
7.5.1 to 7.5.4 7.5: Information Systems Important to Safety	7.5.2: OUTSTANDING ISSUE *involving RG 1.97 instruments* following course of an accident SSER9 – June 1992		C	In the original 1982 SER, the staff stated that WBN did not use *RG 1.97, "Instrumentation for Light Water Cooled Nuclear* Power Plants to Assess Plants and Environs Conditions During and Following an Accident," for the design because the design predated the RG. In SSER7, an outstanding issue was opened. TVA provided NRC information on exceptions to RG 1.97. A detailed review was performed for both units (SSER9 - Appendix V). The staff concluded that WBN conforms to or has adequately justified deviations from the guidance of RG 1.97, Revision 2.
7.6.1 to 7.6.9 7.6: Interlock Systems Important to Safety	7.6.5: CONFIRMATORY ISSUE - install switches on the main control board for the operator to manually arm this system (overpressure protection provided by pressurizer PORVs) SSER4 – March 1985		C	In the original 1982 SER, the staff found the design of the overpressure protection during low temperature features acceptable pending review of the drawings and FSAR description. In SSER4, the staff documented completion of the review and closed the confirmatory issue.
7.7.1 to 7.7.7 7.7: Control Systems	7.7.2 – LICENSE CONDITION – Status monitoring system, Bypassed and Inoperable Status Indication SSER7 – September 1991		C	In the original 1982 SER, the staff requested TVA address RG 1.47, "Bypassed and Inoperable Status Indications for Nuclear Power Plant Safety Systems." TVA addressed RG 1.47 by letters dated January 29, 1987, and October 22, 1990. In SSER7, the staff documented completion of the review and closed the issue.
8.1 8.1: Electrical Power - Introduction	Original 1982 SER		C	*See "Approval for Unit 2" column.*

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8.2.1 to 8.2.4 8.2: Offsite Power System	8.2.2.1: CONFIRMATORY ISSUE - document additional information in FSAR on control power supplies and distribution system for the Watts Bar Hydro Plant Switchyard SSER2 – January 1984 SSER13 - April 1994		C	In the original 1982 SER, NRC concluded that the offsite power system circuits at the Watts Bar Hydro Plant Switchyard met GDC 17 pending documentation in the FSAR. The information was added to the FSAR. In SSER2, NRC closed the issue. In SSER13, the staff reviewed revised information and concluded that it supported the original conclusion in SSER2.
8.2.1 to 8.2.4 8.2: Offsite Power System	*8.2.2.2/8.2.2.3/ 8.2.2.4: OUTSTANDING ISSUE involving compliance of design changes to the offsite power system with GDC 17 and 18. SSER13 – April 1994		C	In SSER13, the NRC documented the review of design changes to minimize the probability of losing all AC power, compliance with GDC 17 and minimizing the probability of a two unit trip following a one unit trip. These issues were resolved in SSER13.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.3.1.1: CONFIRMATORY ISSUE involving submergence of electrical equipment as result of a LOCA SSER13 – April 1994		C	In the original 1982 SER, staff stated that the design for the automatic deenergizing of loads as a result of a LOCA would be verified as part of the site visit. During the August 1991, visit and in a letter dated September 13, 1991, TVA committed to revise the FSAR. The information was added to the FSAR. In SSER13, NRC closed the issue.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.3.2: CONFIRMATORY ISSUE - revise FSAR to reflect requirements of shared safety systems SSER3 – January 1985 SSER13 – April 1994		C	In the original 1982 SER, the staff stated that the description and analysis of shared onsite AC and DC systems was under review but was acceptable pending revision of the FSAR. In SSER3, the confirmatory issue was left open to track additional information to be incorporated in the FSAR. In a letter dated September 13, 1991, TVA provided the additional information. In SSER13, NRC closed the issue.

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8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.3.6: CONFIRMATORY ISSUE involving evaluation of penetrations' ability to withstand failure of overcurrent protection device SSER7 – September 1991		C	In the original 1982 SER, staff required a reevaluation of the penetrations' capability to withstand, without seal failure, the total range of available time-current characteristics assuming a single failure of any overcurrent protective device. In SSER3, staff found the results of the evaluation acceptable pending the information being incorporated in the FSAR. The staff reviewed the FSAR and closed the issue in SSER7.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.3.2.3: CONFIRMATORY ISSUE for design of sharing raceway systems between units SSER2 – January 1984		C	In the original SER, NRC indicated that the design for sharing of raceway systems between units would be verified during the electrical drawing review. The staff confirmed that cable routing was in accordance with accepted separation criteria and closed the issue in SSER2.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.1.1: CONFIRMATORY ISSUE - incorporate new design that provides dedicated transformer for each preferred offsite circuit in FSAR SSER2 – January 1984		C	In the original 1982 SER, NRC concluded that the offsite power system with a dedicated transformer for each preferred offsite circuit met GDC 17 pending documentation in the FSAR. The information was added to the FSAR. In SSER2, NRC closed the issue.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.3.1.2: CONFIRMATORY ISSUE - verify design for bypass of thermal overload protective device SSER2 – January 1984		C	In the original 1982 SER, NRC indicated that the design for bypass of thermal overload protective devices on safety-related motor operated valves would be verified during the electrical drawing review. The staff subsequently reviewed the drawings and closed the issue in SSER2.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.1.6: CONFIRMATORY ISSUE - provide diesel generator reliability qualification test report SSER7 – September 1991		C	In SSER2, NRC indicated that it would verify DG qualification testing. TVA provided a copy of the DG qualification test report. In SSER7, the NRC concluded that the DGs had been satisfactorily tested in accordance with IEEE 387-1977.

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8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.1.6: LICENSE CONDITION – (12) Diesel generator reliability qualification testing at normal operating temperature SSER2 – January 1984		C	In the original 1982 SER, NRC required that the capability of the DGs to start at normal temperature be demonstrated. TVA's August 31, 1983, letter confirmed tests had been performed on a DG identical to those at WBN. In SSER2, NRC closed the issue.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.3.5.2: CONFIRMATORY ISSUE - incorporate commitment to test only one of four diesel generators at one time SSER2 - January 1984		C	In the original 1982 SER, the NRC found the commitment to test DGs one at a time acceptable pending its incorporation into the FSAR. In SSER2, NRC reviewed the documentation and closed the issue.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.3.3: LICENSE CONDITION – Testing of associated circuits SSER3 – January 1985		C	In the original 1982 SER, staff required that protective devices used to isolate non-Class 1E from Class 1E circuits be of high quality commensurate with their importance to safety and be periodically tested. TVA letter dated January 17, 1984, provided the information. NRC closed the issue in SSER3.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.3.3 – LICENSE CONDITION – Testing of non-class 1E cables SSER3 – January 1985		C	In the original 1982 SER, staff required that protective devices used to isolate non-Class 1E from Class 1E circuits be of high quality commensurate with their importance to safety and be periodically tested. TVA letter dated January 17, 1984, provided the information. NRC closed the issue in SSER3.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.3.2.4: LICENSE CONDITION – Possible sharing of DC control power to AC switchgear SSER3 – January 1985		C	In the original 1982 SER, staff required that all possible interconnections between redundant divisions through normal and alternate power sources to various loads be identified in the FSAR. TVA letter dated January 17, 1984, provided the information. NRC closed the issue in SSER3.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.2.2 – LICENSE CONDITION – DC monitoring and annunciation system SSER3 – January 1985 SSER13 - April 1994		C	In SSER3, the staff determined that some items were omitted from the design of the DG DC monitoring and annunciation system. In TVA letter dated September 13, 1991, TVA provided the additional information. In SSER13, NRC closed the issue.

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8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.2.4: CONFIRMATORY ISSUE - include diesel generator design analysis in FSAR SSER2 – January 1984		C	In the original 1982 SER, staff indicated the design analysis for demonstrating compliance of the DGs with regulatory requirements and guidelines was acceptable pending incorporation of the analysis in the FSAR. The analysis was incorporated in the FSAR, and the issue closed in SSER2.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.3.6: LICENSE CONDITION – Testing of reactor coolant pump breakers SSER2 – January 1984		C	In the original 1982 SER, staff required that the redundant fault current protective devices for the reactor coolant pump circuits meet RG 1.63. In SSER2, staff reviewed the design and concluded it met RG 1.63.
9.1.3 9.1.3: Spent Fuel Pool Cooling and Cleanup System	Original 1982 SER		C	See "Approval for Unit 2" column.
9.1.4 9.1.4: Light Load Handling System (Related to Refueling)	Original 1982 SER		C	See "Approval for Unit 2" column.
9.1.4 9.1.5: Overhead Heavy Load Handling Systems	LICENSE CONDITION – Control of heavy loads (NUREG-0612) Resolved SSER13 – April 1994		C	The staff concluded in SSER13 that the license condition was no longer necessary based on their review of TVA's response to NUREG-0612 guidelines for Phase I in TVA letter dated July 28, 1993.
9.2.2 9.2.2: Reactor Auxiliary Cooling Water Systems		NUREG-0737, II.K.3.25	C	II.K.3.25, "Power on Pump Seals" - NRC reviewed and closed in IR 390/84-35 based on DG power to pump sealing cooling system.
9.2.3 9.2.3: Demineralized Water Makeup System	Original 1982 SER		C	See "Approval for Unit 2" column.

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9.2.4 9.2.4: Potable and Sanitary Water Systems	Original 1982 SER		C	See "Approval for Unit 2" column.
9.2.5 9.2.5: Ultimate Heat Sink	Original 1982 SER		C	See "Approval for Unit 2" column.
9.2.6 9.2.6: Condensate Storage Facilities	Original 1982 SER		C	See "Approval for Unit 2" column.
9.3.2 9.3.2: Process and Post-Accident Sampling Systems	9.3.2: LICENSE CONDITION – Post-Accident Sampling System Resolved SSER14 –December 1994		C	TVA submitted a final procedure for estimating degree of core damage by letter dated June 10, 1994, and the license condition was deleted in SSER14.
9.3.3 9.3.3: Equipment and Floor Drainage System	Original 1982 SER		C	See "Approval for Unit 2" column.
9.4.1 9.4.1: Control Room Area Ventilation System	Original 1982 SER		C	See "Approval for Unit 2" column.
9.4.2 9.4.2: Spent Fuel Pool Area Ventilation System	Original 1982 SER		C	See "Approval for Unit 2" column.
9.4.3 9.4.3: Auxiliary and Radwaste Area Ventilation System	Original 1982 SER		C	See "Approval for Unit 2" column.

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9.4.4 9.4.4: Turbine Area Ventilation System	Original 1982 SER		C	See "Approval for Unit 2" column.
9.4.5 9.4.5: Engineered Safety Feature Ventilation System	Original 1982 SER Resolved SSER18 – October 1995		C	See "Approval for Unit 2" column.
9.5.1.1 to 9.5.1.9 9.5.1: Fire Protection Program	9.5.1.2: OUTSTANDING ISSUE for Fire Protection Program 9.5.1.3: CONFIRMATORY ISSUE – Electrical penetrations documentation 9.5.1.3: LICENSE CONDITION – Fire protection program Resolved SSER18 – October 1995 SSER19 – November 1995		C	In SSER18, the staff concluded that the Fire Protection program for Watts Bar conformed to the requirements of 10CFR50.48 and was acceptable except for the fire barrier seal program and emergency lighting inside the Reactor Building. Additionally, the staff considered the confirmatory issue involving electrical penetration documentation resolved in SSER18 on the basis of the safety evaluation of the revised Fire Protection program included in Appendix FF of SSER18. In SSER19, Appendix FF, a safety evaluation of the Fire Protection program contains a detailed evaluation of fire barrier penetration seals. The staff concluded that TVA's penetration seal program adequately demonstrates the fire resistive rating of the penetrations, and that they conform to the guidelines of Positions D.1.j and D.3.d of Appendix A to BTP 9.5.1 and were acceptable. The safety evaluation also includes TVA's revised position on emergency lighting, which was found to be acceptable.
9.5.1.1 to 9.5.1.9 9.5.1: Fire Protection Program		B 75-04	C	B 75-04, "Cable Fire at BFNPP" – This bulletin is included in the Fire Protection Program.
9.5.3 9.5.3: Lighting Systems	No open issues		C	See "Approval for Unit 2" column.

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9.5.4.1, 9.5.4.2	9.5.4.2: OUTSTANDING ISSUE to design skid-mounted piping and components from the day tank to the diesel engine as seismic Category I and to ASME Section III, Class 3		C	See discussion in 9.5.4.1
9.5.4: Emergency Diesel Engine Fuel Oil Storage and Transfer System	Resolved SSER5 - November 1990			
9.5.4.1, 9.5.4.2	9.5.4.2: CONFIRMATORY ISSUE - provide missile protection for fuel oil storage tank vent lines		C	The staff found TVA's commitment to provide missile protection for the fuel oil storage tank vent lines acceptable and verified that the protection had been installed and considered this issue resolved in SSER5.
9.5.4: Emergency Diesel Engine Fuel Oil Storage and Transfer System	Resolved SSER5 - November 1990			
9.5.4.1, 9.5.4.2	9.5.4.1: CONFIRMATORY ISSUE - include required language in operating instruction to ensure no-load and low-load operation is minimized and revise operating procedures to address increased diesel generator load after it has run for an extended period of time at low or no load		C	In SSER5, the staff verified that plant operating procedures had been revised to incorporate requirements that ensure that operational no-load and low-load conditions will not harm the diesel generators.
9.5.4: Emergency Diesel Engine Fuel Oil Storage and Transfer System	Resolved SSER5 - November 1990			

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9.5.4.1, 9.5.4.2	9.5.4.1: OUTSTANDING ISSUE for staff to complete review to determine if diesel generator auxiliary support systems can perform their design safety functions under all conditions, after receipt of all requested information		C	The staff reviewed standards to which emergency diesel engine skid mounted auxiliary system piping and associated components were designed, as well as the testing and inspections to be performed on these systems, and concluded that they were acceptable in SSER5. The staff considered this issue resolved. This resolution applies to the fuel oil, cooling water, air starting, lubrication, and combustion air intake and exhaust systems.
9.5.4: Emergency Diesel Engine Fuel Oil Storage and Transfer System	Resolved SSER5 - November 1990			
9.5.4.1, 9.5.4.2	9.5.4.1: LICENSE CONDITION – Diesel Generator reliability		C	The staff verified that the modifications necessary to comply with NUREG/CR-0660 had been completed and, as stated above, requirements had been incorporated into operating procedures. Thus, this license condition was resolved in SSER5.
9.5.4: Emergency Diesel Engine Fuel Oil Storage and Transfer System	Resolved SSER5 - November 1990			
9.5.5	9.5.5: OUTSTANDING ISSUE to design engine cooling water system piping and components for all engines up to the engine interface, including auxiliary skid mounted piping, to ASME Section III, Class 3		C	See discussion in 9.5.4.1
9.5.5: Emergency Diesel Engine Cooling Water System	Resolved SSER5 - November 1990			
9.5.6	9.5.6: OUTSTANDING ISSUE to design engine air-starting system piping components for all engines up to the engine interface, including auxiliary skid mounted piping, to ASME Section III, Class 3		C	See discussion in 9.5.4.1
9.5.6: Emergency Diesel Engine Starting System	Resolved SSER5 - November 1990			

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
9.5.7	9.5.7: OUTSTANDING ISSUE to perform additional modification, or provide justification for acceptability of proposed modification, to ensure lubrication of all wearing parts of the diesel engine either on an interim or continuous basis		C	In response to a staff concern regarding dry diesel engine starting, TVA proposed using the manufacturers' modification and provided justification for its ability to ensure lubrication of all parts of the diesel engine. The staff found this acceptable in SSER5.
9.5.7: Emergency Diesel Engine Lubrication System	Resolved SSER5 - November 1990			
9.5.7	9.5.7: OUTSTANDING ISSUE to design standby diesel engine lube oil system piping and components up to the engine interface, including skid mounted piping, to ASME Section III, Class 3		C	See discussion in 9.5.4.1
9.5.7: Emergency Diesel Engine Lubrication System	Resolved SSER5 - November 1990			
9.5.7	9.5.7: OUTSTANDING ISSUE to provide a more detailed description of the lubricating oil system and a description of the diesel engine crankcase explosion protection features		C	TVA submittal of March 18, 1995, responded to a staff request to describe the features that protect the diesel engine crankcase from exploding. In SSER5, on the basis of this submittal, the staff concluded that the emergency diesel engine lubrication oil system can perform its safety function and is acceptable. This issue was resolved.
9.5.7: Emergency Diesel Engine Lubrication System	Resolved SSER5 - November 1990			
9.5.8	9.5.8: OUTSTANDING ISSUE to design standby diesel engine combustion air intake and exhaust system piping and components up to the engine interface to ASME Section III, Class 3 and recommendations of RG 1.26		C	See discussion in 9.5.4.1
9.5.8: Emergency Diesel Engine Combustion Air Intake and Exhaust System	Resolved SSER5 - November 1990			

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
11.7	11.7.1: LICENSE CONDITION (6a) - Accident monitoring instrumentation II.F.1 – Noble Gas monitor		C	TVA committed to have Unit 2 shielding building vent monitor in place and high range noble gas monitor installed and operational prior to Unit 1 fuel loading and the staff then considered license condition 6a resolved in SSER5.
NA: NUREG -0737 items	Resolved SSER5 – November 1990			
11.7	11.7.1: LICENSE CONDITION (6b) - Accident monitoring instrumentation II.F.1 – Iodine particulate sampling		C	TVA committed to have the capability for continuous collection of samples of plant gaseous effluents for post accident releases of iodine particulate by fuel load. The staff reviewed this in SSER5 and SSER6 and considered the issue resolved in SSER6.
NA: NUREG -0737 items	Resolved SSER6 – April 1991			
15.5.1 - 15.5.2	LICENSE CONDITION – Effect of high pressure injection for small beak LOCA with no auxiliary feedwater - II.K.2.13		C	In SSER4, the staff concluded that there was reasonable assurance that vessel integrity would be maintained for small breaks with an extended loss of all feedwater and that the USI A-49, "Pressurized Thermal Shock," review did not have to be completed to support the full-power license. They considered this condition resolved.
NA: NUREG-0737 items	Resolved SSER4 – March 1985			
15.5.1 - 15.5.2	LICENSE CONDITION – Voiding in the reactor coolant system - II.K.2.17		C	The staff reviewed the generic resolution of this license condition in SSER4 and approved the study in question, thereby resolving this license condition.
NA: NUREG-0737 items	Resolved SSER4 – March 1985			
13.5.3	13.5.3: LICENSE CONDITION – Report on outage of emergency core cooling system II.K.3.17		C	In the original 1982 SER, the NRC accepted TVA's commitment to develop and implement a plan to collect emergency core cooling system outage information. In SSER3, the staff accepted a revised commitment from an October 28, 1983, letter to participate in the nuclear power reliability data system and comply with the requirements of 10 CFR 50.73
NA: NUREG-0737, items	Resolved SSER3 – January 1985			

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Table 5 – Items Recommended for Implementation Action Review

ITEMS RECOMMENDED FOR IMPLEMENTATION ACTION REVIEW

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
SER 14	14.2: LICENSE CONDITION – Report changes to Initial Test Program Resolved SSER7 – September 1991		I	In the original 1982 SER, this LC was intended to require TVA report to NRC within 30 days of modifying an approved initial test. In SSER7, the NRC accepted a commitment in TVA's July 1, 1991, letter to notify NRC within 30 days of any changes to the Startup Test Program made under 10 CFR 50.59. Unit 2 action: Notify NRC within 30 days of any changes to the Startup Test Program made under 10 CFR 50.59.
SER 14	14.2: Unit 2 issue to verify capability of each common station service transformer to carry load required to supply ESF loads of 1 unit under LOCA condition in addition to power required for shutdown on non-accident unit		I	This issue was raised in SSER14 and resolved for Unit 1 only. In SSER14, the NRC stated that before an OL can be issued for Unit 2, TVA would have to demonstrate the capability of each CSST to carry the loads of one unit under LOCA conditions in addition to power required for shutting down the non-accident unit. TVA agreed with the NRC position in a January 5, 1995 letter. Unit 2 action: Amend FSAR Chapter 14 to reflect the capability of each CSST to carry the loads of one unit under LOCA conditions in addition to power required for shutting down the non-accident unit.
NA 10 CFR 50.65– Maintenance Rule	Not addressed in SER		I	Unit 2 action: Implement Maintenance Rule for Unit 2 systems 1 month prior to fuel load

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
10.4.9 10.4.9: Auxiliary Feedwater System (PWR)	Original 1982 SER SER – July 20, 1988	B 85-01/GL 88-03	I	B 85-01 / GL 88-03, "Steam Binding of Auxiliary Feedwater Pumps" – NRC accepted approach in letter dated July 20, 1988, and reviewed response in SSER16 (September 1995). Unit 2 Action: Procedures and hardware will be in place to ensure recognition of indications of steam binding and maintenance of system operability until check valves are repaired and back leakage stopped.
10.4.9 10.4.9: Auxiliary Feedwater System (PWR)	Original 1982 SER SER – July 20, 1988	NUREG-0737, II.E.1.1	I	II.E.1.1, "Auxiliary Feedwater System Evaluation, Modifications" – Reviewed in SSER16 (September 1995). Unit 2 Action: Perform Auxiliary Feedwater System analysis as it pertains to system failure and flow rate.
11.5 11.5: Process and Effluent Radiological Monitoring Instrumentation and Sampling Systems	Original 1982 SER	B 80-10	I	B 80-10, "Contamination of Non-radioactive Systems and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment." Unit 2 Action: Correct deficiencies involving monitoring of systems.
13.5.1, 13.5.2 13.5.1: Administrative Procedures	13.5.2: LICENSE CONDITION – Modifications to Emergency Operating instructions I.C.8 Resolved SSER10 - October 1992	NUREG-0737, I.C.8	I	I.C.8, "Pilot monitoring of selected emergency procedures for NTOLs" - IR 50-390/391 85-08 closed this item for Unit 1, and NRC also reviewed in SSER16. Unit 2 Action: Pilot monitor selected emergency procedures for NTOL.
13.5.1, 13.5.2 13.5.1: Administrative Procedures	13.5.2: LICENSE CONDITION – Review of power ascension test procedures and emergency operating procedures by the NSSS vendor I.C.7 Resolved SSER10 - October 1992	NUREG-0737, I.C.7	I	I.C.7, "NSSS vendor revision of procedures" – IR 50-390/391 85-08 closed this item for Unit 1, and NRC also reviewed in SSER16. Unit 2 Action: Revise power ascension and emergency procedures which were reviewed by Westinghouse.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
17.1, 17.2 17.1 – Quality Assurance (QA) During the Design and Construction Phase	Original 1982 SER	B 87-02	I	B 87-02, "Fastener Testing to Determine Conformance with Applicable Material Specifications" - NRC closed in letter dated August 18, 1989. Unit 2 Action: Complete for Unit 2, using information used for Unit 1, as applicable.
18 18: Human Factors Engineering	LICENSE CONDITION – Detailed Control Room Design review I.D.1 Resolved for Unit 1 in SSER15 – June 1995, with onsite audit of Unit 1 control room improvements – same resolution for Unit 2	NUREG-0737, III.D.3.4	I	III.D.3.4, "Control Room Habitability" - NRC reviewed in SER and SSER16 (September 1995). Unit 2 Action: Complete with CRDR completion.
18 18: Human Factors Engineering	LICENSE CONDITION – Detailed Control Room Design review I.D.1 Resolved for Unit 1 in SSER15 – June 1995, with onsite audit of Unit 1 control room improvements – same resolution for Unit 2	NUREG-0737, I.D.1	I	I.D.1, "Control Room Design Review" - NRC reviewed in SSER5 (November 1990), SSER6 (April 1991), SSER15 (June 1995) and SSER16 (September 1995). Unit 2 Actions: Complete the CRDR process. Perform rewiring in accordance with ECN 5982. Take advantage of the completed Human Engineering reviews to ensure appropriate configuration for Unit 2 control panels. See CRDR Special Program.
18 18: Human Factors Engineering	LICENSE CONDITION – Make Safety Parameter Display System operable prior to startup from the first refueling outage Open item for Unit 2 - resolution requires a functional system before fuel load and on-line testing after Unit 2 is operational; then an operational certification (GL 89-06)	NUREG-0737, I.D.2, GL 82-33, GL 89-06	I	I.D.2/GI 82-33/GL 89-06 – "Safety Parameter Display System" (SPDS)/"Requirements for Emergency Response Capability" - NRC reviewed in SSER5 (November 1990), SSER6 (April 1991) and SSER15 (June 1995). Unit 2 Action: Install SPDS and have it operational prior to start-up after the first refueling outage.
3.11 3.11: Environmental Qualification of Mechanical and Electrical Equipment		B 78-04	I	B 78-04, "Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment" - IR 50-390/82-13 and 50-391/82-10 (April 22, 1982) accepted approach. Unit 2 Action – Ensure NAMCO switches have been replaced.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.11 3.11: Environmental Qualification of Mechanical and Electrical Equipment		NUREG-0737, II.B.2	I	II.B.2, "Plant Shielding" - NRC reviewed in SSER16 (September 1995). Unit 2 Action – Complete Design Review of EQ of equipment for spaces/systems which may be used in post accident operations.
3.2.2 3.2.2: System Quality Group Classification	Original 1982 SER	B 83-06	I	B 83-06, "Nonconforming Material Supplied by Tube-Line" - NRC SER for both units dated September 23, 1991, provided an alternate acceptance for fittings supplied by Tube-Line. Unit 2 Action: Implement as necessary.
3.6.2 3.6.2: Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping	Original 1982 SER	B 80-04	I	B 80-04, "Analysis of PWR Main Steam Line Rupture with Continued Feedwater Addition" - IR 50-390/85-60 and 50-391/85-49 (December 6, 1985) required completion of actions that included determination of temperature profiles inside and outside of containment following a MSLB for Unit 1. Unit 2 Action: Complete analysis for Unit 2.
3.7.3 3.7.3: Seismic Subsystem Analysis	3.7.3: OUTSTANDING ISSUE involving use of code cases, damping factors for conduit and use of worst case, critical case and bounding case Code case use, damping factors for conduit SSER8 – January 1992, (CAP/SP implementation issue resolved in IR 390/93-201)		I	Conduit Supports Corrective Action Program. Process was reviewed and determined to be acceptable for Unit 1 in SER dated September 1, 1989. Unit 2 Action: CAP/SP see Table 3. The Unit 1 approach will be used for Unit 2.
3.7.3 3.7.3: Seismic Subsystem Analysis	3.7.3: OUTSTANDING ISSUE involving use of code cases, damping factors for conduit and use of worst case, critical case and bounding case Code case use, damping factors for conduit SSER8 – January 1992, (CAP/SP implementation issue resolved in IR 390/93-201)		I	Deficiencies identified in the use of worst case, critical case and bounding calculations were resolved in IR 50-390/93-201, and this issue was considered resolved for Unit 1 in SSER12. Unit 2 Action: CAP/SP see Table 3. The Unit 1 approach will be used for Unit 2.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.8.3 3.8.4: Other Seismic Category I Structures	Original 1982 SER	B 80-11	I	B 80-11, "Masonry Wall Design" - NRC accepted all but completion of corrective actions in IR 50-390/93-01 and 50-391/93-01(February 25, 1993) and closed for Unit 1 in IR 50-390/95-46 (August 1, 1995). Unit 2 Action: Complete implementation for Unit 2.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 74-03	I	B 74-03, "Failure of Structural or Seismic Support Bolts on Class I Components" - Approach accepted in IR 50-390/85-08 and 50-391/85-08 (March 29, 1985). Unit 2 Action: Implement per NUREG-0577 as was done for Unit 1.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		GL 95-07	I	GL 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves" - Unit 1 SER for GL 95-07 dated Sept 15, 1999. Unit 2 Action: Perform evaluation for pressure locking and thermal binding of safety related power-operated gate valves and take corrective actions for those valves identified as being susceptible.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 89-02	I	B 89-02, "Stress Corrosion Cracking of High Hardness Type 410 Stainless Steel Preloaded Bolting in Anchor Darling Model S350W Swing Check Valves or Valves of Similar Nature" - NRC reviewed in SSER16 (September 1995). Unit 2 Actions: Replace the flapper assembly hold-down bolts fabricated on the 14 (12 valves are installed) Atwood and Morrell Mark No. 47W450-53 check valves. Replacement bolts are to be fabricated from ASTM F593 Alloy 630. A review of the remaining Unit 2 safety related swing check valves will be performed.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 88-11	I	B 88-11, "Pressurizer Surge Line Thermal Stratification" - NRC SER on "Leak-Before-Break" (April 28, 1993) and review in SSER16 (September 1995). Unit 2 Action: Complete modifications to accommodate Surge Line thermal movements and incorporate a temperature limitation during heatup and cooldown operations into Unit 2 procedures.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 82-02	I	B 82-02, "Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants" - Approach accepted in IR 50-390/85-08 and 50-391/85-08 (March 29, 1985). Unit 2 Action: Implement same approach as Unit 1.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 79-14	I	B 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems" - NRC review of HAAUP Program in NUREG-1232, SSER6 (April 1991) and SSER8 (January 1992) - Unit 2 Actions: CAP/SP see Table 3. Initiate a Unit 2 hanger walkdown and hanger analysis program similar to the program for Unit 1. Complete re-analysis of piping and associated supports as necessary. Perform modifications as required by re-analysis.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 75-03	I	B 75-03, "Incorrect Lower Disc Spring and Clearance Dimension in Series 8300 8302 ASCO Solenoid Valves" - NRC accepted in IR 50-390/75-6 and 50-391/75-6 (August 21, 1975). Unit 2 Action: Modify valves not modified at factory.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 79-02	I	B 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts" - NRC review of HAAUP Program in NUREG-1232, SSER6 (April 1991) and SSER8 (January 1992). Unit 2 Actions: CAP/SP see Table 3. Conduct a complete review of affected support calculations, and perform the necessary revisions to design documents and field modifications to achieve compliance.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 75-05	I	B 75-05, "Operability of Category I Hydraulic Shock and Sway Suppressors" - NRC accepted in IR 50-390/75-6 and 50-391/75-6 (August 21, 1975). Unit 2 Action: Install proper suppressors.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		B 88-05	I	B 88-05, "Nonconforming materials supplied by Piping Supplies, Inc. and West Jersey Manufacturing Co. (WJM)" - NRC reviewed in SSER16 (September 1995). Unit 2 Action: Complete review to locate installed WJM material and perform in-situ hardness testing for Unit 2.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
3.9.6 3.9.6 – Inservice Testing of Pumps and Valves		GL 96-05	I	GL 96-05, "Periodic Verification (PV) of Design Basis Capability of Safety-Related MOVs" - SE of TVA response to GL 96-05 dated July 21, 1999. Unit 2 Action – Implement the Joint Owner's Group recommended GL 96□05 MOV PV program, as described in Topical Report No. OG-97-018, and begin testing during the first refueling outage after startup.
3.9.6 3.9.6 – Inservice Testing of Pumps and Valves		GL 89-10	I	GL 89-10, "Safety Related Motor-Operated Valve (MOV) Testing and Surveillance" - NRC accepted approach in September 14, 1990, letter and reviewed in SSER16 (September 1995). Unit 2 Action – Implement pressure testing and surveillance program for safety-related MOVs, satisfying the intent of GL 89-10.
4.2.1, 4.2.2, 4.2.3, 4.2.4 4.2: Fuel System Design		GL 93-04	I	GL 93-04, "Rod Control System Failure and Withdrawal of Rod Control Cluster Assemblies" - NRC letter December 9, 1994, accepted TVA commitments for both units. Unit 2 action: Implement modifications and testing.
4.2.1, 4.2.2, 4.2.3, 4.2.4 4.2: Fuel System Design		B 96-01	I	B 96-01, "Control Rod Insertion Problems" – NRC acceptance letter for Unit 1 dated July 22, 1996. – Initial response for Unit 2 on September 7, 2007. Unit 2 action: Issue Emergency Operating Procedure and provide core map.
5.2.2 5.2.2: Overpressure Protection		NUREG-0737, II.D.1,	I	II.D.1, "Relief and Safety Valve Test Requirements" – NRC reviewed in TER attached to SSER15 (June 1995). Unit 2 actions: 1) Testing of relief and safety valves; 2) Reanalysis of fluid transient loads for pressurizer relief and safety valve supports and any required modifications; 3) Modifications to pressurizer safety valves, PORVs, PORV block valves and associated piping; and 4) Change motor operated block valves.

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5.2.2 5.2.2: *Overpressure Protection*		GL 96-03	I	GL 96-03, "Relocation of the Pressure Temperature Limit Curves and Low Temperature Overpressure Protection System Limits" – GL 96-03 did not require a response. Unit 2 Action: Submit P-T limits and similar to Unit 1, upon approval, incorporate into licensee-controlled document.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		B 02-02	I	B 02-02, "RPV Head and Vessel Head Penetration Nozzle Inspection Program" – NRC acceptance letter dated December 20, 2002 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action: Perform baseline inspection.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		B 04-01	I	B 04-01, "Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at PWRs" – Initial response for Unit 2 on September 7, 2007. Unit 2 actions: Provide details of pressurizer and penetrations and apply Material Stress Improvement Process.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing	5.2.4: OUTSTANDING ISSUE – Unit 2 PSI program submitted April 30, 1990, with a partial listing of relief requests. This item tracked the staff review. Unit 1 only SSERs 10, 12 and 16		I	In the SER, the preservice inspection program was still under review. NRC reviewed the Unit 1 PSI program in SSERs 10, 12 and 16. Unit 2 Action: Submit Unit 2 PSI program.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		B 03-02	I	B 03-02, "Leakage from RPV Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity" – NRC acceptance letter dated October 6, 2004 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action: Perform baseline inspection.

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5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		B 01-01	I	B 01-01, "Circumferential Cracking of Reactor Pressure Vessel (RPV) Head Penetration Nozzles" – NRC acceptance letter dated November 20, 2001 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action: Perform baseline inspection.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		B 88-09	I	B 88-09, "Thimble Tube Thinning in Westinghouse Reactors "– Reviewed in SSER16 (September 1995). Unit 2 Action: TVA letter dated March 11, 1994, for both units committed to establish a program and inspect the thimble tubes during the first refueling outage.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		GL 88-05	I	GL 88-05, "Boric Acid Corrosion of Carbon Stainless Steel Reactor Pressure Boundary Components in PWR Plants" – NRC acceptance letter dated August 8, 1990 for both units. Unit 2 action: Implement program.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		GL 97-01	I	GL 97-01, "Degradation of Control Rod Drive Mechanism Nozzle and Other Vessel Closure Head Penetrations" – NRC acceptance letter dated November 4, 1999 (Unit 1). Unit 2 Action: Provide a report to address the inspection program.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing		B 02-01	I	B 02-01, "RPV Head Degradation and Reactor Coolant Pressure Boundary Integrity" - NRC review of 15 day response in letter dated May 20, 2002 – Initial response for Unit 2 on September 7, 2007. Unit 2 action: Perform baseline inspection.
5.4.5 5.4.12: Reactor Coolant System High Point Vents	LICENSE CONDITION – Installation of reactor coolant vents (II.B.1)	NUREG-0737, II.B.1	I	In the original SER, the NRC found TVA's commitment to install reactor coolant vents acceptable pending verification. This was completed for Unit 1 only in SSER5 (IR 390/84-37). Unit 2 action: Verify installation of reactor coolant vents.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		B 88-02	I	B 88-02, "Rapidly Propagating Fatigue Cracks in Steam Generator Tubes" – NRC acceptance letter dated June 7, 1990, for both units. Unit 2 Actions: Evaluate E/C data to determine anti-vibration bar penetration depth; perform T/H analysis to identify susceptible tubes; modify, if necessary.
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		B 89-01	I	B 89-01, "Failure of Westinghouse Steam Generator Tube Mechanical Plugs" – NRC acceptance letter dated September 26, 1991 for both units. Unit 2 Action: Remove SG tube plugs.
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		GL 97-06	I	GL 97-06, "Degradation of SG Internals" – NRC acceptance letter dated October 19, 1999 (Unit 1). – Initial response for Unit 2 on September 7, 2007. TVA responded to a request for additional information on December 17, 2007. Unit 2 Action: Perform SG inspections during each refueling outage.
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		GL 97-05	I	GL 97-05, "SG Inspection Techniques" – NRC acceptance letter dated September 22, 1998 (Unit 1) - Initial response for Unit 2 on September 7, 2007. Unit 2 Action: Employ the same approach used on the original Unit 1 SGs. TVA responded to a request for additional information on December 17, 2007.
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		GL 95-03	I	GL 95-03, "Circumferential Cracking of Steam Generator (SG) Tubes" – NRC acceptance letter dated May 16, 1997 (Unit 1). – Initial response for Unit 2 on September 7, 2007. TVA responded to a request for additional information on December 17, 2007. Unit 2 Action: Perform baseline inspection.
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		GL 85-02	I	GL 85-02, "Recommended Actions Stemming From NRC Integrated Program for the Resolution of Unresolved Safety Issues Regarding Steam Generator Tube Integrity" - TVA responded to the GL on June 17, 1985. Unit 2 Action: Perform SG inspection.

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*: C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		GL 04-01	I	*GL 04-01, "Requirements for SG Tube Inspection"* – NRC acceptance letter dated April 8, 2005 (Unit 1) – Initial response for Unit 2 on September 7, 2007. Unit 2 Action: Perform baseline inspection.
5.4.3 5.4.7: Residual Heat Removal (RHR) System		GL 81-21	I	GL 81-21 "Natural Circulation Cooldown" TVA responded December 3, 1981. Unit 2 action: Issue operating procedures.
5.4.3 5.4.7: Residual Heat Removal (RHR) System		B 88-04	I	B 88-04, "Potential Safety-Related Pump Loss" – NRC acceptance letter dated May 24, 1990, for both units. Unit 2 Action: Perform calculations and install check valves to prevent pump to pump interaction.
5.4.3 5.4.7: Residual Heat Removal (RHR) System		B 88-08	I	B 88-08, "Thermal Stresses in Piping Connected to Reactor Cooling Systems" – NRC acceptance letter dated September 19, 1991, for both units. Unit 2 Action: Implement program to prevent thermal stratification.
5.4.3 5.4.7: Residual Heat Removal (RHR) System		GL 88-17	I	GL 88-17, "Loss of Decay Heat Removal" – NRC acceptance letter dated March 8, 1995 (Unit 1). Unit 2 Action: Implement modifications to provide RCS temperature, RV level and RHR system performance.
5.4.3 5.4.7: Residual Heat Removal (RHR) System	5.4.3: CONFIRMATORY ISSUEs to verify installation of an RHR flow alarm and proper function of dump valves when actuated manually SSER2 resolved testing of dump valves		I	In the SER, staff accepted TVA's commitment to provide, before startup, an RHR flow alarm to alert the operator to initiate alternate cooling modes in the event of loss of RHR pump suction. Unit 2 action: Verify alarm installation.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
6.2.1.1 6.2.1.1.B: Ice Condenser Containments	LICENSE CONDITION – (6d) Accident monitoring instrumentation II.F.1 – containment pressure.	NUREG-0737, II.F.1	I	In SSER5, NRC closed the LC for Unit 1 only (IR 390/84-59) – November 1990. Unit 2 action: Verify installation of containment pressure indication.
6.2.1.1 6.2.1.1.B: Ice Condenser Containments	LICENSE CONDITION – (6e) Accident monitoring instrumentation II.F.1 – containment water level	NUREG-0737, II.F.1	I	In SSER5, NRC closed the LC for Unit 1 only (IR 390/84-85) – November 1990. Unit 2 action: Verify installation of containment water level monitors.
6.2.5 6.2.5: Combustible Gas Control in Containment	LICENSE CONDITION – (6f) Accident monitoring instrumentation II.F.1 – containment hydrogen	NUREG-0737, II.F.1	I	In SSER5, NRC closed the LC for Unit 1 only (IR 390/84-85) – November 1990. Unit 2 action: Verify installation of containment hydrogen accident monitoring instrumentation.
6.3 6.3: Emergency Core Cooling System		GL 97-04	I	GL 97-04, "Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal Pumps" – NRC acceptance letter dated June 17, 1998 (Unit 1). – Initial response for Unit 2 on September 7, 2007. Unit 2 actions: Install new sump strainers, and perform other modification-related activities identical to Unit 1.
6.3 6.3: Emergency Core Cooling System		GL 98-02	I	GL 98-02, "Loss of Reactor Coolant Inventory and Associated Potential for Loss of Emergency Mitigating Functions While in a Shutdown Condition" – Initial response for Unit 2 on September 7, 2007. Unit 2 actions: 1) Review the ECCS designs to ensure they do not contain design features which can render them susceptible to common-cause failures; and 2) document the results.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
6.3 6.3: *Emergency Core Cooling* System		GL 98-04	I	GL 98-04, "Potential for Degradation of the ECCS and the Containment Spray System Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment" – NRC closure letter dated November 24, 1999 (Unit 1). – Initial response for Unit 2 on September 7, 2007. Unit 2 actions: Install new sump strainers, and perform other modification-related activities identical to Unit 1.
6.3 6.3: Emergency Core Cooling System		GL 04-02	I	GL 04-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at PWRs – NRC Audit Report dated February 7, 2007 (Unit 1). – Initial response for Unit 2 on September 7, 2007. Unit 2 actions: Install new sump strainers, and perform other modification-related activities identical to Unit 1.
6.3 6.3: Emergency Core Cooling System		B 79-24	I	B 79-24,"Frozen Lines." Unit 2 Actions: Insulate the section of piping in the containment spray full-flow test line that is exposed to outside air. Confirm installation of heat tracing on the sensing lines off the feedwater flow elements.
6.3 6.3: Emergency Core Cooling System		B 80-18	I	B 80-18 "Maintenance of Adequate Minimum Flow Thru Centrifugal Charging Pumps Following a Secondary Side High Energy Rupture" – IR 50-390/85-60 and 50-391/85-49 (Unit 1). Unit 2 action: Implement design and procedure changes.
6.6 6.6: Inservice Inspection of Class 2 and 3 Components		GL 89-08	I	GL 89-08 "Erosion / Corrosion Induced Pipe Wall Thinning" – Unit 1 FAC program reviewed in IR 390/94-89 (February 1995). Unit 2 actions: Prepare procedure and perform baseline inspections.
7.2.1 to 7.2.6 7.2: Reactor Trip System		B 79-21	I	B 79-21, "Temperature Effects on Level Measurements" - Reviewed in SSER14 (December 1994). Unit 2 action: Update accident calculation.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
7.3.1 to 7.3.6	7.3.5: CONFIRMATORY ISSUE - perform confirmatory tests to satisfy IEB 80-06 (to ensure that no device will change position solely due to reset action) and staff review of electrical schematics for modifications that ensure that valves remain in emergency mode after ESF reset	B 80-06	I	B 80-06, "Engineered Safety Features Reset Control" - TVA response dated March 11, 1982. Unit 2 action: Perform verification during the preoperational testing.
7.3: Engineered Safety Features Systems	SSER3 – January 1985			
7.5.1 to 7.5.4 7.5: Information Systems Important to Safety		B 79-27	I	B 79-27, "Loss of Non-class 1E I&C Power System Bus During Operation" – TVA responded to the Bulletin on March 1, 1982. Reviewed in Original 1982 SER. Unit 2 action: Issue appropriate emergency procedures.
7.5.1 to 7.5.4 7.5: Information Systems Important to Safety		NUREG-0737, II.F.1.2	I	II.F.1.2, "Accident Monitoring Instrumentation" – Reviewed in SSER9 (June 1992). Unit 2 actions: Install Noble gas, Iodine / particulate sampling, and Containment High Range Monitors.
7.7.1 to 7.7.7 7.7: Control Systems		GL 89-19	I	GL 89-19, "Request for Actions Related to Resolution of Unresolved Safety Issue A-47 "Safety Implication of Control Systems in LWR Nuclear Power Plants" – TVA responded by letter dared March 22, 1990. NRC acceptance letter dated October 24, 1990, for both units. Unit 2 action: Perform evaluation of common mode failures due to fire.
8.2.1 to 8.2.4 8.2: Offsite Power System		GL 06-02	I	GL 2006-02, "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power" – Initial response for Unit 2 on September 7, 2007. Unit 2 action: Complete the two unit baseline electrical calculations and implementing procedures.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.1.1: CONFIRMATORY ISSUE - *incorporate new design* that provides dedicated transformer for each preferred offsite circuit in FSAR SSER2 – January 1984	GL 96-01	I	GL 1996-01, "Testing of Safety-Related Circuits" - TVA *responded for both units on April 18, 1996.* Unit 2 action: Implement Recommendations.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)		NUREG-0737, II.E.3.1	I	II.E.3.1, "Emergency Power for Pressurizer Heaters" – Reviewed in original 1982 SER. Unit 2 action: Implement procedures and testing.
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)	8.3.1.2: CONFIRMATORY ISSUE - verify voltage drop analysis and testing SSER13 – April 1994	GL 79-36	I	This item and the GL tracked compliance with BTP PSB-1, "Adequacy of Station Electric Distribution System Voltages." This item was closed for Unit 1 in SSER13 based on results of the preoperational test. Unit 2 Action: Perform verification during the preoperational testing.
8.3.2.1 to 8.3.2.4, 8.3.3.1 to 8.3.3.6 8.3.2: DC Power Systems (Onsite)	8.3.3.4 – LICENSE CONDITION – Low temperature overpressure protection power supplies, II.G.1 SSER7 – September 1991	NUREG-0737, II.G.1	I	II.G.1, "Power Supplies for Pressurized Relief Valves, Block Valves and Level Indicators" – Reviewed in Original 1982 SER and SSER7 (September 1991). Unit 2 Action: Implement modifications such that PORVS and associated Block Valves are powered from same train but different buses.
NA 8.4 Station Blackout	Not addressed in original 1982 SER		I	SE for both units – March 18, 1993 SSE for both units – September 9, 1993. Unit 2 Action: Implement SBO requirements.
9.1.1 9.1.1 – Criticality Safety of Fresh and Spent Fuel Storage and Handling	Original 1982 SER	B 89-03	I	B 89-03, "Potential Loss of Required Shutdown Margin During Refueling Operations" – NRC acceptance letter dated June 22, 1990. Unit 2 Action: Ensure that requirements for fuel assembly configuration, fuel loading and training are included in Unit 2.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
9.1.2 9.1.2 – New and Spent Fuel Storage	Original 1982 SER	B 84-03	I	B 84-03, "Refueling Cavity Water Seal" – Reviewed in IR 390/93-11. Unit 2 Action: Ensure appropriate abnormal operating instructions (AOIs) are used for Unit 2.
9.1.4 9.1.5: Overhead Heavy Load Handling Systems	LICENSE CONDITION – Control of heavy loads (NUREG-0612) Resolved SSER13 – April 1994		I	Unit 2 Action: Implement NEI guidance on heavy loads.
9.1.4 9.1.5: Overhead Heavy Load Handling Systems	LICENSE CONDITION – Control of heavy loads (NUREG-0612) Resolved SSER13 – April 1994	B 96-02 / GL 81-07	I	B 96-02/GL 81-07, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor, or Over Safety-Related Equipment" – NRC closure letter dated May 20, 1998. Unit 2 Action: Unit 2 Heavy Loads Program will be in compliance with NUREG-0612.
9.2.1 9.2.1: Station Service Water System		GL 89-13	I	GL 89-13, "Service Water Problems Affecting Safety-Related Equipment" - NRC letters dated July 9, 1990 and June 13, 1997, accepting approach. Unit 2 Actions: 1) Implement initial performance testing of the heat exchangers; and 2) Establish eddy current baseline data for the Containment Spray heat exchangers.
9.2.1 9.2.1: Station Service Water System		GL 96-06	I	GL 96-06, "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident Conditions" – NRC letter dated April 6, 1999, accepting TVA response for Unit 1. Unit 2 Action: Implement modification to provide containment penetration relief.

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1982 SER	APPROVAL FOR UNIT 2	Guidance (GL, Bulletins) Note 1	*	Additional Information
SRP TITLE	Approval Reference			
9.2.2 9.2.2: Reactor Auxiliary Cooling Water Systems	9.2.2: CONFIRMATORY ISSUE - relocate component cooling thermal barrier booster pumps above probable maximum flood (PMF) level before receipt of an OL		I	TVA committed to relocate the pumps above PMF level and the staff found this acceptable. Implementation for this issue was resolved for Unit 1 when the staff verified in IR 390/84-20 that the pumps had been relocated. Unit 2 Action: Relocate pumps for Unit 2.
9.3.1 9.3.1: Compressed Air System	Original 1982 SER	GL 88-14	I	GL 88-14, "Instrument Air Supply System Problems Affecting Safety-Related Equipment" – NRC letter dated July 26, 1990, closing the issue. Unit 2 Action: Complete Unit 2 implementation.
9.3.4 9.3.4: Chemical and Volume Control System (PWR) (Including Boron Recovery System)	Original 1982 SER	B 80-05/GL 80-21	I	B 80-05/GL 80-21, "Vacuum Condition Resulting in Damage to Chemical Volume Control System Holdup Tank" - Closed in IR 50-390/84-59 and 50-391/84-45. Unit 2 Action: Complete surveillance procedures for Unit 2.
9.5.1.1 to 9.5.1.9 9.5.1: Fire Protection Program		GL 06-03	I	GL 06-03, "Potentially Nonconforming Hemyc and MT Fire Barrier Materials" - TVA does not rely on Hemyc or MT materials to protect electrical and instrumentation cables or equipment that provide safe shutdown capability during a postulated fire. Unit 2 Action: CAP/SP see Table 3. The Fire Protection Corrective Action Program will ensure Unit 2 conforms with NRC requirements and applicable guidelines.
9.5.1.1 to 9.5.1.9 9.5.1: Fire Protection Program		B 92-01 GL 92-08	I	B 92-01, "Failure of Thermo-Lag 330 Fire Barrier System to Perform its Specified Fire Endurance Function" / GL 92-08, "Thermolag 330-1 Fire Barriers" - Reviewed in SSER18 (October 1995) and accepted in NRC letter dated January 6, 1998 (includes a supplemental SE). Unit 2 Actions: 1) Review Watts Bar design and installation requirements for Thermolag 330-1 fire barrier system and evaluate the Thermolag currently installed in Unit 2. 2) Remove and replace, as required, or prepare an approved deviation.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
9.5.2.1, 9.5.2.2 9.5.2: Communications Systems	9.5.2: LICENSE CONDITION – Performance testing of communications system Resolved SSER5 - November 1990		I	The staff resolved this license condition in SSER5 based on TVA's letter of March 18, 1985, which described its testing of communications systems. Unit 2 Action: Perform testing of communication systems on Unit 2.
7.8 NUREG-0737 Items NA		NUREG-0737, II.K.3.9	I	I – II.K.3.9, "Proportional Integral Derivative Controller Modification" – Reviewed in Original 1982 SER. Unit 2 action: Set the derivative time constant to zero.
7.8 NUREG-0737 Items NA	7.8.1: LICENSE CONDITION - Confirm installation of acoustic monitoring system on Unit 2	NUREG-0737, II.D.3	I	II.D.3, "Valve Position Indication" – The design was reviewed in the original 1982 SER and found acceptable pending confirmation of installation of the acoustic monitoring system. In SSER5 (IR 390/84-35), the staff closed the LC for Unit 1 only. Unit 2 action: Verify installation of the acoustic monitoring system to PORV to indicate position.
12.7 NA: NUREG-0737 items	12.7.2 LICENSE CONDITION – (6c) Accident monitoring instrumentation – containment radiation monitor		I	I – In SSER5 (November 1990), the staff resolved this license condition for Unit 1 (IR 390/84-09 & IR 390/84-28) due to verification that TVA's commitments regarding the high range in-containment monitor were satisfactory and that it was installed. Unit 2 Action: Install high range in-containment monitor for Unit 2.
12.7 NA: NUREG-0737 items		NUREG-0737, III.D.3.3	I	III.D.3.3, "In-plant Monitoring of I2 radiation monitoring" - NRC reviewed in SSER16 (September 1995). Unit 2 Action: Complete modifications for Unit 2.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
15.5.4 – 15.5.5 NA: NUREG-0737 items	LICENSE CONDITION – Automatic trip of reactor coolant pumps during a small break LOCA Resolved SSER4 – March 1985	GL 85-12; NUREG-0737, II.K.3.5	I	GL 85-12/II.K.3.5, "Implementation of TMI Item II.K.3.5" – The staff determined that their review of Item II.K.3.5 did not have to be completed to support the full power license and considered this license condition resolved in SSER4. The item was further reviewed in SSER16 (September 1995). Unit 2 Action: Implement modifications as required.
15.5.4 – 15.5.5 NA: NUREG-0737 items	LICENSE CONDITION – Revised small break LOCA analysis Resolved SSER5 – November 1990	NUREG-0737, II.K.3.30, II.K.3.31	I	II.K.3.30/II.K.3.31, "Small break LOCA methods/Plant specific analysis" – The staff determined in SSER4 that their review of Items II.K.3.30 and II.K.3.31 did not have to be completed to support the full-power license and considered this license condition resolved in SSER4. In SSER5, the staff further reviewed responses to these items, and concluded that the Units 1 and 2 FSAR methods and analysis met the requirements of II.K.3.30 and II.K.3.31. This item was further reviewed in SSER16 (September 1995). Unit 2 Action: Complete analysis for Unit 2.
13.5.3 NA: NUREG-0737, items		NUREG-0737, I.C.1	I	I.C.1, "Short term accident and procedure review" - NRC reviewed in SSER16 (September 1995). Unit 2 Action: Implement upgraded EOPs, including validation and training.

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ITEMS RECOMMENDED FOR IMPLEMENTATION ACTION REVIEW

ITEM	TITLE	*	ADDITIONAL INFORMATION
GL 83-28	Required Actions Based on Generic Implications of Salem ATWS Events (See SRP/SER Review Matrix for additional GL 83-28 items): 3.2 – Post-Maintenance Testing (All SR Components)	I	Test and maintenance procedures and Technical Specifications will include post-maintenance operability testing of other (than reactor trip system) safety-related components.
GL 83-28	Required Actions Based on Generic Implications of Salem ATWS Events (See SRP/SER Review Matrix for additional GL 83-28 items): 2.2 – Equipment Classification and Vendor Interface (All SR Components)	I	Enter engineering component background data in EPIX for Unit 2.
GL 88-20	Individual Plant Examination for Severe Accident Vulnerability	I	Complete evaluation for Unit 2.
IEB 74-15	Misapplication of Cutler-Hammer Three Position Maintained Switch Model No. 10250T	I	Install modified A3 Cutler-Hammer 10250T switches.
IEB 77-03	On-Line Testing of the W Solid State Protection System	I	Include necessary periodic testing in test procedures.
IEB 80-10	Contamination of Non-radioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment	I	Include proper monitoring of non-radioactive systems in procedures.
IEB 83-04	Failure of the Undervoltage Trip Function of Reactor Trip Breakers	I	Install new undervoltage attachment with wider grooves on the reactor trip breakers.
IEB 85-02	Undervoltage Trip Attachment of W DB-50 Type Reactor Trip Breakers	I	Install automatic shunt trip on the Westinghouse DS-416 reactor trip breakers on Unit 2.
IEB 88-10	Nonconforming Molded-Case Circuit Breakers	I	Replace those circuits not traceable to a circuit breaker manufacturer.

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ITEMS RECOMMENDED FOR IMPLEMENTATION ACTION REVIEW

ITEM	TITLE	*	ADDITIONAL INFORMATION
IEB 90-01	Loss of Fill-Oil in Transmitters Manufactured by Rosemount	I	For Unit 2, implement applicable recommendations from this bulletin including identification of potentially defective transmitters and an enhanced surveillance program which monitors transmitters for loss of fill oil.
NUREG-0737	TMI Items: II.K.1.10 - Operability status	I	Confirm multi-unit operation will have no impact on administrative procedures with respect to operability status.

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ITEMS RECOMMENDED FOR IMPLEMENTATION ACTION REVIEW

Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	1 Silicone Rubber Insulated Cables Hi-pot testing of silicone rubber insulated cables manufactured by American Insulated Wire (AIW), Rockbestos, and Anaconda revealed a significant number of failures in AIW cables. TVA decided to replace all AIW cables. Rockbestos and Anaconda cables were successfully tested at Wyle Laboratories for 40 year qualified life.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	I	CAP is open (Design & Physical Modification). Replace any AIW cables used on Unit 2.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	**3** Cable Support in Vertical Conduits A concern was raised that cables in long vertical conduits were inadequately supported, and that random failures due to cutting of the insulation and conductor creep may occur during normal service condition, especially for silicone rubber insulated cables. For Unit 1, TVA identified the critical cases of silicone rubber insulated cables in vertical conduits, with cable bearing pressure occurring at the edge of the condulet the determining factor. A comparison was made of WBN critical cases with those already tested at SQN. If SQN conduits enveloped WBN, no cable testing by WBN was performed. If SQN conduits did not envelope WBN, cable was replaced or in situ cable testing was performed; any cable found unacceptable was replaced. TVA also evaluated Class 1E conduits containing cables of all insulation types and added cable supports when acceptance criteria were not satisfied. In addition, cable installation specification and site procedures were revised to incorporate appropriate cable support requirements for cable installed in vertical conduits, and thereby prevent recurrence. Conduits that exceeded the support requirements of General Construction Specification G-38 were analyzed and conduit support points with bearing pressure greater than allowable were inspected and supports added as required.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	**4** Cable Support in Vertical Trays TVA's specifications require that cables in vertical trays be supported in accordance with the National Electric Code to prevent long term cable damage and that this support may be provided by tie wraps. However, TVA had no basis to verify that cable ties could provide adequate support. TVA evaluated the acceptability of various tie wrap configurations as support systems. If a configuration was found to be inadequate, it was shown by analysis, similarity to other installations, or testing that no cable damage had occurred or would occur. Cable support was added when manufacturers' limits were exceeded. To prevent recurrence, TVA revised the cable installation specification and site procedures to identify acceptable methods for support of cables in vertical trays.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP: Cable Issues	**5** Cable Proximity to Hot Pipes Cable design did not include the local effects of hot pipes which increase local temperature and can degrade the cable insulation and shorten the life of the cables. For Unit 1, criteria were developed to detail required clearances between cable/raceways and hot pipes/valves to eliminate this potential impact. Class 1E cables were walked down against the criteria to ensure that adequate separation existed between the cables and hot pipes/valves. Deviations were resolved by analysis, change of pipe insulation or raceway rework.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	**7** Cable Bend Radius The minimum bend radius recommended by the Insulated Cable Engineers Association had been violated at WBN. To resolve this issue on Unit 1, TVA established bend radius parameters (upper and lower bounds) for class 1E cables and revised General Construction Specification G-38 to include the bend radius requirements for cable installation. Cable was then categorized based on 10 CFR 50.49 requirements, classification and voltage level; and inspected and replaced, retrained or their qualified life reduced, based on bending or kinking relative to upper and lower bound bend radii.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP: Cable Issues	**8** Cable Splices To resolve a concern that the installed splices may not conform to the qualified configurations and materials tested by the vendor, a list of Class 1E cable splices in harsh and mild environments was developed. Cables and splices were identified by reviewing equipment qualification binders and construction records to determine which equipment uses pigtails for field cable connection. All 10 CFR 50.49 harsh environment cable splices requiring Raychem Type N material were replaced and some mild environment cable splices were reworked. A sampling program was implemented to verify that the splice list was complete for intermediate splices.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Tray Supports	Deficiencies with cable trays and their supports included inadequate tray connections, inconsistencies between as designed versus as-built tray configurations and their orientation, and failure to evaluate all loading on cable tray members. The CAP for Unit 1 assured the structural adequacy and compliance with design criteria and licensing requirements by: - Review and revision of design criteria. - Review or development of design output requirements to comply with design criteria and to adequately translate TVA design requirements. This included validation calculations for typical hardware configurations and critical cases. - Walkdown of field configurations to identify deviations from design output. - Modifications to field conditions, where necessary, to ensure that they are consistent with design output documents.	CAP Plan: • TVA letter dated November 18, 1988, Corrective Action Program Plan for Category I Cable Tray and Cable Tray Supports NRC Approval of Approach: • Safety Evaluation of the WB CAP Plan for Category I Cable Tray and Cable Tray Supports, September 13, 1989 • SSER6, April 1991	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Conduit Supports	Specific structural deficiencies with conduit supports including inadequate conduit clamps, conduit runs supported at only one location, and excessively cantilevered conduit fell into four primary categories: - Design Basis discrepancies. - Design output not enveloping all design parameters. - Installed configurations not in compliance with design documents. - Discrepancies between as-installed configurations and inspection documentation. The CAP for Unit 1 assured the structural adequacy and compliance with design criteria and licensing requirements by: - Revisions to design criteria - Updated design output documents including specifications to factor in changes to design criteria, changes to typical support details and new support details. Critical case attributes were defined and critical case evaluations performed to qualify installations. - Walk downs first to support critical case evaluations, then to identify configurations not enveloped by critical cases. - Modifications, as required. - Revisions of implementing procedures to ensure the adequacy of new or modified supports.	CAP Plan: • TVA letter dated November 18, 1988, Corrective Action Program (CAP) Plan for Conduit Support Installation NRC Approval of Approach: • Safety Evaluation of the WB CAP Plan for Electrical Conduit and Conduit Supports, September 1, 1989 • SSER6, April 1991	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Design Baseline Verification Program	WBN licensing and design basis documentation as well as plant configuration issues included: - Inconsistencies between the FSAR and WBN design documentation. - Incomplete and some inconsistent design input information. - Missing, incomplete and out-of-date design calculations. - Inconsistencies between the actual plant configuration and the as-constructed drawings. The causes of these conditions were found to be: - Lack of effective procedures and data bases to ensure that design requirements were properly controlled. - Insufficient definition of design criteria and system descriptions. - Lack of a listing to establish the full scope of calculations needed for WBN and inadequate procedures to ensure calculations are properly controlled. - Lack of an effective process to maintain drawings for configuration control and keep appropriate drawings "as-constructed" as plant changes are made. The underlying root cause of this situation was determined to be ineffective design and configuration control measures. Based on these issues, the WBN Design Baseline and Verification Program (DBVP) had four major components, each having objectives that addressed one or more of the above problems. These were: - Licensing Verification – to assure that commitments to NRC are captured in the appropriate controlling document and establish procedures to maintain compatibility between commitments and controlling documents. - Design Basis Development – to establish design basis documents (DBD) that contain or reference appropriate engineering requirements and establish procedures to	CAP Plan: • TVA letter dated October 20, 1988, Corrective Action Program (CAP) Plan for the Design Baseline and Verification Program (DBVP) for Unit 1 and Common Features • TVA letter dated March 8, 1994, Revision 7 to the CAP Plan for DBVP NRC Approval of Approach: • Safety Evaluation Report on the WB Nuclear Performance Plan (WBNPP) – NUREG-1232, Volume 4, December 28, 1989 • Inspection Report 50 390/95-36 dated June 21, 1995	I	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
	maintain the design basis consistent with the plant, technical requirements and licensing commitments. - Calculation Verification – to assure the existence and retrievability of calculations that are technically adequate and consistent with the "safety-related" plant design and establish a process to status calculations to maintain them current with plant configuration. - Configuration Control to develop and implement an improved design change control system with a single set of configuration control drawings (CCDs); and to utilize walk downs, evaluations or testing to verify that the functional configurations of the portions of systems that mitigate design basis events are consistent with CCDs.			
CAP: Electrical Issues	1 Flexible Conduit Installation The problems identified with flexible conduits were: • Inadequate length to account for seismic/thermal movement • Lack of compliance with minimum bend radius requirements • Loose Fittings To resolve these issues for Unit 1, TVA revised design output documents to more specifically define flexible conduit requirements for: - Seismic/thermal movement - Minimum bend radius - Tightness of fittings A list of flexible conduits attached to Class 1E pipe mounted devices was then developed to identify those flexible conduits which would experience both seismic and thermal movement. Finally, TVA walked down all Class 1E flexible conduits, and reworked those found to be damaged or in noncompliance with the design output documents.	CAP Plan: • TVA letter dated February 15, 1989, CAP Plan for Electrical Issues NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for Electrical Issues, September 11, 1989 • NUREG-1232	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Electrical Issues	**3** Contact and Coil Rating of Electrical Devices Design and procurements of inductive devices contained in circuits did not consider the inductive load ratings of contacts or the maximum credible voltage available at the device terminals. To resolve this for Unit 1, TVA reviewed devices that performed inductive load switching, and determined if the contacts had acceptable current ratings and reviewed inductive devices to determine if coils were qualified for the highest and lowest credible voltages. If a device could not be qualified, design output documents were issued to require replacement, and qualified devices were installed.	CAP Plan: • TVA letter dated February 15, 1989, CAP Plan for Electrical Issues NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for Electrical Issues, September 11, 1989 • NUREG-1232	I	Contact and Coil Rating of Electrical Devices – CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP: Electrical Issues	**4** Torque Switch and Overload Relay By-Pass Capability for Active Safety Related Valves Thermal overload and torque switch bypass capability was not provided for certain active safety-related valves, as required by Regulatory Guide 1.106. For Unit 1, TVA issued design criteria to provide the basis for determining which active valves were required to have their thermal overload relays and torque switches bypassed and issued a calculation to identify these valves. System design criteria or system descriptions were revised to identify which valves within a system require this capability; design output documents were revised to provide the required capability; and thermal overload and torque switch bypasses were installed where they did not already exist and were required.	CAP Plan: • TVA letter dated February 15, 1989, CAP Plan for Electrical Issues NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for Electrical Issues, September 11, 1989 • NUREG-1232	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Electrical Issues	**5** Adhesive Backed Cable Support Mounts Adhesive Back Cable Support Mounts (ABCSMs) were used inside equipment to support and restrain wire and field cables in a neat and orderly fashion. The ABCSMs sometimes separated from the inside of the equipment and, as a result, may not have properly secured the wire or cable. For Unit 1, TVA contacted the vendors of the panels/equipment to ascertain the technical requirements for the ABCSMs for the vendor's wiring, evaluated the use of ABCSMs for field wiring and issued a calculation identifying the technical requirements for existing ABCSMs. TVA then evaluated the as-installed conditions to determine if any corrective action was required, issued and implemented design output documents in the field and revised site implementing procedures to incorporate the necessary installation requirements and to restrict the use of ABCSMs.	CAP Plan: • TVA letter dated February 15, 1989, CAP Plan for Electrical Issues NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for Electrical Issues, September 11, 1989 • NUREG-1232	I	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used.
CAP: Equipment Seismic Qualification (ESQ)	Deficiencies in seismic qualification of equipment involved configuration and document control issues, and specific technical issues identified by TVA internal reviews. To provide assurance that Category I and I (L) equipment is seismically qualified, that the qualification documentation is retrievable, and that this documentation is consistent with the design and licensing basis, the ESQ: - Reviewed design bases to ensure that they were technically adequate and consistent interfaces existed between them and other design bases - Resolved specific technical issues utilizing: * Document retrieval * Walk downs to identify and describe actions required to resolve them * Engineering evaluations and modifications when equipment could not be qualified in the as-built configuration - Developed and populated an ESQ database - Performed process improvements to prevent recurrence.	CAP Plan: • TVA letter dated June 29, 1989 – WBN Equipment Seismic Qualification Corrective Action Program Plan, Revision 1 NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 Corrective Action Program Plan for Equipment Seismic Qualification, September 11, 1989 • NUREG-1232 • SSER15, June 1995	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Fire Protection	The issues that resulted in the determination to initiate the Fire Protection CAP included: • Fire-rated walls were breached by HVAC ducts without fire dampers, violating Appendix R requirements for fire rated walls that separate safety-related equipment of redundant trains. • Review of SQN Appendix R discrepancies for applicability to WBN. • Deficiencies with the Safe Shutdown Analysis (SSA). In response to the above issues and other more specific deficiencies, the Unit 1 FP Program (for Unit 1 and common areas) contained the following actions: • Documentation of the measures taken to evaluate violation of the Appendix R requirements and issuance of DCNs to correct the deficiencies. • Review of SQN Appendix R allegations, as well as issues raised by the NRC during SQN inspections, for applicability to WBN and issuance of DCNs to correct the deficiencies. • Fire Protection Compliance Review to ensure WBN conformance with NRC requirements and applicable guidelines. The review included: - Safe Shutdown Analysis (SSA), - Area Heat-up Analysis, - Fire hazards Analysis, - Lighting and Communication, - Post-Fire procedures, - Associated Circuits, - Modification Compliance Review, and - Fire Protection Training/Administrative Procedures. The results of the Compliance Review were used as the basis for developing the remaining scope of work (calculations/analysis, DCNs and document updates) and the consolidation of fire protection documentation into an organized package to support and substantiate the Compliance Review. The SSA was updated based on the latest as constructed plant configuration and the lessons learned from the SQN and BFN Appendix R programs.	CAP Plan: • TVA letter dated March 28, 1990, Revision to CAP Plan for Fire Protection NRC Approval of Approach: • SSER18, October, 1995 • SSER19, November, 1995 Above approval was for both units.	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Hanger Update and Analysis Program	Piping and support deficiencies identified during the design and construction of WBN, as a result of responses to Bulletins 79-02 and 79-14 and internal findings, were incorporated into the following categories: • Control of Design Input/Output - Design input was not consistently defined and controlled. - Design output was not clearly defined and, thus, was not consistently implemented by Construction. • Design/Analysis Methodology Design criteria for piping analysis and pipe support design did not specify a consistent and comprehensive set of design/analysis methods. In some cases, relevant industry issues were not considered. • Level of Design Documentation Requirements for closure of unverified assumptions and documentation of engineering judgments were neither fully defined nor procedurally controlled. The scope of the HAAUP activities for Unit 1 included Seismic Category I piping, Seismic Category I (L) piping and those instrument lines that could not be decoupled from their process piping, and associated supports. Those instrument lines that could be decoupled were addressed in the Instrument Line CAP. The following corrective actions were taken to address the deficiencies: • Review of governing criteria and procedures to ensure compliance with industry practices and, where necessary, revision of the implementing criteria and procedures. • Walkdowns of installed piping and associated pipe supports to obtain as-built information. • Updating or regeneration of pipe stress and support calculations to: - Incorporate changes in the seismic response spectra input to envelope sets B and C, and to add consideration of mass participation above 33 hz. - Qualify as-built conditions in design documents.	CAP Plan: • TVA letter dated June 29, 1989, WBNP – Revision to Corrective Action Program Plan for Hanger and Analysis Update Program NRC Approval of Approach: • NUREG-1232 • SSER6, April 1991 • SSER8, January 1992	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used

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Program Name	Program Description	References	*	Status _Commitments
	- Ensure drawings and calculations are in compliance with current design criteria and procedures • Update of design documents to incorporate as-built piping and support configurations, and other open items. • Perform modifications, as required			

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Program Name	Program Description	References	*	Status Commitments
CAP: Heat Code Traceability:	Traceability concerns involved ASME loose piping and fitting material and ASTM material installed as welded attachments on ASME piping systems, and were categorized as: • ASME Class 1 systems that may contain ASME Class 2, Class 3 and/or ASTM piping for which adequate NDE may not have been performed • ASME Class 2 systems that may contain class 3 piping, and ASME Class 2 and Class 3 systems that may contain ASTM piping for which adequate NDE may not have been performed • ASME systems that may have ASTM plate material attached (welded). For the Unit 1 program, which included common systems, the following corrective actions were taken: • Accuracy of the information contained in the Heat Code Database (HCDB) was verified, and this information was used to flag situations where the same ASME material was used in systems of different classifications. • For Class 1 piping, surface NDE was performed on all piping materials where the heat number was the same as for material used in a non-Class 1 system. When NDE was not feasible, alternate analysis prescribed by the ASME Code was performed. Material which could not be examined or technically justified was replaced. • For Class 2 and 3 piping, required NDE was performed when classification traceability was questionable and items were installed in locations where stress ratios exceeded 0.80 for welded carbon steel and 0.85 for welded stainless steel. For cases involving ASTM, ASME Section II, and ASME Section III material which may have been upgraded to ASME Section III, Class 2 or 3 materials, the items were re-verified as meeting all other requirements of Section III on a sampling basis. Engineering evaluations were performed on non complying items to provide a basis of acceptance. Material determined to be unacceptable was replaced. • ASTM plate attachment material used in ASME applications was determined to be acceptable by verifying equivalence to an ASME specification, that it was supplied to an acceptable QA program and the necessary	CAP Plan: • TVA letter dated September 21, 1989, Revision to the CAP Plan for Heat Code Traceability NRC Approval of Approach: • Inspection Report 50-390/89-09 and 50-391/89-09 dated September 20, 1989 • NUREG-1232	I	CAP is open (Design and Physical Modifications). For Unit 2, the Unit 1 approach will be used.

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	NDE was performed. Material that could not be verified or justified as being acceptable was replaced. • Recurrence control included revising the General Construction Specification to include specific ASME requirements for reclassification of material and site implementing procedures to require CMTR traceability of materials to be installed.			
CAP: HVAC Duct Supports	Adverse conditions involving HVAC Duct and Duct Supports can be programmatically characterized as: incomplete design basis; inadequate design documents; as-built configurations not in conformance with existing design documents; inadequate or incomplete inspection documentation; and incomplete instructions. For Unit 1, TVA resolved these issues via the following four tasks: • Completing the design basis by reviewing and revising the design criteria; issuing supporting calculations and updating the FSAR to be consistent with the upgraded design criteria. • Updating design output documents to be consistent with the completed design basis. • Revising construction, maintenance and QA procedures to incorporate design output documents. • Developing bounding critical cases of existing installations and evaluating their adequacy, and performing unique evaluations or modifying installations when they could not be qualified by the critical case evaluations.	CAP Plan: • TVA letter dated November 18, 1988, Corrective Action Program for Heating, Ventilation, and Air Conditioning Duct and Duct Supports NRC Approval of Approach: • Safety Evaluation of the WB CAP Plan for Safety-Related Heating, Ventilation and Air Condition Duct and Duct Supports, October 24, 1989 • NUREG-1232 • SSER6, April 1991	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Instrument Sensing Lines	The problems identified with instrument lines fell into two categories: • Functional problems related to instrument line minimum slope requirements. The number of lines involved and the lack of adequate configuration control for these lines resulted in preparation of an Engineering Requirements (ER) Specification; isometric and support drawings; analysis of lines identified for rework; and installation and inspection per design output requirements. In addition to the ER Specification, other recurrence control measures included site implementing procedures to incorporate ER requirements in the process for the installation, maintenance, and inspection. • Structural problems related to: - Thermal effects - Pipe and tube bending devices - Compression fittings - Installation documentation discrepancies The scope of the structural issues included Seismic Category I and I (L) instrument lines, and their associated supports, which are analytically decoupled from the process lines. Thermal Effects Instrument lines and associated supports were not designed to consider the effects of thermal expansion and operating modes indicated that portions of systems will be subjected to thermal effects. These Unit 1 lines were field sketched to identify material and configuration; then analyzed for dead weight, seismic and thermal effects; line isometric drawings prepared showing required line configuration and material; and deficiencies corrected by design changes. Pipe and Tube Bending Devices Site implementing procedures used to qualify pipe and tube bending devices were not rigorously executed and qualification records for the bending were not always maintained. A sample of bends was evaluated considering wall thickness reduction, ovality, acceptable bend contour, and surface condition and found to be acceptable, and bender qualification records were updated to incorporate the results of the evaluation. Compression Fittings Compression fitting installations were found that did not satisfy	CAP Plan: • TVA letter dated March 11, 1994, WBN Unit 1 – Revision to Corrective Action Program Plan for Instrument Lines (R3) NRC Approval of Approach: • NUREG-1232 • SSER6, Appendix K, April 1991 • Supplemental SER May 6, 1994	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

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the manufacturer's installation requirements. Discrepancies included: tubing cuts that were not deburred, tubing that was not bottomed out inside the fittings, nuts that were not properly tightened, and ferrules that were unidentifiable, missing, or reversed.

Discrepant compression fitting installations were vibration and pressure tested. This included testing of the effect on flow rate due to the presence of tubing burrs and testing of the integrity of fittings with various installation deficiencies by tensile pullout, and vibration and seismic tests. The results demonstrated that for the instances where tube ends were not deburred, tubes were not bottomed out, or nuts were not properly tightened, fitting performance was still satisfactory. Also, normal operation vibration testing did not result in leaks in any of the samples tested and seismic testing only produced very slight leakage in 2 of the 47 samples.

The test program for fittings with missing, reversed, or unidentified ferrules determined that: missing ferrules would cause a definite leak during pressure testing; reversed ferrules would leak if they are "CPI" fittings and would not leak if they are reversed "Hi-Seal" ferrules.

It was determined that for these questionable ferrule installations, unacceptable installations would be detected during pressure testing due to leakage and for instrument lines that are not pressure tested, there would be no driving force to create any significant leakage. Therefore, the following corrective actions were taken:

- Instrument lines designated as Seismic Category I or I(L) were pressure tested in accordance with appropriate piping code requirements

- Fittings seeing radioactive service in lines not pressure tested (i.e., drains) were re-inspected to verify installation in accordance with manufacturer's recommendations, and discrepancies repaired or replaced.

Since pressure testing was performed as required and leaking compression fittings were repaired or replaced, the final configurations were ultimately acceptable.

Installation Discrepancies
Support documentation for some instrument lines was determined to be lost or incorrect. A sample of instrument line supports was selected for a detailed evaluation to determine the

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Program Name	Program Description	References	*	Status _Commitments
	acceptability of the as-built condition, and it was determined that the instrument lines and supports would comply with existing design basis requirements provided all attachment clamps and bolts were properly installed. The supports were then walked down and, when necessary, they were reworked. Recurrence controls for each of the above structural issues consisted of revising specifications, design drawings and procedures, and required training.			
CAP: QA Records	A number of the quality records required for licensing: • Were not retrievable in a timely manner or potentially missing • Were not maintained in proper storage • Had quality problems (were incomplete, technically or administratively deficient) To address these issues, the QA Records CAP was developed with the following objectives for these records: • Ensure adequate storage and retrievability. • Resolve quality and technical problems. • Ensure programs are established which are adequate to prevent reoccurrence of records problems. During the course of implementation of the CAP, additional records issues were identified. Evaluation of these issues indicated a need to expand the scope to address the full extent of condition by including a broader set of records categories. This was accomplished through incorporating an Additional Systematic Records Review (ASRR) of all ANSI N45.2.9, Appendix A record types into the CAP. This review involved both records and hardware and was based on sampling and statistical analysis. It provided a high level of confidence in the adequacy of QA Records.	CAP Plan: • TVA letter dated April 6, 1994, WBN Unit 1 – CAP Plan for QA Records, Revision 6 NRC Approval of Approach: • SSER9, June 1992 • WB Unit 1 - Staff Position on Certain Aspects of QA Records CAP, January 12, 1993 • Supplemental Safety Evaluation on the QA Records CAP Plan, April 25, 1994	I	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

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CAP: Q-List	The problems associated with the WBN Q-List Program included: • Multiple Q-Lists • Inadequate training • Lack of and improper classifications • Wrong component identification. The objectives of the Q-List CAP were to: • Develop a new Q-List. • Compare this new Q-List to the old Q-List to identify upgraded components. • Review maintenance and modification activities performed since 1984 to assure that those activities had the appropriate QA program controls applied. As part of corrective action for this CAP, over 5000 component classification upgrades were identified during the comparison of the new and old Q-Lists. No field work resulted from these upgraded components.	CAP Plan: • TVA letter dated July 8, 1993, WBN CAP Plan for Q List (R5) NRC Approval of Approach: • NRC letter – CAP Plan for Quality Assurance List, September 11, 1989 • SSER6, April 1991 • SSER13, April 1994 • Supplemental SER March 17, 1994	I	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Replacement Items	Previous TVA policies and procedures had not adequately directed and controlled engineering involvement in the procurement process used to purchase replacement items, and had not incorporated industry guidance or complied with NRC Generic Letters 89-02 and 91-05. The CAP grouped the issues into four categories: • Current and future purchases, • Current warehouse inventory, • Plant installed items from previous maintenance activity, and • Replacement items installed by previous construction activities. To address these categories, TVA: • Created the Procurement Engineering Group, which reviewed and evaluated procurements made for safety-related applications, and developed a process for these activities. • Created the Material Improvement Project to evaluate the adequacy of current inventory with respect to technical adequacy, QA receipt inspection and material storage. • Back checked materials installed from previous maintenance activities to ensure that a proper documentation trail existed from the warehouse to maintenance history for each item. • Reviewed the construction group's procurements of replacement items. This review indicated that all required documentation for parts traceability was available and that the materials were procured properly with engineering involvement. This also included a review of material staged for Unit 2.	CAP Plan: • TVA letter dated August 7, 1989, WBN Unit 1 – Revision to CAP Plan for Replacement Items Program (Piece Parts) • TVA letter dated January 20, 1995 WBN Unit 1 – Revision 6 to CAP Plan for Replacement Items Program NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for the Replacement Items Program, November 22, 1989 • NUREG-1232 • SSER6, April 1991 • NRC letter dated February 6, 1995	I	CAP is open (Design). For Unit 2, the Unit 1 approach will be used. The Procurement Engineering Group function will be embedded in the Engineering organization.

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* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
CAP: Seismic Analysis	Concerns were identified with the following aspects of seismic analysis calculations for Category I structures: • *Integration time step used in time history analysis.* • Soil properties and soil-structure interaction. • Torsional modeling of structures. • Criteria for the Additional Diesel Generator Building. • The effect of floor and wall flexibility on design of structures, systems and components (SSCs) in Category I buildings. To address these categories, TVA: • Reviewed seismic analysis criteria and licensing requirements for Category I structures. • Reviewed seismic analysis calculations for Category I structures and revisions as required, or prepared new calculations when necessary. • Dispositioned identified issues. • Defined criteria or future evaluations and new designs or modifications of structures, systems and components.	CAP Plan: • TVA letter dated May 9, 1990, Revision *to the CAP Plan for Seismic Analysis* (R2) NRC Approval of Approach: • Safety Evaluation of WBNP Unit 1 – CAP for Seismic Analysis, September 7, 1989 • Safety Evaluation of WBNP Unit 1 – Validation of SASSI Computer Code for Soil-Structure Interaction Analysis, October, 31, 1989 • NUREG-1232 • SSER6, April 1991	I	CAP is open (Design). For Unit 2, the Unit 1 *approach will be used.*

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
CAP: Vendor Information	Problems with vendor information included: • Vendor information didn't match the plant configuration. • Vendor information was inconsistent with associated TVA-developed design input/output documents. • Vendor documents were incorrect or out of date. • Vendor manuals were lost or were uncontrolled. The Vendor Information CAP for Unit 1 addressed the problems and their causes via the following actions: • Relevant vendor information for safety-related and quality related Unit 1, common, and Unit 2 components needed for Unit 1 operation was identified, reviewed for technical adequacy, and consolidated into applicable vendor technical manuals and documents, which were issued as controlled documents. • A TVA procedure was issued to control vendor manual update activities. • Open item reports were generated, tracked, and controlled to resolve the inconsistencies found in the vendor documents. • Vendor drawings which included information necessary to support safety related plant activities, but were not in "Approved" status, were reviewed and approved. • DCNs were issued to resolve identified design discrepancies/open items.	CAP Plan: • TVA letter dated February 4, 1993, WBN Unit 1 – Revision 4 to CAP Plan for Vendor Information NRC Approval of Approach: • WB Unit 1 - Volume 4 NPP, Chapter III, Vendor Information, Safety Evaluation, September 11, 1990 • SSER11, April 1993	I	CAP is open (Design). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
CAP: Welding	Programmatic and implementation deficiencies associated with safety-related welding activities resulted in initiation of the TVA Welding Project to review and determine the adequacy of the overall welding program. Subsequently, the Welding CAP was established to ensure that Unit 1 safety-related welds met licensing requirements and that corrective actions were implemented to address the prior issues and those identified by the Welding Project. The CAP included deficiencies which were related to weld quality, inspections, NDE, fabrication/installation code compliance, and associated documentation. The CAP consisted of three phases: • A programmatic assessment. • An in depth review of the implementation of the welding program and corrective actions to address specific discrepancies. • Program enhancements to prevent recurrence. The programmatic assessment and program enhancements to prevent recurrence applied to Unit 2 as well as Unit 1. The specific deficiencies that had to be addressed for Unit 1 involved structural steel, piping components, pipe supports, instrument panels, HVAC ductwork and vendor supplied component such as tanks and heat exchangers. The types of deficiencies included: • Designs that did not satisfy design criteria for welding. • Lack of documentation of required visual inspections. • Indications or weld discontinuities. • Radiographs accepted with rejectable indications, inadequate radiographic techniques, and identification discrepancies. • Misinterpretation of the ASME Code. • Discrepancies on vendor performed welds. • Errors on installation documentation. These problems were addressed by a combination of techniques that included the following:	CAP Plan: • TVA letter dated July 31, 1990, WBN – Welding CAP Program – Revisions to CAP Plan and Plant I Weld Report NRC Approval of Approach: • Inspection Report Nos. 50-390/89-04 and 50-391/89-04, August 9, 1989 • Letter dated March 5, 1991, WB Unit 1 – Review of Two Submittals Regarding the Welding CAP • NUREG-1232	I	CAP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
	• Re-inspections to validate results and support analysis. • Conservative bounding analysis. • Evaluation of as-is condition to determine acceptability. • Repairs, if necessary.			
SP: Containment Cooling	Post-accident pressure and temperature analysis for the lower compartment in containment failed to consider the long-term effects of a main steam line break inside containment for a plant going to hot standby conditions as opposed to cold shutdown. In order to ensure that 10 CFR 50.49(e).1 is satisfied, TVA performed the Containment Cooling Special Program to develop time dependent temperature profiles for the lower compartment, which were then used for EQ. This was accomplished by the following tasks: • Correcting the long-term containment temperature profile for the lower compartment considering the design basis Main Steam Line Break (MSLB) event. • Upgrading the Lower Compartment Cooler (LCC) units and associated ducting. • Evaluating containment coatings transport and replacing non-qualified coatings. • Using the revised calculated MSLB temperature profile to qualify components in the lower containment that are important to safety. • Replacing components in the lower compartment to meet 10 CFR 50.49 requirements.	SP Plan: • NPP, Section III.3.2, Containment Cooling NRC Approval of Approach: • WB Unit 1 – Supplemental Safety Evaluation of the Special Program on Containment Cooling, May 21, 1991	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Mechanical Equipment Qualification (MEQ)	The MEQ Program included a documented evaluation of the ability of safety related mechanical equipment located in harsh environment to perform its intended functions, as required by GDC-4 of Appendix A of 10 CFR50. The Unit 1 program utilized existing temperature and dose conditions developed for electrical equipment to satisfy 10 CFR 50.49. The program then identified active safety related mechanical equipment located in harsh environments; analyzed the non-metallic subcomponents for effect of thermal and radiation conditions; produced controlled binders to establish and maintain qualified status for life of plant; and issued DCNs to modify the plant consistent with qualification tests and analyses.	SP Plan: • NPP, Section III.3.6 – Mechanical Equipment Qualification NRC Approval of Approach: • NUREG-1232 • SSER15, June 1995	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.
SP: Moderate Energy Line Break (MELB) Flooding	For moderate energy lines, documentation did not adequately justify that there were no unacceptable consequences as a result of flooding in a Category I structure outside of containment following an MELB. For Unit 1, essential equipment and structures were evaluated to ensure that they were either unaffected by postulated flooding due to an MELB, or were designed, specified, and/or qualified for the environment caused by such flooding. The evaluation involved pipe break analyses, determination of postulated break locations, determination of postulated flooding levels, and equipment qualification evaluations. In those instances where it was determined that an item was impacted and it could not be qualified, modifications providing curbs, raising junction boxes, and adding or removing weather stripping were performed.	SP Plan: • NPP, Section III.3.8 – Moderate Energy Line Break (MELB) Flooding NRC Approval of Approach: • NUREG-1232 • SSER11, April 1993	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Control Room Design Review	The Control Room Design Review (CRDR) program was developed to identify and correct human factor discrepancies in the control room. The CRDR included a Preliminary Design Assessment (PDA) to identify any Human Engineering Discrepancies (HEDs) and completion of a full CRDR at a later date. TVA performed a PDA, and discrepancies identified resulted in commitments to implement corrective actions to resolve these discrepancies and a CRDR Summary Report was identified as a license condition. TVA conducted the CRDR and submitted a CRDR Summary Report in October 1987. The CRDR addressed the man-machine interfaces and potential misapplication of human factor principles in the main control room, the auxiliary control room, and the adjacent switch transfer rooms. TVA established a review program plan incorporating accepted human factor principles, gathered and reviewed required plant design information, surveyed the Control Room, identified and assessed HEDs, determined design improvements required, and verified that improvements would address deficiencies and not create new ones. The CRDR Program ultimately included development of HED corrective actions for Unit 1, common equipment needed for Unit 1, and Unit 2 equipment needed to support Unit 1. Actions to ensure recurrence controls included issuing Human Factor Design Guides and Human Factor Design Criteria, and the Design Change Process requiring human factors to be addressed.	SP Plan: • TVA letter dated October 2, 1987, WBN – Detailed Control Room Design Review Summary Report • NPP, Section III.3.3, Detailed Control Room Design Review NRC Approval of Approach: • NUREG-1232 • SSER5, November 1990 • SSER6, April 1991 • SSER15, June 1995	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Master Fuse List	Lack of control of over current protection devices and the misapplication of Bussman KAZ actuators as protective devices on the master fuse list and the lack of procedural guidance for the development of the Master Fuse List resulted in design and configuration control deficiencies. This Special Program included three primary elements to resolve these deficiencies: • To address configuration control deficiencies, a baseline master fuse list was developed using design input to establish a comprehensive list of 1E fuses needed to support the operation of Unit 1 systems; then walk downs were performed to gather as-installed information to be included on the list. • To resolve the Bussman KAZ actuator misapplication, a review of schematic and connection drawings identified KAZ locations, and a DCN was developed to replace KAZ devices with conventional fuses. • To correct deficiencies involving redundancy provided to electrical penetration assemblies, an analysis was conducted to verify that redundant protection was provided and, when not the case, identified deficiencies were corrected. While the principle focus of the program was on 1E safety-related equipment, the program has evolved to establish similar controls and practices for all fuses needed to support the operation of the station.	SP Plan: • NPP, Section III.3.5 – Master Fuse List • TVA letter dated July 31, 1990, Response to Concerns in NRC SER for WBN NPP Volume 4 - Master Fuse List • TVA letter dated May 31, 1991, Response to NRC Supplemental SER Concerning the WBN NPP on the Master Fuse List NRC Approval of Approach: • NUREG-1232 • NRC letter dated February 6, 1991, WB Unit 1 – Special Program on Master Fuse List • SSER9, June 1992	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Microbiologically Induced Corrosion (MIC)	Due to leakage events in several water systems including Essential Raw Cooling Water and MIC degradation at other TVAN plants, TVA committed to a corporate program to address MIC in 1987. In addition, TVA committed to specific actions to address requirements of NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-related Equipment," and the potential for existing MIC conditions in Unit 1. The special program for Unit 1 included: • Identifying systems potentially affected by MIC. • Performing visual inspections and assessing MIC-infested locations. • Using pre-existing NDE results to identify vulnerable locations. • Repairing unacceptable damage to Code requirements. • Installing improved biocide treatment and a long term chemical clean up system. This was later augmented by the implementation of SPP 9.7, Corrosion Control Program, which specifies the programmatic and organizational requirements for management of the MIC and Macrofouling Program.	SP Plan: • TVA letter dated February 26, 1991, WBN - Microbiologically Induced Corrosion Program Report • NPP, Section III.3.7 – Microbiologically Induced Corrosion NRC Approval of Approach: • SSER8, January, 1992 • SSER10, October, 1992	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Radiation Monitoring System	Radiation Monitoring System (RMS) deficiencies involved RMS design, documentation, installation, and hardware, and are categorized in three areas of concern. These are: • Sample line deficiencies involved line length, heat tracing, minimum bend radius, slope, and separation requirements. • Design and documentation deficiencies involved: - Design of sample flow equipment - Purge capability following an accident - System interlocks with containment isolation in the containment upper and lower compartment monitor design - Documentation of modifications to RMS rate meters - RMS rate meter cable damage. • Inadequate documentation of primary calibration records and uncertainty in the validity of equipment calibration. The actions to address these deficiencies for Unit 1 were to review and update the RMS design basis, including applicable requirements of Regulatory Guide 1.97; evaluate the RMS against this design basis; and implement modifications to correct RMS deficiencies. This also included an evaluation of the RMS design, documentation, and installations against the updated design criteria to verify the acceptability of the installation or to identify required modifications for those monitors included in the Technical Specifications and modifications or reworking of existing documentation to correct identified documentation deficiencies.	SP Plan: • NPP, Section III.3.9 – Radiation Monitoring NRC Approval of Approach: • NUREG-1232	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Use-as-is CAQs	Engineering at WBN identified that use-as-is and repair non-conformance dispositions were not reflected on drawings; there was inadequate justification for disposition of these types of non-conformances; and no project level procedural guidance was provided for use-as-is and repair dispositions. The Use-As-Is CAQs special program was initiated to address these issues. To prevent recurrence, engineering procedures were issued to establish the requirements for handling CAQs including ensuring that design documents reflect the approved configuration for any use-as-is or repair disposition, and that the basis for approval of any use-as-is or repair dispositions be documented. For Unit 1, this was followed by the identification of CAQs that had a final disposition of either use-as-is or repair and technical reviews of the latest revision of design documents considering the impact of the CAQ.	SP Plan: • TVA letter dated September 14, 1988, WB Unit 1 and Unit 2 Use-As-Is and Repair Dispositions for Construction Nonconformance Reports – WBRD-50 390/87-05 and WBRD-50-391/87-05 Final Report • TVA letter dated September 6, 1991, WBN - NPP Volume 4, Revision 1, Section III.3.11, Use-As-Is Special Program NRC Approval of Approach: • NUREG-1232	I	SP is open (Design and Physical Modifications). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
SP: Equipment Qualification	TVA determined that much of the equipment qualification documentation to support 10 CFR 50.49 requirements was not fully auditable and, in some cases, the documentation available did not demonstrate full qualification. The Equipment Qualification Special Program was initiated to document that safety related electrical equipment installed in the plant was qualified to perform its designated function in the environment to which it will be subjected during normal plant operation as well as during postulated accidents; and that programs and procedures have been established to ensure that qualification is maintained as future plant modifications are made. The processes put in place to accomplish these objectives included: • Procedures to maintain EQ over the operating life of the plant. • Consistent documentation requirements for electrical equipment located in harsh environments and required to function after an accident, and the EQ Documentation Package providing evidence of the qualification of equipment for its specific application and environment. • Incorporation of EQ considerations into maintenance activities The activities performed using these processes were: • Analyses of the effects of pipe breaks on temperature, humidity, dose and water level at various locations in containment and auxiliary buildings to establish the environmental parameters for all areas of the plant containing equipment that must meet 10 CFR 50.49 requirements. • Identification of all 10 CFR 50.49 equipment in these areas, the 50.49 list, including electrical equipment located in harsh environment and required to function after an accident. It was developed through a series of steps: - A systems analysis to determine for each DBA those equipment items required to ensure completion of a safety-related function. - For each item, a review of drawings to identify those ancillary devices and cable required to operate or	SP Plan: • TVA letter dated September 6, 1991, WBN - Nuclear Performance Plan Volume 4, Revision 1, Section III.3.4, Equipment Qualification Program NRC Approval of Approach: • NUREG-1232	I	SP is open (Design and Physical Modification). For Unit 2, the Unit 1 approach will be used.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Program Name	Program Description	References	*	Status _Commitments
	maintain electrical integrity to ensure completion of the item's safety-related function. - Reduction of this list by failure analysis to eliminate those components whose failure would not prevent achievement of the required safety action. • Establishment of EQ binders that contain the qualification information in an auditable manner. A package was developed for each Unit 1 equipment type. The package included: - Items comprising the equipment type - Checklist for evaluation of qualification - Analysis and justification of qualification - Qualification documents - Field verification data - Qualification Maintenance Data Sheets - Open items and deficiencies			

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

* C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

Table 6 – Items Requiring NRC Review and Approval

ITEMS REQUIRING NRC REVIEW AND APPROVAL

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (*GL, Bulletins*) Note 1	*	Additional Information
10.3.1 to 10.3.4 10.3: Main Steam Supply System	10.3.4: LICENSE CONDITION – Secondary water chemistry monitoring and control program		T	The staff determined that the secondary water chemistry monitoring and control program was being included in the administrative section of the Technical Specifications and resolved this for Unit 1 in SSER5 (November, 1990). Unit 2 Action: Take same action for Unit 2.
13.4 13.4: Operational Programs	13.4: LICENSE CONDITION - Independent Safety Engineering Group (ISEG) I.B.1.2		L	Resolved for Unit 1 only in SSER8 – January 1992. Unit 2 action: Implement the alternate ISEG that was approved for the rest of the TVA units including WBN Unit 1 by NRC August 26, 1999. The function will be performed by the site engineering organizations.
16 16 – Technical Specifications	Original 1982 SER		T	Unit 2 Action: Submit Technical Specifications.
2.13 - 2.1.4 2.1.3: Population Distribution	Original 1982 SER		L	SRP requirement. Unit 2 action: Update FSAR for present and projected population over the lifetime of the plant.
2.2.1 - 2.2.3 2.2.1 thru 2.2.2: Identification of Potential Hazards in Site Vicinity	Original 1982 SER		L	SRP requirement. Unit 2 action: Update FSAR for potential external hazards and hazardous materials.
2.4.9 2.4.13 – Accidental Releases of Liquid Effluents in Ground and Surface Waters	Original 1982 SER		L	SRP requirement. Unit 2 action: Update FSAR for present and projected use of local and regional groundwater.

NOTE 1: Specific Bulletins or GLs may be associated with multiple Standard Review Plan sections; however, they are only addressed with the first or the most appropriate section.

*: C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
2.2.2 3.5.1.5: Site Proximity Missiles (Except Aircraft) 3.5.1.6: Aircraft Hazards	Original 1982 SER		L	SRP requirement. Unit 2 action: Update FSAR for projected annual number of aircraft flights.
3.9.3.1, 3.9.3.2, 3.9.3.3 and 3.9.3.4 3.9.3 – Special Topics for Mechanical Components		GL 80-14	T	GL 80-14, "LWR Primary Coolant System Pressure Isolation Valves" - NRC reviewed in SSER6 (April 1991). *Unit 2 Action: Incorporate guidance into Technical Specifications.*
3.9.6 3.9.6 – Inservice Testing of Pumps and Valves		GL 89-04	L	GL 89-04, "Guidelines on Developing Acceptable Inservice Testing Programs" - NRC reviewed in SSER14 (December 1994). Unit 2 Action – Submit an ASME Section XI Inservice Test Program for the first ten year interval six months before receiving an Operating License.
3.9.6 3.9.6 – Inservice Testing of Pumps and Valves	3.9.6: OUTSTANDING ISSUE required that Technical Specifications include limiting condition for operation that requires plant shutdown or system isolation when leak limits are not met. Staff had not reviewed Technical Specifications. SSER14 – December 1994		T	The safety evaluation in SSER14 states that the staff did not find any IST issues that would prevent issuance of an operating license for Unit 1. The item was resolved in SSER14. Unit 2 Action – Submit Technical Specifications.
4.2.1, 4.2.2, 4.2.3, 4.2.4 4.2: Fuel System Design	4.2.2: CONFIRMATORY ISSUE on cladding collapse calculations SSER2 – January 1984		T	The staff reviewed the calculation for the predicted cladding collapse for the most limiting Watts Bar fuel and found it acceptable. Staff closed issue in SSER2. Unit 2 action: Use Westinghouse RFA-2 fuel as currently installed in Unit 1 for the initial cycle.

NOTE 1: Specific Bulletins or GLs may be associated with multiple Standard Review Plan sections; however, they are only addressed with the first or the most appropriate section.

*: C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8 4.4: Thermal and Hydraulic Design	4.4.3: OUTSTANDING ISSUE concerning removal of RTD bypass system		L	This outstanding issue was opened in SSER6. Staff issued an SER dated June 13, 1989, for Unit 1 only that approved replacement of the RTD bypass system with an Eagle-21 microprocessor system for monitoring reactor coolant temperature. TVA letter dated December 5, 2007, informs NRC of intent to use Eagle-21 for Unit 2. NRC requested additional information December 27, 2007. Unit 2 Action: Provide the additional information for NRC review.
4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8 4.4: Thermal and Hydraulic Design	4.4.5: CONFIRMATORY ISSUE / LICENSE CONDITION on review of Loose Parts Monitoring System (LPMS) startup report and inclusion of limiting conditions for LPMS in Technical Specifications SSER3 – January 1985 SSER5 – November 1990		L	TVA letters dated February 25, 1982 and November 10, 1982, provided a description of operator training and an evaluation of conformance to RG 1.133. In SSER3, the staff closed the confirmatory issue and opened a license condition to track submittal of the startup test results and the alert level setting. In SSER5, the staff closed the LC to a TVA commitment to provide the startup test results and the alert level settings in a letter dated Sept 19, 1990, for both units. For Unit 2 due to obsolescence, TVA will replace the LPMS. Unit 2 action: Provide the startup test results and the alert level settings.
4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8 4.4: Thermal and Hydraulic Design	4.4.8: LICENSE CONDITION - Detectors for Inadequate core cooling (II.F.2) SSER10 – October 1992	GL 82-28 / NUREG-0737, II.F.2	L	In the original SER, the review of the ICC instrumentation was incomplete. The January 24, 1992, letter superseded the previous responses on this issue. GL 82-28/II.F.2, "Inadequate Core Cooling Instrumentation System" – TVA letter for Units 1 and 2 January 24, 1992, committed to install Westinghouse ICCM-86 and associated hardware. NRC completed the review for Units 1 and 2 in SSER10. For Unit 2 due to obsolescence of the ICCM-86 system, TVA intends to install the Westinghouse Common Q Post-Accident Monitoring System. Unit 2 action: Install Westinghouse Common Q PAM system.
4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8 4.4: Thermal and Hydraulic Design	Original 1982 SER	GL 86-09	T	GL 86-09, "Technical Resolution of Generic Issue B-59-(N-1) Loop Operation in BWRs and PWRs – N-1 Loop operation was addressed in original 1982 SER (4.4.7). Unit 2 Action: Confirm Technical Specifications prohibit (N-1) Loop Operation.

NOTE 1: Specific Bulletins or GLs may be associated with multiple Standard Review Plan sections; however, they are only addressed with the first or the most appropriate section.

*: C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.2.2 5.2.2: Overpressure Protection		GL 90-06	T	GL 90-06, "Resolution of Generic Issues 70, "PORV and Block Valve Reliability," and 94, "Additional LTOP Protection for PWRs" – NRC letter dated January 9, 1991, accepted TVA's response for both units. *Unit 2 actions: 1) Revise operating instruction and surveillance* procedure; and 2) Incorporate testing requirements in the Technical Specifications.
5.2.4 5.2.4: Reactor Coolant Pressure Boundary Inservice Inspection and Testing	LICENSE CONDITION – Inservice inspection (ISI) program SSER12 – October 1993		L	The ISI program is required to be submitted within 6 months of the date of issuance of the operating license. The applicable ASME Code edition and addenda are determined by reference to 50.55a(b) 12 months preceding the date of issuance of the OL. In SSER12, the LC was resolved by a TVA commitment to submit the program within six months after receiving the operating license. Unit 2 action: Submit ISI program.
5.3.2 5.3.2: Pressure-Temperature (P-T) Limits	5.3.2 -OUTSTANDING ISSUE on P-T limits for Unit 2 not provided. Staff will review as part of Unit 2 Technical Specifications.		T	In the original 1982 SER, NRC indicated that the review of the Unit 2 P-T limits would be completed as part of the review of the Unit 2 Technical Specifications. Unit 2 action: Submit P-T limits.
5.3.3 5.3.3: Reactor Vessel Integrity		GL 88-11	L	GL 88-11, "NRC Position on Radiation Embrittlement of Reactor Vessel Material and its Impact on Plant Operations" – NRC acceptance letter dated June 29, 1989, for both units. Unit 2 action: Use RG 1.99, Rev. 2 methodology for P-T curves.
5.3.3 5.3.3: Reactor Vessel Integrity	5.3.3: OUTSTANDING ISSUE for staff to complete evaluation of Unit 2 after receipt of P□T limits		T	In the original 1982 SER, NRC indicated that the review of the Unit 2 P-T limits would be completed as part of the review of the Unit 2 Technical Specifications. Unit 2 action: Submit P-T limits.

NOTE 1: *Specific Bulletins or GLs may be associated with multiple Standard Review Plan sections; however, they are only addressed with the first or the most appropriate section.*

***:** C: Item closed for Unit 2; I: Proposed implementation only item; L: NRR approval required; T: Part of Technical Specifications submittal

1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
5.4.2.2 5.4.2.2: Steam Generator Tube Inservice Inspection		GL 06-01	T	GL 06-01, "SG Tube Integrity and Associated Technical Specifications" – Initial response for Unit 2 on September 7, 2007. Unit 2 Action: Include TSTF-449 in TS.
6.2.1.1 6.2.1.1.B: Ice Condenser Containments		B 77-04	T	B 77-04, "Calculation Error Affecting Performance of a System for Controlling pH of Containment Sump Water Following a LOCA" – Reviewed in Original 1982 SER. Unit 2 action: Ensure Technical Specifications includes limit on Boron concentration.
6.2.4 6.2.4: Containment Isolation System	6.2.4: OUTSTANDING ISSUE for NRC to complete review of information provided by TVA to address Containment Purging During Normal Plant Operation LICENSE CONDITION - Containment isolation dependability SSER3 - January 1985 SSER5 – November 1990		T	In the original 1982 SER, NRC concluded that WBN met all the requirements of NUREG-0737, item II.E.4.2 except subsection (6) concerning containment purging during normal operation. In SSER3, the outstanding issue was closed and the License Condition left open. NRC completed the review and issued a TER for both units July 12, 1990. NRC concluded that the isolation valves can close against the buildup of pressure in the event of a design basis accident if the lower containment isolation valves are physically blocked to an opening angle of 50 degrees or less. Unit 2 Action: Reflect valve opening restriction in the Technical Specifications.
6.2.5 6.2.5: Combustible Gas Control in Containment	6.2.5: OUTSTANDING ISSUE for review of TVA-provided additional information relative to discussion added to FSAR to address analysis of the production and accumulation of hydrogen within containment following onset of a LOCA SSER4 – March 1985		L	Unit 2 action: The hydrogen recombiners will be removed from the Unit 2 design and licensing basis based on 10 CFR 50.44 (final rule September 16, 2003) and abandoned in place.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
6.4 6.4: Control Room Habitability System	Original 1982 SER	GL 03-01	T	GL 03-01 "Control Room Habitability" – Initial response for Unit 2 on September 7, 2007. Unit 2 action: Incorporate TSTF-448 into Technical Specifications.
6.6 6.6: Inservice Inspection of Class 2 and 3 Components	6.6: OUTSTANDING ISSUE on additional information required on preservice inspection program and identification of plant specific areas where ASME Code Section XI requirements cannot be met and supporting technical justification		L	NRC reviewed the preservice inspection program (PSI) for Unit 1 only in SSER10 – October 1992. Unit 2 action: Submit Unit 2 PSI program.
7.1.1 7.1: Instrumentation and Controls - Introduction			T	Staff requested discussion of methodology for determining, setting, and evaluating as-found setpoints for drift susceptible instruments. Unit 2 action: Resolve this issue using the BFN TS-453 precedent (see NRC ML061680008).
8.3.1.1 to 8.3.1.9, 8.3.3.1 to 8.3.3.6 8.3.1: AC Power Systems (Onsite)		GL 07-01	L	GL 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients" - Initial response for Unit 2 on September 7, 2007. Unit 2 action: Complete testing of four additional cables.
9.2.1 9.2.1: Station Service Water System	No open issues in the original 1892 SER. SSER18 concludes ERCW does not conform to GDC 5 for two-unit operation.		L	Unit 2 Action: Appropriate measures will be taken to ensure that the ERCW system is fully capable of meeting design requirements for two unit operation.

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1982 SER SRP TITLE	APPROVAL FOR UNIT 2 Approval Reference	Guidance (GL, Bulletins) Note 1	*	Additional Information
9.3.2 9.3.2: Process and Post-Accident Sampling Systems	9.3.2: LICENSE CONDITION – Post-Accident Sampling System Resolved SSER14 –December 1994	NUREG-0737, II.B.3	T	II.B.3, "Post Accident Sampling" – NRC reviewed in SSER16 (September 1995). TVA submitted a TS improvement to eliminate requirements for the Post Accident Sampling System using the Consolidated Line Item Improvement Process in a letter dated October 31, 2001. Unit 2 Actions: Unit 2 Technical Specifications will eliminate requirements for the Post-Accident Sampling System.
11.7 NA: NUREG -0737 items	11.7.2: LICENSE CONDITION – Primary coolant outside containment III.D.1.1	NUREG-0737, III.D.1.1	T	III.D.1.1, "Primary Coolant Outside Containment" - Resolved for Unit 1 only in SSER10 (October 1992), reviewed in SSER16 (September 1995). Unit 2 Actions – Include the waste gas disposal system in the leakage reduction program and incorporate in Unit 2 Technical Specifications.
13.5.3 NA: NUREG-0737, items		NUREG-0737, II.K.3.3	T	II.K.3.3, "Reporting of SRV Challenges and Failures" (action from GL 82-16) – NRC reviewed in SSER16 (September 1995). Unit 2 Action: Include, as necessary, in Technical Specifications submittal.

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ITEMS REQUIRING NRC REVIEW AND APPROVAL

ITEM	TITLE	*	ADDITIONAL INFORMATION
IEB 75-08	PWR Pressure Instrumentation	T	Ensure that Technical Specifications and Site Operating Instructions address importance of maintaining temperature and pressure within prescribed limits.
NUREG-0737	TMI Items: II.K.3.10 - Anticipatory trip at high power	T	Unit 2 Technical Specifications and surveillance procedures will address this issue.

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ITEMS REQUIRING NRC REVIEW AND APPROVAL

Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	**2** Cable Jamming Since WBN documents did not address cable jam ratio, there was the potential for undetected cable damage. When single conductors with unacceptable jam ratios are pulled into a conduit, the cable may align in a flat configuration with a resultant jamming. For Unit 1, Class 1E conduits were evaluated to identify those segments most likely to have experienced jamming during installation. These segments were ranked according to their calculated percent sidewall bearing pressure. Cables were removed and inspected, and no evidence of damage due to jamming was identified. The inspected cables included those with the highest calculated side wall bearing pressure and were considered to bound the lower ranked cables. This evaluation addressed both Unit 1 and Unit 2 cable populations potentially subject to jamming.	CAP Plan: • TVA letter dated January 13, 1994, *Revision 3 to the CAP Plan for Cable Issues* NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	L	CAP is open (Design & Physical Modification). *Based on the work* performed on Unit 1, no corrective actions are required to resolve this issue on Unit 2. See Note 1.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	**6** Cable Pullbys Cable insulation damage was found in the Unit 2 Reactor Protection System and determined to be the result of cable pullby. When additional cables were removed, damage was also found. These deficiencies were addressed at the time. For Unit 1, TVA identified those locations where cable pull tension and cable side wall bearing pressure had exceeded certain safe threshold values, and cables were most susceptible to this damage mechanism based on the conduit configuration. All cables that were in high risk conduits were replaced. The threshold between low and high risk categories was validated via hi-pot testing or visual inspection, and cables in the low risk category conduits were accepted as is based on the hi-pot tests performed on a sample of low-risk category conduits.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	L	CAP is open (Design & Physical Modification). TVA will propose a different approach for Unit 2. See Note 1.
CAP: Cable Issues	**9** Cable Sidewall Bearing Pressure At WBN, sidewall bearing pressure (SWBP) was not properly addressed in the design and installation process and installations may have exceeded the allowable value. To resolve this issue on Unit 1, TVA conducted a walk down to identify worst case conduit configuration, calculated the expected pulling tension and SWBP for those worst case conduits and performed a test to determine increased allowable SWBP values, based on actual cables used at TVA nuclear plants. TVA revised construction specifications to require that SWBP be limited to the values determined by the above activities and site installation procedures were revised to provide explicit cable SWBP restriction to cable pulling limits. Analysis of the 81 severe case conduits against these limits revealed that the cable in one conduit may have exceeded these values, and this cable was replaced. An additional sample of 40 conduits, all in harsh environment, was examined and none exceeded allowable SWBP.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	L	CAP is complete. Based on the results of the Unit 1 program for this issue, which included Unit 1 and 2 cables and did not find excessive SWBP, no corrective action will be required for Unit 2. See Note 1.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status _Commitments
CAP: Cable Issues	**10** Pulling Cable Through 90° Condulet and Flexible Conduit A concern was raised for the potential damage to cables in 90° condulets due to the small supporting surface the inside corners of condulets provide for cables under tension. These corners can, in time, cut into the insulation, or the conductor can creep through the insulation, reducing the insulation level of the cables. There was also a concern that when cable is pulled through a flexible conduit segment in a bend, in the middle of a conduit run, it can be subjected to very high frictional forces that can tear the cable jacket and insulation. TVA evaluated cables pulled through mid-route flexible conduits which had been tested for pullby damage, and inspected cables removed, and confirmed that no damage was caused by the mid route flexible conduits.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	L	CAP is complete. Since no cable damage was found during the Unit 1 program due to this activity and no such damage has been found at any of the TVA Nuclear sites, no corrective action is necessary. See Note 1.
CAP: Cable Issues	**11** Computerized Cable Routing System Software and Database Verification and Validation CCRS was used to document information regarding cable routing. The information includes cable route in tray and conduits, cable type, cable weight, cable splices, circuit function and separation. There were concerns for the adequacy of CCRS. CCRS has been replaced by new software called ICRDS.	CAP Plan: • TVA letter dated January 13, 1994, Revision 3 to the CAP Plan for Cable Issues NRC Approval of Approach: • Safety Evaluation for WB Unit 1 – Corrective Action Program (CAP) Plan for Cable Issues, April 25, 1991 • Supplemental Safety Evaluation (SSER) 7, of NUREG-0847, Safety Evaluation Report Related to the Operation of WBNP, Units 1 and 2, dated September 1991 • SSER9, June 1992 • NRC letter February 14, 1994	L	CAP is complete. Since all cable data has been transferred to the Integrated Cable and Raceway Design System, no further corrective action is necessary for this issue.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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Program Name	Program Description	References	*	Status_Commitments
CAP: Electrical Issues	**2** Physical Cable Separation and Electrical Isolation There were isolated cases of redundant closed raceways with less than the minimum required 1-inch separation. For Unit 1, this issue was subdivided into three issues, and each was resolved separately. The issues were: - Separation between redundant divisions of Class 1E raceways. - Internal panel separation between redundant divisions of Class 1E cables. - Coil-to-contact and contact-to-contact isolation between Class 1E and non Class 1E circuits For inadequate separation between redundant divisions of Class 1E raceways, the raceways were reworked to meet the minimum 1-inch separation requirement, and site implementing procedures were revised to require specific signoffs for raceway separation attributes. For inadequate internal panel separation between redundant divisions of Class 1E cables, design criteria were revised to include more detailed requirements for internal panel cable separation, an engineering output document was issued to define these requirements and a list of all panels with redundant divisions of Class 1E cables was developed. Panels containing cables of redundant divisions were walked down to identify cables which did not comply with the revised engineering output document, and these were evaluated to determine acceptability or reworked to meet required separation distances. For coil-to-contact and contact-to-contact isolation between Class 1E and non Class 1E circuits, a calculation was developed to determine acceptability; design criteria were revised to specify acceptable isolation methods; and the existing Class 1E coil and contact devices used as isolators were reviewed to determine that they were qualified for their intended use.	CAP Plan: • TVA letter dated February 15, 1989, CAP Plan for Electrical Issues NRC Approval of Approach: • Safety Evaluation of the WB Unit 1 CAP Plan for Electrical Issues, September 11, 1989 • NUREG-1232	L	CAP is open (Design & Physical Modification). For Unit 2, the Unit 1 approach will be used to address separation between redundant divisions of Class 1E raceways and internal panel separation between redundant divisions of class 1E cable. Since no coil-to-contact or contact-to-contact isolation breakage was identified on Unit 1, no action is required for Unit 2 on this issue. See Note 1.

Note 1: TVA will submit a justification for the issues where a different approach will be used for Unit 2. This information will be submitted by May 16, 2008.

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