Attachment 1 to be withheld from Public Disclosure Under 10 CFR 2.390. When separated from this Enclosure, this letter is decontrolled.

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

March 5, 2012

10 CFR 50.4(b)(6)
10 CFR 50.34(b)
10 CFR 2.390(d)(1)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Unit 2
Docket No. 50-391

Subject: WATTS BAR NUCLEAR PLANT (WBN) – UNIT 2 – FINAL SAFETY ANALYSIS REPORT (FSAR), AMENDMENT 108

References:
1. TVA letter to NRC dated November 17, 2011, "Watts Bar Nuclear Plant (WBN) - Unit 2 - Final Safety Analysis Report (FSAR), Amendment 107"
2. TVA letter to NRC dated January 12, 2012, "Watts Bar Nuclear Plant (WBN) Unit 2 - Final Safety Analysis Report (FSAR) - Chapter 15.2.4 Inadvertent Boron Dilution

This letter transmits WBN Unit 2 FSAR Amendment 108 (A108), which reflects changes made since the issuance of Amendment 107 on November 17, 2011 (Reference 1).

Enclosure 1 contains a summary listing of FSAR sections and corresponding Unit 2 change package numbers associated with the A108 FSAR changes. Please note that the Section 4.3 changes resulted from fuel vendor's final design of the initial Unit 2 Cycle 1 core load. In addition, the densification factor statements contained in Subsection 4.3.2.2.1 were removed based upon previous NRC approval of Westinghouse WCAP 13589-A, "Assessment of Clad Flattening and Densification Power Spike Elimination in Westinghouse Nuclear Fuel," on January 30, 1995. These changes did not alter the conclusions previously submitted in Section 4.3. In addition, changes in Section 15.2 satisfy the commitment previously made regarding inadvertent boron dilution in Reference 2.

FSAR A108 is contained on the enclosed Optical Storage Media (OSM #1) (Attachment 1). The FSAR contains security-related information identified by the designation "Security-Related Information - Withhold Under 10 CFR 2.390." TVA hereby requests this information be withheld from public disclosure in accordance with the provisions of 10 CFR 2.390. A redacted version of the FSAR is contained on OSM #2 (Attachment 2), which is suitable for public disclosure.

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NRR

Enclosure 2 contains a listing of the FSAR pages that have been redacted. Enclosure 3 lists the files and file sizes on the security-related OSM (OSM #1), and Enclosure 4 lists the files and file sizes on the publicly available OSM (OSM #2).

There are no new commitments made in this letter. This letter does not close any "Generic Communications." If you have any questions, please contact Gordon Arent at (423) 365-2004.

I declare under the penalty of perjury that the foregoing is true and correct to the best of my knowledge. Executed on the 5th day of March, 2012.

Respectfully,

R. A. Hruby Jr.

Raymond A. Hruby, Jr.
General Manager, Technical Services
Watts Bar Unit 2

Enclosures:

1. WBN Unit 2 FSAR A108, "Summary Listing of A108 FSAR Changes"
2. WBN Unit 2 FSAR A108, "Summary of Redacted Pages"
3. WBN Unit 2 FSAR A108, "List of files and file sizes on the security-related OSM (OSM #1)"
4. WBN Unit 2 FSAR A108, "List of files and file sizes on the publicly available OSM (OSM #2)"

Attachments:

1. OSM #1: WBN Unit 2 FSAR Amendment 108 - Security-Related Information - Withhold Under 10 CFR 2.390
2. OSM #2: WBN Unit 2 FSAR Amendment 108 - Publicly Available Version

cc: See Page 3

cc (Enclosures):

U. S. Nuclear Regulatory Commission
Region II
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, Georgia 30303-1257

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

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
1.	Section 8.1	Revise Watts Bar Unit 2 FSAR Section 8.1.5.3, Note 12 as follows: "(12) Full compliance with IEEE Std. 450-1980 with the following exceptions: 1. A modified performance test based on section 5.4 of IEEE Std. 450-1995 may be performed in lieu of the performance or service test in accordance with the Technical Specification. 2. Also, the criteria for acceptance of connection resistance measurements may be established by the manufacturer's recommended limit as indicated In IEEE Std. 450-1995, Section D.2. 3. Additionally, a performance test will be performed at a 24 months frequency if the battery has reached 85% of the expected life with capacity ~ 100% as delineated in IEEE Std. 450-1995, Section 5.2.C."	2-108-01
2.	Section 6.7	For Section 6.7-13.2, 1: Insert the "Personnel Access Door," between the words, "panel" and "frame" of the second sentence of the first paragraph. Insert "Equipment Access" between the words "The" and 'door," of the third sentence of the first paragraph. 2. Replace the last sentence of the first paragraph and the second paragraph with the following paragraphs: "It is noted in Unit 2 only, the hoist assembly is abandoned in place and a chain hoist is used by personnel when the equipment door is required to be opened. All exposed surfaces are protected against corrosion by appropriate coating. In Unit 1, limit switches are provided to monitor movement of each door and to indicate position as a part of the door position monitoring system. In Unit 2, limit switches are provided to monitor personnel access door latch position and the equipment access door seal inflation with the personnel access door position monitoring system."	2-108-02

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
2. (cont.)	Section 6.7	For Section 6.7.15.2, under the heading, "Equipment Access Doors," add the subheading, "Unit 1." At the end of the second paragraph, insert the following paragraph: "Unit 2 Each personnel access door is provided with two limit switches fitted in a single series circuit providing control room indication of the personnel access doors. Each equipment access door is provided with one single pole double throw or equivalent switch to indicate the door seal is inflated. The normally closed set of contacts for switches on the equipment access doors, latched and inflated seals, are connected in series to a monitor light ("Access Door Closed"). The normally open set of contacts are connected in parallel to a monitor light (Access Door Open"). Refer to Figure 6.7-41."	2-108-02
3.	Table 3.9-26	1. On FSAR Table 3.9-26, Sheet 3 of 6, delete drawings 47W859-3 and 47W859-4 from the system column for Containment Spray. 2. On FSAR Table 3.9-26, Sheet 4 of 6, add drawing 47W859-3 to the system column for Component Cooling Water. 3. On FSAR Table 3.9-26, Sheet 4 of 6, delete drawing 472812-1 from the system column for Component Cooling Water.	2-108-03
4.	Section 6.2.3.3.2	For Section 6.2.3.3.2, Emergency Gas Treatment System (EGTS) - Inactive Air Cleanup Unit Cooling Capabilities, Paragraph 2, revise the cooling air flow rate from "90 cfm" to "112 cfm."	2-108-04
5.	Section 6.5.3.1 Table 6.5-7	Changes in atmospheric dispersion (X/Q) data to reflect 1991 to 2010 data result in a change in offsite LOCA radiation dose during purging and results in revision of FSAR section 6.5.3.1 & Table 6.5-7. The X/Qs have been changed to meet Unit 2 licensing requirements. TVA Calculation, T1-632, R7 has been revised to reflect the X/Q changes which resulted in a change to the offsite radiation doses for a LOCA during containment purging. Revisions to the text for FSAR section 6.5.3.1 and to Table 6.5-7 are to reflect changes in calculation.	2-108-05

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
6.	Section 15.5.6.3	Change the last bullet in Section 15.5.6.3 from "No filtration of the release from the spent fuel pool to the environment by the ABGTS is assumed" to "No filtration of the release from the Containment or the spent fuel pool to the environment by the Containment Purge filters or the ABGTS is assumed".	2-108-06
7.	Table 6.2.4-1 Table 6.2.6-2	1. On FSAR Table 6.2.4-1, page 2 of 69, add locked closed globe valve 30-555 to the listing for containment penetration X-4. Also, identify valve 30-555 is subject to Appendix J Test Type A and C testing. 2. On FSAR Table 6.2.4-1, page 2 of 69, add locked closed globe valve 30-554 to the listing for containment penetration X-5. Also, identify valve 30-554 is subject to Appendix J Test Type A and C testing. 3. On FSAR Table 6.2.4-1, page 3 of 69, add locked closed globe valve 30-558 to the listing for containment penetration X-6. Also, identify valve 30556 is subject to Appendix J Test Type A and C testing. 4. On FSAR Table 6.2.4-1, page 3 of 69, add locked closed globe valve 30-557 to the listing for containment penetration X-7. Also, identify valve 30-557 is subject to Appendix J Test Type A and C testing. 5. On FSAR Table 6.2.4-1, page 5 of 69, add locked closed globe valve 30-563 to the listing for containment penetration X-9A. Also, identify valve 30-563 is subject to Appendix J Test Type A and C testing. 6. On FSAR Table 6.2.4-1, page 5 of 69, add locked closed globe valve 30-562 to the listing for containment penetration X-98. Also, identify valve 30-562 is subject to Appendix J Test Type A and C testing.	2-108-07

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
7. (cont.)	Table 6.2.4-1 Table 6.2.6-2	7. On FSAR Table 6.2.4-1, page 6 of 69, add locked closed globe valve 30-561 to the listing for containment penetration X-10A. Also, identify valve 30-561 is subject to Appendix J Test Type A and C testing. 8. On FSAR Table 6.2.4-1, page 6 of 69, add locked closed globe valve 30-560 to the listing for containment penetration X-10B. Also, identify valve 30-560 is subject to Appendix J Test Type A and C testing. 9. On FSAR Table 6.2.4-1, page 6 of 69, add locked closed globe valve 30-559 to the listing for containment penetration X-11. Also, identify valve 30-559 is subject to Appendix J Test Type A and C testing. 10. On FSAR Table 6.2.4-1, page 44 of 69, add locked closed globe valve 30-556 to the listing for containment penetration X-80. Also, identify valve 30-556 is subject to Appendix J Test Type A and C testing. 11. On FSAR Table 6.2.6-2, add valve 30-555 to the listing for containment penetration X-4, valve 30-554 to the listing for containment penetration X-5, valve 30-558 to the listing for containment penetration X-6, valve 30-557 to the listing for containment penetration X-7, valve 30-563 to the listing for containment penetration X-9A, valve 30-562 to the listing for containment penetration X-98, valve 30-561 to the listing for containment penetration X-10A, valve 30-560 to the listing for containment penetration X-10B, valve 30-559 to the listing for containment penetration X-11 and valve 30-556 to the listing for containment penetration X-80. 12. On FSAR Table 6.2.4-1, page 44 of 69, revise the sketch for penetration X-80 to remove the second test connection valve and label valve number 30- 556. 13. On FSAR Table 6.2.4-1, Sheet 65 of 69, add the abbreviation for a valve with a manual actuator (M).	2-108-07

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
8.	Table 9.3-8	1. Delete the asterisked note on FSAR Table 9.3-8, page 4 of 4. Also remove the asterisks from the components listed in FSAR Table 9.3-8. 2. Remove local panel 2-L-366 from FSAR Table 9.3-8, page 2 of 4. Also add local panel 2-L-351 B to FSAR Table 9.3-8, page 2 of 4, as receiving Auxiliary Control Air System (ACAS) Train A control air. 3. Remove panels 0-L-535 and 0-L-536 from FSAR Table 9.3-8, page 3 of 4. 4. Add damper 0-FCO-31-12 to FSAR Table 9.3-8, page 3 of 4, as a normally open - fail open damper supplied with ACAS Train A control air. Also add damper 0-FCO-31-11 to FSAR Table 9.3-8, page 3 of 4, as a normally open - fail open damper supplied with ACAS Train B control air. 5. Add damper 0-FCO-31-82 to FSAR Table 9.3-8, page 3 of 4, as a modulating - fail closed damper supplied with ACAS Train A control air. Also add damper 0-FCO-31-91 to FSAR Table 9.3-8, page 3 of 4, as a modulating - fail closed damper supplied with ACAS Train B control air. 6. Add controllers 0-MC-31-176 and 0-MC-31-231 to FSAR Table 9.3-8, page 3 of 4, as HVAC equipment that is supplied with ACAS Train A control air. Also add controllers 0-MC-31-201 and 0-MC-31-261 to FSAR Table 9.3-8, page 3 of 4, as HVAC equipment that is supplied with ACAS Train B control air. 7. Add moisture control valves 0-MCV-31-176, 0-MCV-31-231 and 0-MCV-31-232 to FSAR Table 9.3-8, page 3 of 4, as modulating - fail open valves supplied with ACAS Train A control air. Also add moisture control valves 0-MCV-31-201, 0-MCV-31-261 and 0-MCV-31-262 to FSAR Table 9.3-8, page 3 of 4, as modulating - fail open valves supplied with ACAS Train B control air. Additionally, add a note to FSAR Table 9.3-8, page 4 of 4, for these moisture control valves to indicate they do not directly receive control air from ACAS but instead receive an input signal for position control from controllers 0-MC-31-176, 0-MC-31201, 0-MC-31-231 and 0-MC-31-261 which are supplied with control air from ACAS.	2-108-08

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
8. (cont.)	Table 9.3-8	8. Remove valve 2-FCV-65-60 and add valve 2-FCV-65-50 to FSAR Table 9.3-8, page 2 of 4. 9. On FSAR Table 9.3-8, page 2 of 4, change the OP Mode - Failure Mode for valves 2-FCV-65-4 and 2-FCV-65-5 from NA to normally open - fail closed, and for valves 2-FCV-65-7 and 2-FCV-65-9 from NA to normally closed - fail closed. 10. On FSAR Table 9.3-8, page 2 of 4, change the OP Mode - Failure Mode for dampers 1-PCO-65-80, 1-PCO-65-82 and 2-PCO-65-82 from NA to normally closed - fail open. Also, add damper 2-PCO-65-80 to FSAR Table 9.3-8, page 2 of 4, as a normally closed - fail open damper that receives ACAS Train A control air. 11. On FSAR Table 9.3-8, page 2 of 4, change the OP Mode - Failure Mode for dampers 1-PCO-65-89 and 2-PCO-65-89 from normally closed - fail closed to normally open - fail closed. Also, add dampers 1-PCO-65-88 and 2-PCO-65-88 to FSAR Table 9.3-8, page 2 of 4, as normally open - fail closed dampers that receive ACAS Train A control air. 12. Add a note to FSAR Table 9.3-8, page 4 of 4, to indicate dampers 1-PCO-65-80 and 2-PCO-65-80 are mechanically linked to dampers 1-PCO-65-88 and 2-PCO-65-88, respectively. Also, indicate in this note that dampers 1-PCO-65-82 and 2-PCO-65-82 are mechanically linked to dampers 1-PCO-65-89 and 2-PCO-65-89, respectively.	2-108-08

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
8. (cont.)	Table 9.3-8	13. Add valves 1-FCV-90-107, 1-FCV-90-111, 1-FCV-90-113 and 1-FCV-90-117 to FSAR Table 9.3-8, page 3 of 4, as valves supplied with ACAS Train A control air. Also, add valves 1-FCV-90-108, 1-FCV-90-109, 1-FCV-90-110, 1-FCV-90-114, 1-FCV-90-115 and 1-FCV-90-116 to FSAR Table 9.3-8, page 3 of 4, as valves supplied with ACAS Train B control air. 14. Add local panels 2-L-218A to FSAR Table 9.3-8, page 1 of 4, as a local panel supplied with ACAS Train A control air. Also, add local panel 2-L-929 to FSAR Table 9.3-8, page 1 of 4, as a local panel supplied with ACAS Train B control air.	2-108-08
9.	Table 7.1-1	1. Change "Regulatory Guide 1.168, Revision 1, February 2004" to read "Regulatory Guide 1.168, Revision 0, September 1997 2. Change "IEEE Std. 1012-1998" to read "IEEE Std. 1012-1986" 3. Change "IEEE Std. 1028-1997"to read "IEEE Std. 1028-1988"	2-108-09
10.	Section 15.2.4 Table 15.2-1	1. Replace Section 15.2.4.1 with the following: "Reactivity can be added to the core by feeding primary grade water into the RCS via the reactor makeup portion of the CVCS. Boron dilution is a manual operation under strict administrative controls with procedures calling for a limit on the rate and duration of dilution. The primary causes of an inadvertent boron dilution event are the opening of the primary water control valve and failure of the blend system either by controller or mechanical failure. The CVCS, including the- blend system is designed to limit, even under various postulated failure modes, the potential rate of dilution to a value which, after indication through alarms and instrumentation, provides the operator sufficient time to correct the situation in a safe and orderly manner.	2-108-10

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
10.	Section 15.2.4 Table 15.2-1	Inadvertent dilution from reactor water make-up can be readily terminated by closing the control valve. All expected sources of dilution may be terminated by closing isolation valves FCV-62-128 and FCV-62-144. In order for makeup water to be added to the RCS at pressure, at least one charging pump must be running in addition to a primary makeup water pump. The rate of addition of unborated makeup water to the RCS when it is not at pressure is limited by the capacity of the primary water makeup pumps. Normally, only one primary water supply pump is operating while the other is on standby. With the RCS at pressure, the maximum delivery rate is limited by the control valve. The boric acid from the boric acid tank is blended with primary grade water in the blender and the composition is determined by the preset flow rates of boric acid and primary grade water on the control board. In order to dilute, two separate operations are required: (1) The operator must switch from the automatic makeup mode to the dilute or alternate dilute mode. (2) The start handswitch must be actuated. Failure to carry out either of these actions prevents the initiation of dilution. During normal operation the operator may add borated water to the RCS by blending boric acid from the boric acid storage tanks with primary grade water. This requires the operator to determine the concentration of the addition and setting the blended flow rate and the boric acid flow rate. The makeup controller will then limit the sum of the boric acid flow rate and primary water flow rate to the blended flow rate.	2-108-10

Item No.	Change Area	Change Description	Change Package Number
10. (cont.)	Section 15.2.4 Table 15.2-1	Primary water inadvertently added to the RCS via the charging system is a mass addition to the RCS. As primary water is added through the charging system, an equal amount of water is no longer being removed from the VCT. When this occurs, VCT level will increase. The system is designed to automatically divert water to the hold-up tank to prevent overfilling the VCT. A signal from redundant high VCT level switches result in a main control room alarm and lighting of an annunciator window. The alarm setpoint is the same level as when the divert valve starts to open. The divert valve will not fully open until VCT level reaches 93%. Thus letdown flow will not be diverted to the holdup tank prior to the alarm on high VCT level. The FSAR for Unit 1 and U2 have described the high flux at shut down alarm and stated that the alarm set point is maintained within 1/2 decade of the source flux level. Following reactor shutdown, when in the hot standby, hot shutdown, or subsequently the cold shutdown condition, and once below the P-6 interlock setpoint, and 104 counts per second, the high flux at shutdown alarm setting is automatically adjusted downward as the count rate reduces. The actual setpoint is maintained at 1.3 times background rather than at five times background as currently described in the FSAR. In addition to the high VCT level alarm set at 63% level, there is a high-high level alarm if the VCT level exceeds 93%. 2. For Section 15.2.4.2.1, modify as follows: a. Insert "s" after dilution in the first sentence. b. Insert the phrase, ""cold shutdown, hot shutdown, hot standby," between the words," refueling" and "startup" of the first sentence. c. Replace the word "is" with the word, "are" in the first sentence. 3. After Section 15.2.4.2.2, insert new Sections 15.2.4.2.3, 15.2.4.2.4, 15.2.4.2.5 as follows: "**15.2.4.2.3 Dilution During Cold Shutdown** In this mode, the plant is being taken from a long-term mode of operation (refueling) to a short term mode of operation (hot shutdown). Typically, the plant is	2-108-10

Item No.	Change Area	Change Description	Change Package Number
10 (cont.)	Section 15.2.4 Table 15.2-1	maintained in the cold shutdown mode when reduced RCS inventory is necessary or ambient temperatures are required. The water level can be dropped to the mid-plane of the hot leg for maintenance work that requires the steam generators to be drained. Throughout the cycle, the plant may enter cold shutdown if reduced temperatures are required in containment or as the result of a Technical Specification action statement. The plant is maintained in cold shutdown at the beginning of the cycle for start-up testing of certain systems. Dilution with reduced inventory cannot occur due to administrative controls which isolate the RCS from the potential source of diluted water prior to terminating flow from the RCPs and initiating flow via the RHR system. Conditions used for the analysis are as follows: (1) At operating temperature (between 68°F and 200°F) and pressure, dilution flow is limited by the maximum delivery capacity of one primary water pump, 150 gpm. (2) A minimum RCS water volume of 8,451 ft^3. This corresponds to the active RCS volume excluding the pressurizer and the reactor vessel upper head. (3) The initial boron concentration is 1,302 ppm, which corresponds to a concentration that maintains the reactor subcritical by the required shutdown margin (1.0 %Δp), assuming all RCCAs inserted except for the most reactive RCCA. (4) A conservative, maximum boron concentration at which the reactor will return to critical with all RCCAs inserted except for the most reactive RCCA, at the most reactive cycle burnup time without xenon, is 1,194 ppm. The 108 ppm change from the initial condition noted above is a conservative minimum value.	2-108-10

Item No.	Change Area	Change Description	Change Package Number
10 (cont.)	Section 15.2.4 Table 15.2-1	(5) Operator notification occurs via a high VCT level alarm with a setpoint of 68.1% span (including uncertainties). The alarm time is a function of the minimum letdown flow rate, which is 75 gpm." **15.2.4.2.4 Dilution During Hot Shutdown** In this mode, the plant is being taken from a short-term mode of operation (cold shutdown) to a long term mode of operation (hot standby). Typically, the plant is maintained in the hot shutdown mode to achieve plant heatup before entering hot standby. The plant is maintained in this mode at the beginning of cycle for startup testing of certain systems. Throughout the cycle, the plant will enter hot shutdown if reduced temperatures are required in containment or as a result of a Technical Specification action statement. In hot shutdown, primary coolant forced flow is provided by at least one Reactor Coolant Pump (RCP). Conditions used for the analysis are as follows: (1) At operating temperature (200°F to 350°F) and pressure, dilution flow is limited by the maximum delivery capacity of one primary water pump, 150 gpm. (2) A minimum RCS water volume of 8,451 ft^3. This corresponds to the active RCS volume excluding the pressurizer and the reactor vessel upper head. (3) The initial boron concentration is 1,348 ppm, which corresponds to a concentration that maintains the reactor subcritical by the required shutdown margin (1.6%Δp), assuming all RCCAs inserted except for the most reactive RCCA. (4) A conservative, maximum boron concentration at which the reactor will return to critical with all RCCAs inserted except for the most reactive RCCA, at the most reactive cycle burnup time without xenon, is 1,165 ppm. The 183 ppm change from the initial condition noted above is a conservative minimum value.	2-108-10

Item No.	Change Area	Change Description	Change Package Number
10. (cont.)	Section 15.2.4 Table 15.2-1	(5) Operator notification occurs via a high VCT level alarm with a setpoint of 68.1% span (including uncertainties). The alarm time is a function of the minimum letdown flow rate, which is 75 gpm. **15.2.4.2.5 Dilution During Hot Standby** In this mode, the plant is being taken from one short-term mode of operation (hot shutdown) to another (startup). The plant is maintained in hot standby at the beginning of cycle for startup testing of certain systems and to achieve plant heatup before entering the startup mode and going critical. During operation of the cycle, the plant will enter this mode following a reactor trip or as the result of a Technical Specification action statement. During hot standby, all reactor pumps may not be in operation. In an effort to balance the heat loss through the RCS and the heat removal of the steam generators, one or more pumps may be shut off to decrease heat input into the system. The more limiting hot standby dilution scenario is with the control rods not withdrawn and the reactor shut down by boron to the Technical Specifications minimum requirement for this mode. Conditions used for the analysis are as follows: (1) At operating temperature (350°F to 557°F) and pressure, dilution flow is limited to 160 gpm by the high charging flow alarm (including uncertainties). Any flow rate greater than this will result in an immediate alarm and ample operator action time. (2) A minimum RCS water volume of 8,451 ft^3. This corresponds to the active RCS volume excluding the pressurizer and the reactor vessel upper head. (3) The initial boron concentration is 1,300 ppm, which corresponds to a concentration that maintains the reactor subcritical by the required shutdown margin (16%Δp), assuming all RCCAs inserted except for the most reactive RCCA.	2-108-10

Item No.	Change Area	Change Description	Change Package Number
10. (cont.)	Section 15.2.4 Table 15.2-1	(4) A conservative, maximum boron concentration at which the reactor will return to critical with all RCCAs inserted except for the most reactive RCCA, at the most reactive cycle burnup time without xenon, is 1,100 ppm. The 200 ppm change from the initial condition noted above is a conservative minimum value. (5) Operator notification occurs via a high VCT level alarm with a setpoint of 68.1% span (including uncertainties). The alarm time is a function of the minimum letdown flow rate, which is 75 gpm. 4. Renumber existing Section 15.2.4.2.3 as 15.2.4.2.6. 5. For new Section 15.2.4.2.6 (formally 15.2.4.2.3), replace the word, "assumed" with "used" in the last sentence of the first paragraph. 6. For new Section 15.2.4.2.6, Item 1, modify to read as follows: "At operating temperature and pressure, dilution flow is limited to 235 gpm." 7. For new Section 15.2.4.2.6, Item 3, modify to read as follows: "The initial boron concentration is 1,600 ppm, which corresponds to a critical, hot zero power condition with the control rods at the rod insertion limits providing a shutdown margin of 1.6%." 8. For new Section 15.2.4.2.6, Item 4, modify to read as follows: "The critical boron concentration following reactor trip is 1,400 ppm, which is a conservative maximum value corresponding to a hot zero power condition with, all RCCAs inserted except for the most reactive RCCA at the most-reactive cycle burnup time without zenon. The 200 ppm change from the initial condition noted above is a conservative minimum value."	2-108-10

Item No.	Change Area	Change Description	Change Package Number
10. (cont.)	Section 15.2.4 Table 15.2-1	9. Renumber existing Section 15.2.4.2.4 as 15.2.4.2.7. 10. For new Section 15.2.4.2.7 (formally 15.2.4.2.4), replace the word, "assumed" with "used" in the last sentence of the first paragraph. 11. For new Section 15.2.4.2.7, Item 1, modify to read as follows: "At operating temperature and pressure, dilution flow is limited to 235 gpm." 12 For new Section 15.2.4.2.7, Item 3, modify to read as follows: "The initial boron concentration is 1,500 ppm, which corresponds to a hot full power condition with the control rods at the rod insertion limits providing a shutdown margin of 1.6%." 13. For new Section 15.2.4.2.7, Item 4, modify to read as follows: "The critical boron concentration following reactor trip is 1,250 ppm, which is a conservative maximum value corresponding to a hot zero power condition with all RCCAs inserted except for the most reactive RCCA at the most-reactive cycle burnup time without zenon. The 250 ppm change from the initial condition noted above is a conservative minimum value." 14. Replace Section 15.2.4.3.3, with the following: "In cold shutdown, hot shutdown and hot standby, the reactor operators are relied upon to detect and recover from an inadvertent boron dilution event. Numerous alarms from the chemical and volume control system, the reactor makeup water system and the nuclear instrumentation system are available to provide assistance to the reactor operator in the detection of an inadvertent boron dilution event. In the analyses of the event initiated from these modes, the high Volume Control Tank (VCT) level alarm with an analysis setpoint of 68.1% span is modeled and provides the operator with timely indication that an event is occurring. The analyses have demonstrated that the reactor operators have at least 15 minutes in which to initiate actions to terminate the dilution and initiate boration of the RCS from the time of the alarm to loss of shutdown margin."	2-108-10

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

<table>
<tr><th>Item No.</th><th>Change Area</th><th>Change Description</th><th>Change Package Number</th></tr>
<tr><td>10.
(cont.)</td><td>Section 15.2.4
Table 15.2-1</td><td>
15. For Table 15.2-1, insert new items 1, 2, and 3 as follows:
<table>
<tr><td rowspan="3">1.</td><td rowspan="3">Dilution During Cold Shutdown - RCS filled</td><td>Dilution Begins</td><td>0</td></tr>
<tr><td>High VCT Level Alarm Sounds</td><td>820</td></tr>
<tr><td>Shutdown Margin is Lost</td><td>~2186</td></tr>
<tr><td rowspan="3">2.</td><td rowspan="3">Dilution During Hot Shutdown</td><td>Dilution Begins</td><td>0</td></tr>
<tr><td>High VCT Level Alarm Sounds</td><td>820</td></tr>
<tr><td>Shutdown Margin is Lost</td><td>~3552</td></tr>
<tr><td rowspan="3">3</td><td rowspan="3">Dilution During Hot Standby</td><td>Dilution Begins</td><td>0</td></tr>
<tr><td>High VCT Level Alarm Sounds</td><td>820</td></tr>
<tr><td>Shutdown Margin is Lost</td><td>~3663</td></tr>
</table>
16. Renumber existing table items 1 and 2 as 4 and 5, respectively.

17. Revise new Item 5 (formally Item 2) as follows:
<table>
<tr><td>5.</td><td colspan="3">Dilution During Full Power Operation</td></tr>
<tr><td rowspan="5"></td><td rowspan="2">a. Automatic Reactor Control</td><td>Dilution Begins</td><td>0</td></tr>
<tr><td>Shutdown Margin is Lost</td><td>~2057</td></tr>
<tr><td rowspan="3">b. Manual Reactor Control</td><td>Dilution Begins</td><td>0</td></tr>
<tr><td>Reactor trip setpoint reached for over temperature ΔT</td><td>77.5</td></tr>
<tr><td>Rods begin to fall into core</td><td>79</td></tr>
<tr><td colspan="2"></td><td>Shutdown Margin is Lost (If dilution continues after trip)</td><td>~2057</td></tr>
</table>
</td><td>2-108-10</td></tr>
</table>

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11.	Sections 1.6 4.3 4.4 7.7 14.2 15.3	1. Replace, on Page 1.6-4 for the third item from the top of the page, an updated list of reports associated with the Power Distribution Monitoring System (PDMS) that will be used in WBN Unit 2 Operation with the following: "Beard, C. L. and Morita, T. "BEACON: Core Monitoring and Operations Support System", WCAP-12472-P-A (Proprietary), August 1994, Addendum 1-A, January 2000, Addendum 2 -A, April 2002 and WCAP-12473-A (Non-proprietary), August 1994." 2. On page 4.3-5, perform the following:, a. Under Section 4.3.1.6 in the third paragraph in the first sentence, change "the Technical Specifications." to "the COLR." b. Under Section 4.3.1.6 in the third paragraph in the third (last) sentence, change "as described in the COLR" to "as specified in the Technical Specifications." 3. On Page 4.3-9, clarify the term F^N_U in terms of its use to support the Power Distribution Monitoring System (PDMS) used in WBN Unit 2 by deleting the words" with a full core flux map" and adding to the end "and as described in Reference [11] for the power distribution monitoring system." 4. On page 4.3-14, change the wording "full core map" to "power distribution measurement" in the fourth paragraph, second sentence. 5. On page 4.3-20, in the fifth paragraph in the third sentence, change "(-68°F)" to "(~ 68°F)." This is replacing the negative sign with an approximately sign.	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	6. On page 4.3-28 perform the following: a. In the third paragraph and first sentence, change "in the spent fuel storage rack uses" to "in the new fuel racks uses" b. In the fourth paragraph and first sentence, change "the fresh fuel racks" to "the new fuel racks". c. In the fourth paragraph and second sentence, change "the fresh fuel rack" to "the new fuel rack". d. In the fifth paragraph and fourth sentence, change "the fresh fuel storage racks" to "the new fuel racks". e. In the fifth paragraph and fifth sentence, change "fresh fuel rack" to" new fuel rack". 7. Changes are being made to the second paragraph in Section 4.4.2.4 on page 4.4-13. In the second sentence the words "maps are taken" is being replace with the words" power distribution measurements are obtained", The third sentence "Incore instrumentation data is sent to the Power Distribution Monitoring System (PDMS) once each minute and is compared to the calculated power distribution information," is being deleted and replaced with the following "Each of these measurements are reviewed for deviations from the expected power distribution," 8. In the second paragraph on page 4.4-14, the word "maps" is being replaced with the term "power distribution measurements," 9. On page 4.4-31 under Section 4.4.4.2 in first paragraph, change "conservative" to "the" and add "that" between "factors" and "are" and add to end of sentence ", are bounding. This change should then read "ensure that the peaking factors that are used in the core thermal and hydraulic analysis are bounding."	2-108-11

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	10. In section 7.7.1.9, on page 7.7-19, remove the space at the beginning of the paragraph. Then replace the term "core flux map" with the term "the incore power distribution measurement." 11. In section 7.7.1.9.2 on page 7.7-20, change the wording "flux mapping system" to "Power Distribution Monitoring System". Add to the end of the second paragraph, for the start of another paragraph the following words "The thimbles are closed at the leading ends and dry inside. Mechanical seals between the retractable thimbles and the conduits are provided at the seal table and serve as the pressure barrier between the reactor water pressure and the atmosphere. During reactor operation, the retractable thimbles are stationary. They are extracted downward from the core during refueling to avoid interference within the core. A space above the seal table is provided for the retraction operation." 12. On page 7.7-20 add new Section 7.7.1.9.4 Power Distribution Monitoring System (PDMS) The PDMS can be used to obtain power distribution measurements using the fixed IITAs. The PDMS receives on-line values for fixed incore detector data, reactor power, RCS cold leg temperatures, and control bank positions, coupled with a three dimensional analytical model to yield a continuously measured three-dimensional power distribution. On a once-per-minute basis, the Integrated Computer System transfers the values of computer points needed as input to the PDMS computer. The PDMS software is the Best Estimate Analyzer for Core Operations Nuclear (BEACON), which is described in References [18] and [19]. Detailed information on the core power distribution, including trends, may be obtained from the BEACON software. Although information is fed back to the Integrated Computer System in terms of computer point values, the PDMS does not drive any control room indications or annunciators.	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	13. On Page 7.7-29 under References for Reference 4, Change to read as follows: 4 "Westinghouse Incore Information Surveillance & Engineering (WINCISE) System Technical Manual, Watts Bar Unit 2" NO-WBT-002 Rev. 1. 14. On Page 7.7-30, add reference 12, clarify two typos in 16 and 17 and add new reference 18. Insert the following: "12 System Description Document Number N3-94-4003, "Incore Instrumentation System." 16 Change "Westinghous" to "Westinghouse" 17 Change "CERPI Systm" to "CERPR System" Insert the following: 18 Beard, C.L. and Morita, T. "BEACON: Core Monitoring and Operations Support System, WCAP-12472-P-A (Proprietary), August 1994, Addendum 1 - A, January 2000, Addendum 2 - A, April 2002 and WCAP-12473-A (Non-proprietary), August 1994. " 15. On page 14.2-19, adding a new exception after item (k) and number as item (l): (l) Appendix A, subparagraph 4.a WBN will not measure a boron reactivity coefficient using the Advanced Digital Reactivity Computer (ADRC) during low power physics testing. Overall core reactivity will be measured during low power physics testing. 16. On page 14.2-19, on this page and pages 14.2-20 thru 14.2-22, change the alphanumeric listings to reflect the addition of the exception.	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	17. On page 14.2-32 under section 14.2.10.3, in the second paragraph, change "leaving the last withdrawn control bank inserted far enough in the core to provide effective control when criticality is achieved." to "until all shutdown and control banks are at the full ARO configuration. 18. On page 14.2-33, in the second paragraph, change "will be plotted" to "will be evaluated". 19. On page 14.2-33, in the fourth paragraph, delete the following statement "or by rod withdrawal following boron dilution." 20, On page 14.2-33 under section 14.2.10.4 in the last paragraph and the last sentence, change "isothermal temperature coefficient, differential boron concentration reactivity worth, and critical boron concentrations." to "isothermal temperature coefficient and the critical ARO, hot zero power boron concentration." 21. On page 14.2-129 under acceptance criteria, deleting item 2. 2. If a statistical evaluation is used as a response check following an eight hour delay, the statistical reliability factor based on a ten count observation is between 0.53 and 1.48. 22 On page 14.2-129, under acceptance criteria, change item (3) number to (2). 23. On page 14.2-138, under prerequisites, change entire sentence to read: "Containment pressurization tests are complete and Incore Instrumentation System is capable of having simulated signals injected at the seal table in order to generate a simulated power distribution measurement."	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	24. On page 14.2-138 under Test Method change the words" a flux map" to "a power distribution measurement" and change power level of "20% RTP" to "25% RTP". Should read as "and the ability to generate a power distribution measurement is simulated by injecting signals into the Incore Instrumentation System detector cables at the seal table. After connecting the cables to the IITAs, and achieving at least 25% RTP, a power distribution measurement is produced using reactor core neutron power. 25. On page 14.2-138 under acceptance criteria, change the words "simulating and IITA" to "simulating an IITA, and change power level of "20% RTP" to "25% RTP" and change the words "a core flux map is computed"" to "a core power distribution measurement is obtained" 26. On page 14.2-148 under the prerequisites section, for item (3), change "2 cps" to "0.5 cps". Under test method section, in the first sentence, change the words "until approximately 100 pcm worth remains inserted." To "until an All Rods Out (ARO) configuration is reached. Under test method section, for rest of this section replace with wording "RCS boron dilution is commenced at a rate of $\leq$ 1000 pcm per hour with the RCS boron concentration being sampled at approximately 30 minute intervals. When the Inverse Count Rate Ratio (ICRR) is approximately 0.3, dilution rate is diminished by approximately one third of the original rate. Dilution is continued until the reactor is slightly critical or the maximum projected dilution volume has been added. Then dilution is terminated and the RCS is allowed to mix. If the reactor is slightly critical, then control bank D will be inserted to control and maintain the reactivity status of the reactor. If criticality is not achieved during mixing, RCS sampling will be used to determine the reactivity state point of the reactor and any additional dilution volume necessary to reach the projected dilution volume. Dilution will re-commence until the reactor is slightly critical or the dilution volume has been added, whichever happens first. During dilution, evaluations of ICRR versus dilution water additions are maintained.	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	27. On page 14.2-149 under test method section, replace the entire section with the following: "Control bank D is withdrawn to achieve a positive reactivity increase. Flux level and plant conditions are monitored and noted when nuclear heating is observed. Typical indications of nuclear heating are a decrease in reactivity and an increase in RCS temperature. Control bank D is then inserted to achieve negative reactivity. At the point of adding nuclear heat, the zero power physics testing range is then determined and set by the reactivity computer as needed based on the appropriate testing to be performed. Control bank D is then adjusted to reduce nuclear flux within the necessary testing range." Under acceptance criteria change to read: "The zero power physics testing range has been determined such that the reactivity feedback from nuclear heating does not compromise the measurements. 28. On page 14.2-150, under the prerequisites section for item (2), delete the words "along with an X-V recorder/plotter' Under Test method replace everything after the first sentence to read "Reactivity is monitored and reactivity parameters versus temperature changes are determined. The isothermal temperature coefficient value is determined. From this data, the value of the moderator temperature coefficient is then determined."	2-108-11

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	29. On page 14.2-151, under the objective section, change the sentence to read: "To verify the design integral rod worths of the control and shutdown banks and the design All Rods Out (ARO) critical boron concentration. Under the test method section, replace with the following "The integral worth of all control and shutdown banks will be measured with the reactivity computer, using the Dynamic Rod Worth Measurement (DRWM) technique. The ARO critical boron endpoint will be determined from data obtained during rod worth measurements." Under acceptance criteria section for item (2) delete the "s" on end of the word concentrations. This should read "critical boron concentration at hot zero" Under acceptance criteria section for item (2) change "are" to "is". Under acceptance criteria section for item (3), delete this criterion. 30. On page 14.2-152, under the test method section, in the first sentence, change the words "by measuring the boron concentration near the all rods out, hot zero power xenon free critical condition and correcting reactivity by endpoint measurement techniques." to" by determining the ARO boron concentration at hot zero power, xenon free critical conditions. This measurement also confirms the reactivity measurement requirements of Technical Specifications are met."	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	31. On page 14.2-153, under prerequisites section for item (1) change to read "The reactor is critical with reactor power stable at the test plateau. Under prerequisites section for item (2) change to read "The Power Distribution Monitoring System (PDMS) is operable and the Integrated Computer System (ICS) is available to gather power distribution measurement data. Under test method section, change to read" Reactor power is stabilized at greater than or equal to 25% Rated Thermal Power (RTP) and a power distribution measurement is obtained using the PDMS. The measurement is obtained with control rods controlling Axial Flux Difference (AFD) within the target band. Power distribution measurement information is then processed and calculations are performed. These measurements are repeated as a minimum at approximately 50%, 75% and 100% RTP. Under acceptance criteria section change item (1) as follows: Add "fuel" in front of loading, change "or" in front of enrichment to a " comma" and change "versus" to "placement of." This change should read "Hot channel factors are less than or equal to design safety limits which provide a check for potential errors in fuel loading, enrichment of fuel assemblies, placement of lumped poison elements, and to check for mispositioned or uncoupled control rods.	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
11. (cont.)	Sections 1.6 4.3 4.4 7.7 14.2 15.3	32. On page 15.2-10, for a dropped RCCA or RCCA bank being detected, change item (2) as below and delete item (6). (2) Asymmetric power distribution as seen on: A. the Out of Core Neutron Detectors, B. the Core Exit Thermocouples, C. the Power Distribution Monitoring System (PDMS); Similarly, for misaligned RCCAs being detected, change item (1) as below and delete item (4). (1) Asymmetric power distribution as seen on: A. the Out of Core Neutron Detectors, B. the Core Exit Thermocouples, C. the Power Distribution Monitoring System (PDMS); 33. On page 15.3-6, in the second paragraph and the third sentence change "Power Distribution Monitoring System" to "Power Distribution Monitoring System [17]." In other words, the super script [17] correctly references the proper reference material over on page 15.3 -14. 34. On page 15.3-14, add a reference (17) to support the use of PDMS (17) Beard, C.L. and Morita, T. "BEACON: Core Monitoring and Operations Support System ", WCAP-12472-P-A (Proprietary), August 1994, Addendum 1 - A, January 2000, Addendum 2 - A, April 2002 and WCAP-12473-A (Non-proprietary), August 1994.	2-108-11

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
12.	Sections 2.3 7.2 7.5 12.3 15.2	1. On Page 2.3-15 (A107) correct typographical errors in first paragraph of Section 2.3.4.1 by replacing "Walts" with "Watts" in three places. 2. On page 2.3-17 (A107), remove space between "61" and "b" in the second paragraph of Section 2.3.4.2. 3. On page 2.3-17 (A107), replace "1992" date with "1991" date in the last line of the last paragraph just prior to table of information. 4. Combine information at the bottom of Page 2.3-17 (A107) with the information at the top of Page 2.3-18 and correct data alignment issues within the table. 5. For Table 7.2-2 (A107), Item P-7, delete the phrase, "pressurizer low pressure, and pressurizer high level" from the table. 6. On Page 7.5-34 (A107), for Item 11 of Table 7.5-2, replace "10^{-4} to 10^{-9}" with "10^{-9} to 10^{-4}" 7. On Page 12.3-5 (A107), replace "radiation protection," with "Radiation Protection." 8. On Page 15.2-1 (A107), insert new Item 15 as follows: "(15) Chemical and Volume Control System Malfunction During Power Operation".	2-108-12

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
13.	Section 2.4	1. On Page 2.4-1, change value in the fourth paragraph of Section 2.4 for the probable minimum flow past the site from "2000" cfs to "3,200" cfs. 2. Under Section 2.4.1.2, revise value of 208,400 to 214,000 in the second sentence of the 14th paragraph. 3. In the last sentence of the first paragraph of Section 2.4.2.1, replace the phrase, "under present day regulation reached Elevation 696.95 at the site on March 17, 1973, with the phrase, "elevation of the site under present day regulation would be approximately elevation 698 on a maximum tailwater elevation of 698.23 at Watts Bar dam located just upstream. 4. Insert the word, "wind," between the words "maximum" and "waves" in the second sentence of the fifth paragraph of Section 2.4.2.2. 5. In the third sentence of the fifth paragraph of Section 2.4.2.3, replace the phrase, "site grading and drainage system for," with "yard site grading and drainage system for flood studies for." 6. In the first sentence of the 15th paragraph of Section 2.4.2.3, replace superscript for reference 4 to reference 35. 7 Insert word, "and" between "Fontana" and "Hiwassee" in the third paragraph of the second paragraph of Section 2.4.3. 8. Delete the word, "storm" from the second sentence of the second paragraph of Section 2.4.3.1 9. Insert phrase "in area." after "3,000 square miles" in the next to last sentence of the first paragraph of Section 2.4.3.1. 10. Delete "Hydrometeorological" from the last sentence of the fifth paragraph of Section 2.4.3.1. 11. Delete "orographically fixed" from the first sentence of the last paragraph of Section 2.4.3.1.	2-108-13

Item No.	Change Area	Change Description	Change Package Number
13. (cont.)	Section 2.4	12. In the last sentence of the third paragraph of Section 2.4.3.3, replace the phrase, "reservoirs were routed," with "routings were made." 13. In the second sentence of the fifth paragraph of Section 2.4.3.3, delete the phrase, "as of Amendment 98." 14. Delete the last two sentences of the fifth paragraph of Section 2.4.3.3, which read as follows: "Permanent improvements to raise the height of embankments of these four dams are being evaluated. Section 2.4.3 will be updated following completion of the installation of these improvements." 15. Replace the cross section number "33" with "25" in the fourth sentence of the sixth paragraph of Section 2.4.3.3. 16. Replace the phrase, "with cross section spacing of about 0.25 mile," within average cross-section spacing of about 0.18 miles" in the last sentence of the seventh paragraph of Section 2.4.3.3. 17. Replace the phrase, "unsteady flow," to "steady state HEC-RAS," in the first sentence of the 10th paragraph of Section 2.4.3.3. 18. Insert "Watts Bar" between "long" and "Reservoir" in the second sentence of the tenth paragraph of Section 2.4.3.3. 19. Replace the acronym, "SOCH," to "HEC-RAS steady state," in the second sentence of the 10th paragraph of Section 2.4.3.3. 20. Insert "Chickamauga" between "long" and "Reservoir" in the second sentence of the eleventh paragraph of Section 2.4.3.3. 21. Revise the value for sections from "57" to "53" in the second sentence of the tenth paragraph of Section 2.4.3.3. 22. Insert "or SOCH," between the acronym, "HEC-RAS," and the word, "models" into the last sentence of the 12th paragraph of Section 2.4.3.3.	2-108-13

Item No.	Change Area	Change Description	Change Package Number
13. (cont.)	Section 2.4	23. Insert the phrase, "up to the point the operating deck is flooded" into the fourth sentence of the 13th paragraph of Section 2.4.3.3. 24. Delete the phrase, 'upstream of Watts Bar Nuclear Plant," from the second sentence of the second paragraph of Section 2.4.3.4. 25. Delete the extra, "tailwater,' from the first sentence under the heading, "Concrete Section Analysis," of the Section 2.4.3.4. 26. Insert the following subsections after the "Spillway Gates" subsection contained within Section 2.4.3.4: "Waterborne Objects Consideration has been given to the effect of waterborne objects striking the spillway gates and bents supporting the bridge across Watts Bar Dam at peak water level at the dam. The most severe potential for damage would be by a barge which has been torn loose from its moorings and floats into the dam. Should the barge approach the spillway portion of the dam end on, one bridge bent could be failed by the barge and two spillway gates could be damaged and possibly swept away. The loss of one bridge bent will not collapse the bridge because the bridge girders are continuous members and the stress in the girders will be less than the ultimate stress for this condition of one support being lost. Should two gates be swept away, the nape of the water surface over the spillway weir would be such that the barge would be grounded on the tops of the concrete spillway piers and provide a partial obstruction to flow comparable to unfailed spillway gates. Hence the loss of two gates from this cause will have little effect on the peak flow and elevation. Should the barge approach the spillway portion broadside, two and possibly three bridge bents could be failed. For this condition the bridge would collapse on the barge and the barge would be grounded on the tops of the spillway piers. This would be probable because the approach velocity of the barge would be from 4 to 7 miles per hour and the bottom of the barge would be about 6 inches above the tops of the piers. For this condition the barge would be grounded before striking the spillway gates because the gates are about 20 feet downstream from the leg of the upstream bridge bents.	2-108-13

Item No.	Change Area	Change Description	Change Package Number
13. (cont.)	Section 2.4	Lock Gates The lock gates at Fort Loudoun, Watts Bar, and Chickamauga were examined for possible failure with the conclusion that no potential for failure exists because the gates are designed for a differential hydrostatic head greater than that which exists during the probable maximum flood." 27. Replace the phrase, "For the Watts Bar FSAR," in the first sentence of the fourth paragraph of Section 2.4.3.6 with the phrase, "For the Watts Bar plant site," 28. Revise footnote reference from "38" to "37" in the second sentence of the fourth paragraph of Section 2.4.4. 29. Insert the phrase, "and other instrumentation has been added since." to the next to last sentence of the last paragraph of Section 2.4.4. 30. Insert the phrase, "for these loading conditions." after the word, "embankment," at the end of the last sentence of the paragraph prior to the subheading, "Flood Routing." 31. Insert the word, "postulated" between the words, "the" and "SSE" in the second sentence of the first paragraph of subsection, "Flood Routing." 32. Insert the word, "Dam" in two places after the phrase, "Watts Bar" in the first and second sentences of the fourth paragraph under the heading, "Multiple Failures," of Section 2.4.4.1. 33. Delete footnote "40" from the second sentence under the heading "Fontana Dam," of Section 2.4.4.1. 34. Replace the phrase, "football-shaped," with "flattened oval-shaped," in the first sentence of fifth paragraph under the heading, "Multiple Failures," of Section 2.4.4.1. 35. Replace the word, "each" with "reach" in the first sentence of the 10th paragraph under the heading of "Multiple Failures" of Section 2.4.4.1.	2-108-13

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
13. (cont.)	Section 2.4	36. Insert the phrase, "using the revised amplification factors," between the words "reevaluation" and "was' in the first sentence of the first paragraph under the heading, "Watts Bar Dam, of Section 2.4.4.1. 37. Replace the word, "postulated" with "assumed" in the first sentence of the fourth paragraph under the heading, "Fort Loudoun Dam," of Section 2.4.4.1 38. Replace the phrase, "SSE Dam failures" with "SSE dam failure combinations" in the first paragraph under the heading "Multiple Failures" after the "Cherokee" and "Douglas" headings of Section 2.4.4.1. 39. Delete the sentence that reads, "At least this most conservative assumption was used." from the third paragraph under the heading "Multiple Failures" after the "Cherokee" and "Douglas" headings of Section 2.4.4.1. 40. Correct the spelling of "respectively" in the next to last sentence of third paragraph under heading, "Multiple Failures," of Section 2.4.4.1. 41. Replace Figure "2.4-76" with "Figure 2.4-90" in the last sentence of the tenth paragraph under heading, "Multiple Failures," of Section 2.4.4.1. 42. Delete the sentence that reads, "This is conservative." from the tenth paragraph under the heading "Multiple Failures" after the "Cherokee" and "Douglas" headings of Section 2.4.4.1. 43. Delete the word, "Tellico" from the last sentence of the last paragraph of Section 2.4.4.1. 44. Replace the phrase, "where the dam was postulated to completely fail," with the phrase, "main river dams" in the third sentence of the first paragraph of Section 2.4.4.2. 45. Insert the phrase, "or SOCH" between the acronym, "HEC-RAS" and the word, "was" in the next to last sentence of the first paragraph of Section 2.4.4.2. 46. Add a space between "Plant" and 'Site" in the heading of Section 2.4.4.3.	2-108-13

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
13. (cont.)	Section 2.4	47. Replace maximum elevation value of "731.11" to "731.17" in the first sentence of the first paragraph of Section 2.4.4.3 and in the second sentence of the first paragraph of Section 2.4.14.10. 48. Add a space between "plant" and 'site" in the fifth paragraph of Section 2.4.7. 49. Replace the phrase, "TVA's Water Resources organization," with "TVA's River Operation (RO) organization" in the last sentence of the second paragraph of Section 2.4.10. 50. Correct typographical error by replacing "Wats Bar Nuclear Plant which show," with "Watts Bar Nuclear Plant shows" in the last paragraph of Section 2.4.11. 51. Insert the word, "Management" in between the words "Waste" and "Systems," in the first sentence of the first paragraph of Section 2.4.12.1. 52. Replace "Section 3.4, Sections 3.8.1 and 3.8.4" with "Sections 3.4, 3.8.1 and 3.8.4," in the last sentence of the last paragraph of Section 2.4.14. 53. Replace "River Operations" with "RO" in the first sentence of the first paragraph of Section 2.4.14.8.1. 54. Insert the word, "system" between the words, "forecast" and "to" in the second sentence of the first paragraph of Section 2.4.14.8.2. 55. Relocate the phrase, "TVA hydro projects" in Item 3 of Section 2.4.14.9.2 to just after the number 21 and prior to list of TVA hydro projects beginning with "Watts Bar." 56. Replace the phrase, "(Sheet 1B) and (Sheet 1C)" with "(Sheets 1B and 1C)" 57. Replace maximum elevation value of "731.11" to "731.17" in the first sentence of the first paragraph of Section 2.4.14.10.	2-108-13

Item No.	Change Area	Change Description	Change Package Number
13. (cont.)	Section 2.4	58. Revise the hour values from "36, 28, and 43" to "35, 28, and 44" in the first sentence of the second paragraph of Section 2.4.14.10. 59. Correct typographical error by replacing "fiber-options network," to "fiber-optics network. 60. Delete References 1, 2, 7 through 13, 22, and 31 through 33. 61. Addressed capitalizing building names or structures. 62. Added ".0" to certain elevations (several places) 63. Added "," separators to numbers great that 1000. 64. Added commas where needed. 65. Replace "and" with "or" in the last sentence of the third paragraph of Section 2.4.14.9.3. **II. Table Changes** 1. For Table 2.4-1, insert the number "40,000" into the Use (MGD) for Watts Bar Nuclear Plant. Revise ### note to read as follows: Unit 2 is not in operation at this time. When operation maximum combined intake will be ~115 million gallons per day." **III. Figure Changes** 1. Delete Figure 2.4-61 2. Delete Figure 2.4-62 3. Delete Figure 2.4-63 4. Delete Figure 2.4-69	2-108-13

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

Item No.	Change Area	Change Description	Change Package Number
14.	Section 4.3	1. For Section 4.3.1.3, Page 4.3-3; the calorimetric error discussed in this section was increased to 2.0% from 0.6%. The 0.6% value is an appropriate post-MUR uncertainty. Since the Watts Bar Unit 2 has not yet undergone the planned MUR, this number is to be consistent with the current licensing basis. 2. For Section 4.3.1.4, Page 4.3-4, replace the phrase "45 inches per minute and" with "limited such that," in the second sentence under the heading "Discussion." 3. For Section 4.3.1.6, Page 4.3-5; replace "Technical Specification" with "COLR" in the first sentence of the third paragraph of the section. In addition, replace the phrase, "as describe in the COLR," with the phrase, "as specified in the Technical Specifications," 4. For Section 4.3.2.1, Page 4.3-6, add the following statement at the end of third paragraph: "The first cycle design of Watts Bar Unit 2 is not impacted by these burnup-induced variances." 5. For Section 4.3.2.2.1, Page 4.3-8, move the last line that starts with "F_Q to the beginning of Page 4.3-9. Correct formatting issue involving "= Maximum kW/ft/Average kW/ft" at the top of the page. 6. For Section 4.3.2.2.1, Page 4.3-9, insert last line from previous page 4.3-8 (Item 5 above). Delete the phrase, "with a full core flux map" and insert the following: "and as described in Reference [11] for the power distribution monitoring system." at the end of the line beginning with "F^N_U = ..." 7. For Section 4.3.2.2.1 Pg. 4.3-9; the statements pertaining to "densification effects" are deleted, as is the correction factor, S(Z), as it is no longer used in the calculation FQ. The densification factor was also removed from the equation for FQ.	2-108-14

Item No.	Change Area	Change Description	Change Package Number
14. (cont.)	Section 4.3	8. For Section 4.3.2.2.1, Page 4.3-9, Correct formatting issue involving "= Maximum kW/ft/Average kW/ft" at the bottom of page. 9. For Section 4.3.2.2.2, Page 4.3-10, replace "one-eighth," with "one quarter" in the seventh line of the first paragraph, 10. For Section 4.3.2.2.5, Pg. 4.3-12; delete line return to allow the phrase beginning with "axial power... to finish the sentence. 11. For Section 4.3.2.2.5, Pg. 4.3-14 a. Delete the phrase, "allowed axial xenon distribution which, in turn, are used to calculate axial" from the first sentence of the first paragraph at the top of the page. b. Replace the second sentence of the first paragraph at the top of the page with the following: "For a RAOC analysis, however, a reconstruction model described in Reference [37] is used to create allowed axial xenon distributions covering the wider ΔI power operating space allowed with RAOC operation. The xenon distributions are then used to create axial power distributions in both normal and Condition II accident conditions. c. In the first line of the third paragraph of this page, correct typographical error by replacing "H" with "x" indicating the multiplication symbol between "FQ(z)" and Power within the parentheses 12. For Section 4.3.2.2.5, Page, 4.3-14; the use of the term "full core map" was exchanged for "power distribution measurement". This change is consistent with the proposed changes presented in Reference 2. 13. For Section 4.3.2.2.5, Page 4.3-15, delete the phrase, "and densification effects" from the last sentence of the third paragraph of this page. 14. For Section 4.3.2.2.5, Page 4.3-17, in the first and second paragraphs, replace Category A, B, C. D with Category 1, 2, 3, 4 respectively.	2-108-14

Item No.	Change Area	Change Description	Change Package Number
14. (cont.)	Section 4.3	15. For Section 4.3.2.2.5, Page 4.3-17, "replace "valus" with "values" in the last bullet at the bottom of the page. 16. For Section 4.3.2.2.8, Page 4.3-18, replace "references' with "References" and "on line" with "online' in the first and second paragraph respectively. 17. For Section 4.3.2.3, Page 4.3-19, replace "F_H" with the term "peaking factor" 18. For Section 4.3.2.3.2, Pg. 4.3-20; -68°F (minus 68°F) was changed to ~68°F (approximately 68°F). This change is consistent with the proposed changes presented in Reference 2. 19. For Section 4.3.2.3.4, Page 4.3-21, delete "+or" from two lines. 20. For Section 4.3.2.4, Page 4.3-22, relocate the phrase "for analytic uncertainties {36}" to after 10% within the second sentence of the second paragraph of this section. 21, For Section 4.3.2.4, Page 4.3-22, insert the following statement at the end of the third paragraph of Section 4.3.2.4: "The shutdown margin calculation considers the reactivity addition from these individual components as the power defect from the current power level to the hot zero power condition." 22. For Section 4.3.2.4.2; Page 4.3-23, the temperature uncertainty was increased from 4°F to 6°F in the last sentence of the first paragraph. This is consistent with the 5°F uncertainty and the -1°F bias. 23. For Section 4.3.2.7, Pg. 4-28; all instances (5 places) of the term "fresh fuel rack(s)" have been changed to "new fuel rack(s)". 24. For Section 4.3-2.7, Page 4.3-29, add to "s" to the word, "calculation" to make it plural in the fourth sentence of the fourth paragraph under the heading "Spent Fuel Storage - Wet."	2-108-14

Item No.	Change Area	Change Description	Change Package Number
14. (cont.)	Section 4.3	25. For Section 4.3-2.7, Page 4.3-30, bold the heading entitled, "Analytical Technique and Results" 26. For Section 4.3.2.7, Page 4.3-32, replace the word "spend": to "spent" in the last sentence of the first paragraph of this page. 27. For Section 4.3.2.8.4, Page 4.3-34, replace "is" with "are" and capitalize "references" in the first sentence in the first paragraph of Item (1). 28. For Section4.3.3.3, Page 4.3-40, capitalize the word, "doppler" in the first item of list at the bottom of the page. 29. For Reference 2 on Page 4.3-41, replace "WCAP-7308-L-P" with "WCAP-7308-L-P-A" 30. For Table 4.3-1; Page 4.3-46, replace values "1.49" and "1.213" at the bottom of table with "1.39" and "1.186" respectively.	2-108-14

<table>
<tr><th>Item No.</th><th>Change Area</th><th>Change Description</th><th>Change Package Number</th></tr>
<tr><td>14.
(cont.)</td><td>Section
4.3</td><td>31. For Table 4.3-2; Page 4.3-47 (Page 1 of 2), replace values in table as follows

<table>
<tr><th>Value</th><th>From</th><th>To</th></tr>
<tr><td>Total Heat Flux Hot Channel Factor F_Q</td><td>2.40</td><td>2.50</td></tr>
<tr><td>Nuclear Enthalpy Rise Hot Channel Factor, $F^N\Delta H$</td><td>1.55</td><td>1.65</td></tr>
<tr><td>Upper Curve, Design Limit</td><td>-10.2 to -6.7</td><td>-9.55 to -6.05</td></tr>
<tr><td>Doppler-only Power, Lower Cover</td><td>-16.5 to -9.3</td><td>-12.2 to -8.1</td></tr>
<tr><td>Upper Curve, Best Estimate</td><td>-15.3 to -8.4</td><td>-10.3 to -7.5</td></tr>
<tr><td>Doppler Temperature Coefficient</td><td>-2.1 to -1.4</td><td>-2.2 to -1.5</td></tr>
<tr><td>Moderator Temperature Coefficient, Best Estimate</td><td>0.0 to -33.6</td><td>0.0 to -32.6</td></tr>
<tr><td>Boron Coefficient, Best Estimate</td><td>-12.2 to -8.5</td><td>-7.9 to -8.8</td></tr>
</table></td><td>2-108-14</td></tr>
</table>

ENCLOSURE 1

WBN Unit 2 FSAR A107

"Summary Listing of A107 FSAR Changes"

<table>
<tr><th>Item No.</th><th>Change Area</th><th>Change Description</th><th>Change Package Number</th></tr>
<tr><td>14.
(cont.)</td><td>Section
4.3</td><td>32 For Table 4.3-2; Page 4.3-48 (Page 2 of 2), replace values in table as follows:

<table>
<tr><th>Value</th><th>From</th><th>To</th></tr>
<tr><td>Bank Worth, Bank D, HZP, BOL</td><td>1417</td><td>1339</td></tr>
<tr><td>Bank Worth, Bank C, HZP, BOL</td><td>1187</td><td>1201</td></tr>
<tr><td>Bank Worth, Bank B, HZP, BOL</td><td>1573</td><td>1362</td></tr>
<tr><td>Bank Worth, Bank A, HZP, BOL</td><td>1156</td><td>1130</td></tr>
<tr><td>Bank Worth, Bank D, HZP, EOL</td><td>1404</td><td>1267</td></tr>
<tr><td>Bank Worth, Bank C, HZP, EOL</td><td>1204</td><td>1110</td></tr>
<tr><td>Bank Worth, Bank B, HZP, EOL</td><td>1314</td><td>1213</td></tr>
<tr><td>Bank Worth, Bank A, HZP, EOL</td><td>1128</td><td>1042</td></tr>
<tr><td>Radial Factor (BOL to EOL), Unrodded</td><td>1.38 to 1.23</td><td>1.37 to 1.20</td></tr>
<tr><td>Radial Factor (BOL to EOL), D Bank</td><td>1.55 to 1.36</td><td>1.37 to 1.21</td></tr>
<tr><td>Zero Power, keff = 0.99, Cold, Rod Cluster Control Assemblies Out</td><td>1407</td><td>1213</td></tr>
<tr><td>Zero Power, keff = 0.99, Hot, Rod Cluster Control Assemblies Out</td><td>1416</td><td>1130</td></tr>
<tr><td>Zero Power, keff < 0.95, Cold, Rod Cluster Control Assemblies In</td><td>1136</td><td>972</td></tr>
<tr><td>Zero Power, keff = 1.00, Hot, Rod Cluster Control Assemblies Out</td><td>1314</td><td>1033</td></tr>
<tr><td>Full Power, No xenon, keff = 1.0, Hot, Rod Cluster Control Assemblies Out</td><td>1186</td><td>875</td></tr>
<tr><td>Full Power, Equilibrium Xenon, keff = 1.0, Hot Rod Cluster Control Assemblies Out</td><td>869</td><td>559</td></tr>
</table>
</td><td>2-108-14</td></tr>
</table>

Item No.	Change Area	Change Description	Change Package Number
14. (cont.)	Section 4.3	33. For Table 4.3-3; Page 4.3-49, replace table with updated information. 34. Replace Figures 4.3-4a, 4.3-4b and 4.3-5 with updated figures. 35. Replace Figures 4.3-6 through 4.3-13 with updated figures. 36. Replace Figure 4.3-21 with updated figure. 37. Replace Figure 4.3-33 with updated figure.	2-108-14

ENCLOSURE 2

WBN Unit 2 FSAR A107
"Summary of Redacted Pages"

Chapter	Page(S)	Section No.	Figure No.	Basis For Redaction
1	1.2-15	1.2	1.2-1	Security Related, 10CFR2.390(d)(1)
1	1.2-16	1.2	1.2-2	Security Related, 10CFR2.390(d)(1)
1	1.2-17	1.2	1.2-3	Security Related, 10CFR2.390(d)(1)
1	1.2-18	1.2	1.2-4	Security Related, 10CFR2.390(d)(1)
1	1.2-19	1.2	1.2-5	Security Related, 10CFR2.390(d)(1)
1	1.2-20	1.2	1.2-6	Security Related, 10CFR2.390(d)(1)
1	1.2-21	1.2	1.2-7	Security Related, 10CFR2.390(d)(1)
1	1.2-22	1.2	1.2-8	Security Related, 10CFR2.390(d)(1)
1	1.2-23	1.2	1.2-9	Security Related, 10CFR2.390(d)(1)
1	1.2-24	1.2	1.2-10	Security Related, 10CFR2.390(d)(1)
1	1.2-25	1.2	1.2-11	Security Related, 10CFR2.390(d)(1)
1	1.2-26	1.2	1.2-12	Security Related, 10CFR2.390(d)(1)
1	1.2-27	1.2	1.2-13	Security Related, 10CFR2.390(d)(1)
1	1.2-28	1.2	1.2-14	Security Related, 10CFR2.390(d)(1)
1	1.2-29	1.2	1.2-15	Security Related, 10CFR2.390(d)(1)
2	2.2-7	2.2	2.2-1	Security Related, 10CFR2.390(d)(1)
2	2.2-8	2.2	2.2-2	Security Related, 10CFR2.390(d)(1)
2	2.4-89	2.4	2.4-2	Security Related, 10CFR2.390(d)(1)
2	2.4-159	2.4	2.4-24	Security Related, 10CFR2.390(d)(1)
2	2.4-162	2.4	2.4-27	Security Related, 10CFR2.390(d)(1)
2	2.4-163	2.4	2.4-28	Security Related, 10CFR2.390(d)(1)
2	2.4-168	2.4	2.4-40a Sheet 1	Security Related, 10CFR2.390(d)(1)
2	2.4-171	2.4	2.4-40b	Security Related, 10CFR2.390(d)(1)
2	2.4-172	2.4	2.4-40c	Security Related, 10CFR2.390(d)(1)
2	2.4-173	2.4	2.4-40d Sheet 1	Security Related, 10CFR2.390(d)(1)
2	2.4-178	2.4	2.4-40f Sheet 1	Security Related, 10CFR2.390(d)(1)
2	2.4-181	2.4	2.4-40g Sheet 1	Security Related, 10CFR2.390(d)(1)
2	2.4-206	2.4	2.4-76	Security Related, 10CFR2.390(d)(1)
2	2.4-209	2.4	2.4-79	Security Related, 10CFR2.390(d)(1)
2	2.4-212	2.4	2.4-82	Security Related, 10CFR2.390(d)(1)
2	2.4-213	2.4	2.4-83	Security Related, 10CFR2.390(d)(1)
2	2.4-218	2.4	2.4-88	Security Related, 10CFR2.390(d)(1)
2	2.4-219	2.4	2.4-89	Security Related, 10CFR2.390(d)(1)
2	2.4-220	2.4	2.4-90	Security Related, 10CFR2.390(d)(1)
2	2.5-471	2.5	2.5-185	Security Related, 10CFR2.390(d)(1)
2	2.5-472	2.5	2.5-185a	Security Related, 10CFR2.390(d)(1)
2	2.5-513	2.5	2.5-225	Security Related, 10CFR2.390(d)(1)
2	2.5-514	2.5	2.5-226	Security Related, 10CFR2.390(d)(1)
2	2.5-515	2.5	2.5-226a	Security Related, 10CFR2.390(d)(1)
2	2.5-575	2.5	2.5-273	Security Related, 10CFR2.390(d)(1)
2	2.5-690	2.5	2.5-358	Security Related, 10CFR2.390(d)(1)

ENCLOSURE 2

WBN Unit 2 FSAR A107
"Summary of Redacted Pages"

Chapter	Page(S)	Section No.	Figure No.	Basis For Redaction
2	2.5-934	2.5	2.5-592	Security Related, 10CFR2.390(d)(1)
3	3.5-53	3.5	3.5-3	Security Related, 10CFR2.390(d)(1)
3	3.5-54	3.5	3.5-4	Security Related, 10CFR2.390(d)(1)
3	3.6-73	3.6	3.6-21	Security Related, 10CFR2.390(d)(1)
3	3.6-74	3.6	3.6-22	Security Related, 10CFR2.390(d)(1)
3	3.6-75	3.6	3.6-23	Security Related, 10CFR2.390(d)(1)
3	3.6-76	3.6	3.6-24	Security Related, 10CFR2.390(d)(1)
3	3.7-217	3.7	3.7-39	Security Related, 10CFR2.390(d)(1)
3	3.7-218	3.7	3.7-40	Security Related, 10CFR2.390(d)(1)
3	3.7-219	3.7	3.7-41	Security Related, 10CFR2.390(d)(1)
3	3.7-222	3.7	3.7-44	Security Related, 10CFR2.390(d)(1)
3	3.8.3-60	3.8.3	3.8.3-6	Security Related, 10CFR2.390(d)(1)
3	3.8.3-61	3.8.3	3.8.3-7	Security Related, 10CFR2.390(d)(1)
3	3.8.4-94	3.8.4	3.8.4-2	Security Related, 10CFR2.390(d)(1)
3	3.8.4-95	3.8.4	3.8.4-3	Security Related, 10CFR2.390(d)(1)
3	3.8.4-96	3.8.4	3.8.4-4	Security Related, 10CFR2.390(d)(1)
3	3.8.4-97	3.8.4	3.8.4-5	Security Related, 10CFR2.390(d)(1)
3	3.8.4-98	3.8.4	3.8.4-6	Security Related, 10CFR2.390(d)(1)
3	3.8.4-101	3.8.4	3.8.4-9	Security Related, 10CFR2.390(d)(1)
3	3.8.4-109	3.8.4	3.8.4-17	Security Related, 10CFR2.390(d)(1)
3	3.8.4-110	3.8.4	3.8.4-18	Security Related, 10CFR2.390(d)(1)
3	3.8.4-111	3.8.4	3.8.4-19	Security Related, 10CFR2.390(d)(1)
3	3.8.4-112	3.8.4	3.8.4-20	Security Related, 10CFR2.390(d)(1)
3	3.8.4-116	3.8.4	3.8.4-24	Security Related, 10CFR2.390(d)(1)
3	3.8.4-120	3.8.4	3.8.4-28	Security Related, 10CFR2.390(d)(1)
3	3.8.4-127	3.8.4	3.8.4-35	Security Related, 10CFR2.390(d)(1)
3	3.8.4-128	3.8.4	3.8.4-36	Security Related, 10CFR2.390(d)(1)
3	3.8.4-129	3.8.4	3.8.4-36a	Security Related, 10CFR2.390(d)(1)
3	3.8.4-132	3.8.4	3.8.4-37	Security Related, 10CFR2.390(d)(1)
3	3.8.4-149	3.8.4	3.8.4-50	Security Related, 10CFR2.390(d)(1)
3	3.8.4-150	3.8.4	3.8.4-51	Security Related, 10CFR2.390(d)(1)
3	3.8.6-19	3.8.6	3.8.6-7	Security Related, 10CFR2.390(d)(1)
6	6.2.2-24	6.2.2	6.2.2-4	Security Related, 10CFR2.390(d)(1)
6	6.2.3-76	6.2.3	6.2.3-4	Security Related, 10CFR2.390(d)(1)
6	6.2.3-77	6.2.3	6.2.3-5	Security Related, 10CFR2.390(d)(1)
6	6.2.3-78	6.2.3	6.2.3-6	Security Related, 10CFR2.390(d)(1)
6	6.2.3-79	6.2.3	6.2.3-7	Security Related, 10CFR2.390(d)(1)
6	6.2.3-80	6.2.3	6.2.3-8	Security Related, 10CFR2.390(d)(1)
6	6.2.3-81	6.2.3	6.2.3-9	Security Related, 10CFR2.390(d)(1)
6	6.2.3-82	6.2.3	6.2.3-10	Security Related, 10CFR2.390(d)(1)
6	6.2.3-92	6.2.3	6.2.3-18	Security Related, 10CFR2.390(d)(1)
6	6.2.3-93	6.2.3	6.2.3-19	Security Related, 10CFR2.390(d)(1)
8	8.1-21	8.1	8.1-1	Security Related, 10CFR2.390(d)(1)
8	8.2-15	8.2	Text only	Security Related, 10CFR2.390(d)(1)
8	8.2-30	8.2	8.2-3	Security Related, 10CFR2.390(d)(1)

ENCLOSURE 2

WBN Unit 2 FSAR A107
"Summary of Redacted Pages"

Chapter	Page(S)	Section No.	Figure No.	Basis For Redaction
8	8.2-31	8.2	8.2-4	Security Related, 10CFR2.390(d)(1)
8	8.2-44	8.2	8.2-11	Security Related, 10CFR2.390(d)(1)
8	8.3-97	8.3	8.3-1	Security Related, 10CFR2.390(d)(1)
8	8.3-99	8.3	8.3-2	Security Related, 10CFR2.390(d)(1)
8	8.3-100	8.3	8.3-3	Security Related, 10CFR2.390(d)(1)
8	8.3-102	8.3	8.3-4b	Security Related, 10CFR2.390(d)(1)
8	8.3-205	8.3	8.3-46	Security Related, 10CFR2.390(d)(1)
8	8.3-218	8.3	8.3-59	Security Related, 10CFR2.390(d)(1)
9	9.2-211	9.2	9.2-40	Security Related, 10CFR2.390(d)(1)
9	9.4-276	9.4	9.4-21	Security Related, 10CFR2.390(d)(1)
9	9.4-280	9.4	9.4-22c	Security Related, 10CFR2.390(d)(1)
9	9.4-281	9.4	9.4-23	Security Related, 10CFR2.390(d)(1)
9	9.4-282	9.4	9.4-24	Security Related, 10CFR2.390(d)(1)
12	12.3-39	12.3	12.3-1	Security Related, 10CFR2.390(d)(1)
12	12.3-40	12.3	12.3-2	Security Related, 10CFR2.390(d)(1)
12	12.3-41	12.3	12.3-3	Security Related, 10CFR2.390(d)(1)
12	12.3-42	12.3	12.3-4	Security Related, 10CFR2.390(d)(1)
12	12.3-43	12.3	12.3-5	Security Related, 10CFR2.390(d)(1)
12	12.3-44	12.3	12.3-6	Security Related, 10CFR2.390(d)(1)
12	12.3-45	12.3	12.3-7	Security Related, 10CFR2.390(d)(1)
12	12.3-46	12.3	12.3-8	Security Related, 10CFR2.390(d)(1)
12	12.3-47	12.3	12.3-9	Security Related, 10CFR2.390(d)(1)
12	12.3-48	12.3	12.3-10	Security Related, 10CFR2.390(d)(1)
12	12.3-49	12.3	12.3-11	Security Related, 10CFR2.390(d)(1)
12	12.3-50	12.3	12.3-12	Security Related, 10CFR2.390(d)(1)
12	12.3-51	12.3	12.3-13	Security Related, 10CFR2.390(d)(1)
12	12.3-52	12.3	12.3-14	Security Related, 10CFR2.390(d)(1)
12	12.3-53	12.3	12.3-15	Security Related, 10CFR2.390(d)(1)
12	12.3-54	12.3	12.3-16	Security Related, 10CFR2.390(d)(1)
12	12.3-55	12.3	12.3-17	Security Related, 10CFR2.390(d)(1)
12	12.4-7	12.4	12.4-1	Security Related, 10CFR2.390(d)(1)

ENCLOSURE 3

WBN Unit 2 FSAR A107
"List Of Files And File Sizes
On The Security-Related OSM (OSM #1)"

ENCLOSURE 3
TVA Watts Bar Nuclear Plant Unit 2
FSAR Amendment 108 - List of Files on *Security-Related OSM*

File Name	File Size - Bytes
TVA_WBN-2_FSAR_Files	
001_TVA_WB_FSAR_TOC.pdf	362,569
002_TVA_WB_FSAR_LRP.pdf	96,901
003_TVA_WB_FSAR_Section_1.pdf	4,646,853
004_TVA_WB_FSAR_Section_2_A.pdf	19,859,628
005_TVA_WB_FSAR_Section_2_B_Part_1_of_2.pdf	44,209,852
005_TVA_WB_FSAR_Section_2_B_Part_2_of_2.pdf	42,591,716
006_TVA_WB_FSAR_Section_2_C.pdf	2,104,421
007_TVA_WB_FSAR_Section_2_D.pdf	31,323,894
008_TVA_WB_FSAR_Section_2_E.pdf	47,312,569
009_TVA_WB_FSAR_Section_3_A.pdf	2,624,981
010_TVA_WB_FSAR_Section_3_B.pdf	7,062,835
011_TVA_WB_FSAR_Section_3_C.pdf	30,015,701
012_TVA_WB_FSAR_Section_3_D.pdf	11,764,767
013_TVA_WB_FSAR_Section_4.pdf	21,326,732
014_TVA_WB_FSAR_Section_5.pdf	8,570,453
015_TVA_WB_FSAR_Section_6_A.pdf	26,046,178
016_TVA_WB_FSAR_Section_6_B.pdf	9,366,373
017_TVA_WB_FSAR_Section_7.pdf	14,022,918
018_TVA_WB_FSAR_Section_8.pdf	29,728,878
019_TVA_WB_FSAR_Section_9_A.pdf	24,541,563
020_TVA_WB_FSAR_Section_9_B.pdf	16,493,361
021_TVA_WB_FSAR_Section_10.pdf	14,164,296
022_TVA_WB_FSAR_Section_11.pdf	3,964,288
023_TVA_WB_FSAR_Section_12.pdf	5,993,869
024_TVA_WB_FSAR_Section_13.pdf	3,239,838
025_TVA_WB_FSAR_Section_14.pdf	1,170,580

ENCLOSURE 3
TVA Watts Bar Nuclear Plant Unit 2
FSAR Amendment 108 - List of Files on *Security-Related OSM*

File Name	File Size - Bytes
026_TVA_WB_FSAR_Section_15.pdf	46,629,911
027_TVA_WB_FSAR_Section_16.pdf	148,196
028_TVA_WB_FSAR_Section_17.pdf	144,887
Total	**469,529,008**
TVA_WBN-2_Oversized_FSAR_Figures	
001_TVA_WB_FSAR_Figure_2.5_3.pdf	1,757,743
002_TVA_WB_FSAR_Figure_2.5_11.pdf	1,689,538
003_TVA_WB_FSAR_Figure_2.5_71.pdf	2,263,087
004_TVA_WB_FSAR_Figure_2.5_222.pdf	909,429
005_TVA_WB_FSAR_Figure_2.5_281_1.pdf	2,155,627
006_TVA_WB_FSAR_Figure_2.5_281_2.pdf	2,117,562
007_TVA_WB_FSAR_Figure_2.5_549_1.pdf	3,600,807
008_TVA_WB_FSAR_Figure_2.5_549_2.pdf	3,989,180
009_TVA_WB_FSAR_Figure_2.5_549_3.pdf	2,863,719
010_TVA_WB_FSAR_Figure_2.5_549_4.pdf	2,809,599
011_TVA_WB_FSAR_Figure_2.5_550.pdf	1,803,985
012_TVA_WB_FSAR_Figure_2.5_551.pdf	1,996,869
013_TVA_WB_FSAR_Figure_2.5_554_1.pdf	3,081,060
014_TVA_WB_FSAR_Figure_2.5_554_2.pdf	1,996,707
015_TVA_WB_FSAR_Figure_2.5_555.pdf	1,993,312
016_TVA_WB_FSAR_Figure_2.5_556.pdf	2,998,087
017_TVA_WB_FSAR_Figure_2.5_571_1.pdf	844,484
018_TVA_WB_FSAR_Figure_2.5_571_2.pdf	3,128,329
019_TVA_WB_FSAR_Figure_2.5_571_3.pdf	3,284,555
020_TVA_WB_FSAR_Figure_2.5_571_4.pdf	2,142,316
021_TVA_WB_FSAR_Figure_2.5_572.pdf	2,196,945

ENCLOSURE 3
TVA Watts Bar Nuclear Plant Unit 2
FSAR Amendment 108 - List of Files on *Security-Related OSM*

File Name	File Size - Bytes
022_TVA_WB_FSAR_Figure_2.5_573.pdf	2,013,286
023_TVA_WB_FSAR_Figure_2.5_576_1.pdf	3,238,525
024_TVA_WB_FSAR_Figure_2.5_576_2.pdf	2,151,750
025_TVA_WB_FSAR_Figure_2.5_577.pdf	2,207,622
026_TVA_WB_FSAR_Figure_2.5_578.pdf	2,080,032
027_TVA_WB_FSAR_Figure_2.5_579.pdf	2,308,985
028_TVA_WB_FSAR_Figure_2.5_583.pdf	2,487,346
029_TVA_WB_FSAR_Figure_2.5_588.pdf	2,528,515
030_TVA_WB_FSAR_Figure_2.5_589.pdf	2,480,438
031_TVA_WB_FSAR_Figure_2.5_594.pdf	13,054,127
032_TVA_WB_FSAR_Figure_2.5_595.pdf	2,323,267
033_TVA_WB_FSAR_Figure_2.5_596.pdf	5,732,107
034_TVA_WB_FSAR_Figure_2.5_597.pdf	1,287,336
035_TVA_WB_FSAR_Figure_2.5_602.pdf	5,549,537
036_TVA_WB_FSAR_Figure_2.5_603.pdf	4,830,835
037_TVA_WB_FSAR_Figure_2.5_604.pdf	6,392,279
038_TVA_WB_FSAR_Figure_2.5_605.pdf	20,823,108
Total	**131,112,035**
TVA_WBN-2_Oversized_FSAR_Table	
001_TVA_WB_FSAR_Table_6.2.4-1.pdf	1,216,710
Total	**1,216,710**

ENCLOSURE 4

WBN Unit 2 FSAR A107
"List Of Files And File Sizes
On The Publicly Available OSM (OSM #2)"

ENCLOSURE 4
TVA Watts Bar Nuclear Plant Unit 2
FSAR Amendment 108 List of Files on *Publicly Available OSM*

File Name	File Size - Bytes
TVA_WBN-2_FSAR_Files	
001_TVA_WB_FSAR_TOC.pdf	362,569
002_TVA_WB_FSAR_LRP.pdf	96,901
003_TVA_WB_FSAR_Section_1.pdf	840,185
004_TVA_WB_FSAR_Section_2_A.pdf	19,523,063
005_TVA_WB_FSAR_Section_2_B_Part_1_of_2.pdf	33,962,499
005_TVA_WB_FSAR_Section_2_B_Part_2_of_2.pdf	36,333,595
006_TVA_WB_FSAR_Section_2_C.pdf	2,104,421
007_TVA_WB_FSAR_Section_2_D.pdf	31,323,894
008_TVA_WB_FSAR_Section_2_E.pdf	45,933,113
009_TVA_WB_FSAR_Section_3_A.pdf	2,333,546
010_TVA_WB_FSAR_Section_3_B.pdf	5,661,088
011_TVA_WB_FSAR_Section_3_C.pdf	25,183,205
012_TVA_WB_FSAR_Section_3_D.pdf	11,496,042
013_TVA_WB_FSAR_Section_4.pdf	21,326,732
014_TVA_WB_FSAR_Section_5.pdf	8,570,453
015_TVA_WB_FSAR_Section_6_A.pdf	23,165,699
016_TVA_WB_FSAR_Section_6_B.pdf	9,366,373
017_TVA_WB_FSAR_Section_7.pdf	14,022,918
018_TVA_WB_FSAR_Section_8.pdf	26,768,692
019_TVA_WB_FSAR_Section_9_A.pdf	24,280,513
020_TVA_WB_FSAR_Section_9_B.pdf	15,278,836
021_TVA_WB_FSAR_Section_10.pdf	14,164,296
022_TVA_WB_FSAR_Section_11.pdf	3,964,288
023_TVA_WB_FSAR_Section_12.pdf	1,725,677
024_TVA_WB_FSAR_Section_13.pdf	3,239,838
025_TVA_WB_FSAR_Section_14.pdf	1,170,580

Note: Byte amounts in italics are redacted files.

ENCLOSURE 4
TVA Watts Bar Nuclear Plant Unit 2
FSAR Amendment 108 List of Files on *Publicly Available OSM*

File Name	File Size - Bytes
026_TVA_WB_FSAR_Section_15.pdf	46,629,911
027_TVA_WB_FSAR_Section_16.pdf	148,196
028_TVA_WB_FSAR_Section_17.pdf	144,887
Total	**429,122,010**
TVA_WBN-2_Oversized_FSAR_Figures	
001_TVA_WB_FSAR_Figure_2.5_3.pdf	1,757,743
002_TVA_WB_FSAR_Figure_2.5_11.pdf	1,689,538
003_TVA_WB_FSAR_Figure_2.5_71.pdf	2,263,087
004_TVA_WB_FSAR_Figure_2.5_222.pdf	909,429
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006_TVA_WB_FSAR_Figure_2.5_281_2.pdf	2,117,562
007_TVA_WB_FSAR_Figure_2.5_549_1.pdf	3,600,807
008_TVA_WB_FSAR_Figure_2.5_549_2.pdf	3,989,180
009_TVA_WB_FSAR_Figure_2.5_549_3.pdf	2,863,719
010_TVA_WB_FSAR_Figure_2.5_549_4.pdf	2,809,599
011_TVA_WB_FSAR_Figure_2.5_550.pdf	1,803,985
012_TVA_WB_FSAR_Figure_2.5_551.pdf	1,996,869
013_TVA_WB_FSAR_Figure_2.5_554_1.pdf	3,081,060
014_TVA_WB_FSAR_Figure_2.5_554_2.pdf	1,996,707
015_TVA_WB_FSAR_Figure_2.5_555.pdf	1,993,312
016_TVA_WB_FSAR_Figure_2.5_556.pdf	2,998,087
017_TVA_WB_FSAR_Figure_2.5_571_1.pdf	844,484
018_TVA_WB_FSAR_Figure_2.5_571_2.pdf	3,128,329
019_TVA_WB_FSAR_Figure_2.5_571_3.pdf	3,284,555
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021_TVA_WB_FSAR_Figure_2.5_572.pdf	2,196,945

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ENCLOSURE 4
TVA Watts Bar Nuclear Plant Unit 2
FSAR Amendment 108 List of Files on *Publicly Available OSM*

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024_TVA_WB_FSAR_Figure_2.5_576_2.pdf	2,151,750
025_TVA_WB_FSAR_Figure_2.5_577.pdf	2,207,622
026_TVA_WB_FSAR_Figure_2.5_578.pdf	2,080,032
027_TVA_WB_FSAR_Figure_2.5_579.pdf	2,308,985
028_TVA_WB_FSAR_Figure_2.5_583.pdf	2,487,346
029_TVA_WB_FSAR_Figure_2.5_588.pdf	2,528,515
030_TVA_WB_FSAR_Figure_2.5_589.pdf	2,480,438
031_TVA_WB_FSAR_Figure_2.5_594.pdf	13,054,127
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033_TVA_WB_FSAR_Figure_2.5_596.pdf	5,732,107
034_TVA_WB_FSAR_Figure_2.5_597.pdf	1,287,336
035_TVA_WB_FSAR_Figure_2.5_602.pdf	5,549,537
036_TVA_WB_FSAR_Figure_2.5_603.pdf	4,830,835
037_TVA_WB_FSAR_Figure_2.5_604.pdf	6,392,279
038_TVA_WB_FSAR_Figure_2.5_605.pdf	20,823,108
Total	**131,112,035**
TVA_WBN-2_Oversized_FSAR_Table	
001_TVA_WB_FSAR_Table_6.2.4-1.pdf	1,216,710
Total	

Note: Byte amounts in italics are redacted files.