



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 5, 2023

Mr. James Barstow
Vice President, Nuclear Regulatory
Affairs and Support Services
Tennessee Valley Authority
1101 Market Street, LP 4A-C
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - ISSUANCE OF AMENDMENT NO. 161 REGARDING A ONE-TIME USE CHANGE TO FOOTNOTES APPLICABLE TO TECHNICAL SPECIFICATION TABLE 1.1-1 "MODES" **(EMERGENCY CIRCUMSTANCES)** (EPID L-2023-LLA-0064)

Dear Mr. Barstow:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 161 to Facility Operating License No. NPF-90 for the Watts Bar Nuclear Plant, Unit 1. This amendment is in response to your application dated May 4, 2023.

The amendment revises Watts Bar Nuclear Plant, Unit 1, Technical Specification Table 1.1-1, "MODES" to add one-time use footnote statements regarding reactor pressure vessel head closure bolt requirements.

The license amendment is issued under emergency circumstances pursuant to the provisions of paragraph 50.91(a)(5) of Title 10 of the *Code of Federal Regulations* due to the time-critical nature of the amendment. In this instance, an emergency situation exists in that the amendment is needed to allow the licensee to resume operation.

The NRC's related safety evaluation is also enclosed. The safety evaluation describes the emergency circumstances under which the amendment is issued and the final no significant hazards determination. A Notice of Issuance addressing the final no significant hazards determination and opportunity for a hearing associated with the emergency circumstances will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

/RA/

Perry H. Buckberg, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosures:

1. Amendment No. 161 to NPF-90
2. Safety Evaluation

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-390

WATTS BAR NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
License No. NPF-90

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (TVA, the licensee) dated May 4, 2023, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-90 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A as revised through Amendment No. 161 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. TVA shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, and shall be implemented before the next entry into Mode 5.

FOR THE NUCLEAR REGULATORY COMMISSION

David J. Wrona, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Operating License
and Technical Specifications

Date of Issuance: May 5, 2023

ATTACHMENT TO AMENDMENT NO. 161

WATTS BAR NUCLEAR PLANT, UNIT 1

FACILITY OPERATING LICENSE NO. NPF-90

DOCKET NO. 50-390

Replace page 3 of Facility Operating License No. NPF-90 with the attached revised page 3. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

Replace the following page of the Appendix A Technical Specifications with the attached page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page
1.1-7

Insert Page
1.1-7

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER (a)	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 350
4	Hot Shutdown (b)	< 0.99	NA	$350 > T_{avg} > 200$
5	Cold Shutdown (b)	< 0.99	NA	≤ 200
6	Refueling (c)	NA	NA	NA

- (a) Excluding decay heat.
- (b) For transitioning from the Unit 1 Cycle 18 refueling outage, through Cycle 19, and prior to Cycle 20 operation, all required reactor vessel head closure bolts fully tensioned. The required number of head closure bolts is at least 53 of 54 bolts (stud 34 has been removed from service).
- (c) For transitioning from the Unit 1 Cycle 18 refueling outage, through Cycle 19, and prior to Cycle 20 operation, one or more required reactor vessel head closure bolts less than fully tensioned. The required number of head closure bolts is at least 53 of 54 bolts (stud 34 has been removed from service).



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 161

TO FACILITY OPERATING LICENSE NO. NPF-90

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-390

1.0 INTRODUCTION

1.1 Background

By application dated May 4, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23124A403), the Tennessee Valley Authority (TVA, the licensee), submitted an emergency license amendment request (LAR) for changes to the Watts Bar Nuclear Plant (WBN), Unit 1, Technical Specifications (TSs).

The requested changes would revise WBN, Unit 1, TS Table 1.1-1, "MODES," to add two one-time use footnote statements regarding reactor pressure vessel (RPV) head fastener requirements. In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC or the Commission) process the proposed amendment under emergency circumstances.

1.2 Description of RPV Head Closure Bolt TS Requirements

Table 1.1-1 of the TSs provides information that pertains to conditions in each Watts Bar, Unit 1 reactor Operation Mode. Footnotes (b) and (c), which correspond to Modes 4, 5, and 6, provide requirements related to RPV head closure bolt tensioning including that all RPV head closure bolts must be fully tensioned in Mode 5.

1.3 Description of the Proposed Changes

The licensee has proposed one-time use Table 1.1-1 revisions to footnotes (b) and (c) which state that, for Cycle 19, the required number of RPV head closure bolts is now 53 of 54 bolts, and that RPV head closure stud #34 is removed from service.

2.0 REGULATORY EVALUATION

The regulations relevant to the licensee's LAR are summarized below.

Section 182a of the Atomic Energy Act of 1954, as amended, requires applicants for nuclear power plant operating licenses to include TSs as a part of the license. The Commission's regulatory requirements related to the content of TSs are set forth in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, which requires that the TSs include items in eight specific categories: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation (LCOs); (3) surveillance requirements (SR); (4) design features; (5) administrative controls; (6) decommissioning; (7) initial notification; and (8) written reports. The operational modes table is used to define the operating conditions under which individual LCOs are applicable (e.g., an individual LCO may be required to be met while in Modes 1 or 2, but not in the other operating modes). The proposed changes revise the definition of Modes 4 (Hot Shutdown), 5 (Cold Shutdown), and 6 (Refueling). While the changes revise the definition of when the plant is in each of these operating modes, they do not substantively affect any other WBN Unit 1 technical specification requirements.

Section 50.55a, "Codes and standards," of 10 CFR specifies standards approved for incorporation by reference including Section III and Section XI of the ASME Code.

Appendix A to 10 CFR Part 50, "General Design Criteria [GDC] for Nuclear Power Plants," applies and includes the following GDCs applicable to the licensee's LAR:

- GDC 14, "Reactor coolant pressure boundary," requires the design, fabrication, erection, and testing of the reactor coolant pressure boundary so as to have an extremely low probability of abnormal leakage, or rapidly propagating failure, and of gross rupture.
- GDC 30, "Quality of reactor coolant pressure boundary," requires in part, that components comprising the reactor coolant pressure boundary be designed, fabricated, erected, and tested to the highest quality standards practical.

3.0 TECHNICAL EVALUATION

3.1 Technical Evaluation

The WBN Unit 1 RPV was designed and fabricated in accordance with the requirements of American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section III, 1971 Edition through Winter 1971 Addenda, with the following addition: Closure studs, nuts, washers, inserts, and adaptors in accordance with SA-540 class 3 Gr. B-24 as modified by Code Case 1605.

The licensee stated that the RPV is American Nuclear Society (ANS) Safety Class 1 and the pressure boundary meets the requirements of the ASME Code, Section III, Subsection NB. The RPV is evaluated for the loading combinations outlined in Table 5.2-4 of the Updated Final Safety Analysis Report (UFSAR). The licensee analyzed the RPV for (1) the normal loads of deadweight, pressure, and thermal, (2) mechanical transients of operating basis earthquake, safe shutdown earthquake, and pipe ruptures, and (3) pressure and temperature transients outlined in WBN Unit 1 UFSAR Section 5.2.1.5.

3.1.1 Structural Integrity Evaluation

The NRC staff evaluated the impact of one untensioned stud on the structural integrity of the RPV, RPV head, and the remaining tensioned RPV studs for the range of conditions within the RPV licensing basis.

The licensee's technical basis for the structural integrity evaluation is included in WCAP-18774-P, Revision 1, "Addendum to the Rotterdam Dockyard Company Final Stress Report for 173" P.W.R. Vessels TVA III & IV (Report No. 30749-B-030, Rev. 3) - Evaluation of One Closure Stud Out of Service for 40 Years for Watts Bar Units 1 and 2," of Enclosure 2 to the license amendment request dated May 4, 2023.

The licensee calculated the required lengths of closure stud thread engagement in the reactor vessel flange stud holes for both stud tensioning and normal operation based on the shear stress in the threads. The licensee applied the maximum load during stud tensioning to calculate the required length of thread engagement in order to develop the necessary thread shear area. The licensee compared the required lengths of engagement with all 54 studs tensioned and with one stud out of service to the design length of engagement. The length of stud thread engagement provides information to the licensee to properly tension the studs without overstressing the studs and flange.

To determine the effect of the out-of-service stud, the licensee defined the distribution of the forces (or strains) in the studs based on the cross-section of the bolted flange. Based on the distribution of forces, the licensee analyzed the increase in load in the two studs directly adjacent to the untensioned stud (e.g., studs 33 and 35, adjacent to stud number 34), which are the most impacted studs. From the increased loading on studs, the licensee calculated the average and maximum stud service stresses. In addition, the licensee also calculated the increases in RPV head flange separation, required thread engagement, and bearing stress under the washers of the adjacent studs due to the out-of-service stud.

The NRC staff verified that the maximum stresses in the adjacent studs, the bearing stress in the closure nuts and washers, and the required thread engagement remain acceptable when one stud is left out of service during reactor operation. The NRC staff noted that the licensee adequately calculated cumulative fatigue usage factors for the adjacent studs with one stud out of service in accordance with the ASME Code, Section III requirement. The NRC staff finds that all of the stress intensities and cumulative fatigue usage factors continue to satisfy the applicable limits of the ASME Code, Section III, NB-3200 of the 1971 Edition through Winter 1971 addenda.

Based on the above, the NRC staff determined that the licensee's evaluation is acceptable and that the increased stresses and cumulative usage factors due to one untensioned stud remain below the allowable values in ASME Code, Section III, NB-3200 of the 1971 Edition through Winter 1971 addenda. Therefore, the NRC staff finds that the proposed changes to the TSs satisfy GDC 14 and GDC 30.

3.1.2 Leakage Integrity Evaluation

To address the potential pressure boundary leakage from the RPV head closure flange in the vicinity of untensioned stud number 34 during plant operation, the licensee stated in the LAR that the reactor vessel flange and head are sealed by two metallic O-rings and are secured by

the reactor vessel head closure studs. There are a total of 54 locations for the studs to be installed around the circumference of the reactor vessel head. The licensee stated that to ensure full engagement of the O-rings, a minimum of 53 of the 54 studs are required to be fully tensioned.

As part of its structural integrity evaluation included in WCAP-18774-P, Revision 1, the licensee evaluated the RPV head deflection with one bolt untensioned. The licensee determined that there was significant margin between the resulting deflection and the O-ring springback, such that the O-ring is expected to seal as designed to prevent leakage. The staff reviewed the evaluation in the technical basis document regarding the O-ring sealing and finds it acceptable, because it shows the flange separation remains below the O-ring springback stress limit as defined in ASME Code Section III with one untensioned stud.

The licensee further stated that O-ring seal leakage is detected by means of two leakoff lines. One line is located between the inner and outer reactor vessel flange O-rings and one line is located outside the outer reactor vessel flange O-ring. The leakoff lines have temperature sensors that monitor potential reactor vessel flange O-ring seal leakage. An increase in temperature above ambient is an indication of O-ring seal leakage. The licensee stated that high temperature indication in the leakoff lines actuates an alarm in the Main Control Room. The operator in the control room would take corrective actions if the leakage from the O-ring occurs. WBN Unit 1 UFSAR Sections 5.4.2 and 5.4.6 provide additional information on the reactor vessel head flange leakage detection. The NRC staff finds that the two O-ring leakoff lines at the WBN Unit 1 RPV that monitors potential primary pressure boundary leakage provide adequate detection of any potential leakage at the RPV closure flange due to untensioned RPV stud 34.

As stated in Enclosure 1 to the LAR dated May 4, 2023, the licensee stated that WBN Unit 1 has implemented a reactor coolant leakage detection system that conforms to the guidance of Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems." The NRC staff notes that WBN Unit 1 TS 3.4.13, "RCS Operational LEAKAGE" specifies leakage limits in the RCS as part of License Condition of Operation (LCO). Thus, the NRC staff finds that any potential leakage due to untensioned RPV stud 34 will be appropriately managed.

The licensee stated that, as required by ASME Code Section XI, a leakage test is performed on the primary side following reactor reassembly each refueling outage. During this test, the pressure is raised to 2280 pounds per square inch gauge (psig) with the system temperature above the minimum temperature imposed by reactor vessel material ductility requirements while the system is checked for leaks. The NRC staff notes that the licensee is required to perform a system leakage test in accordance with the ASME Code, Section XI, IWA-5000 and IWB-5000 prior to every plant startup. The system leakage test includes a VT-2 visual examination to determine any potential leakage. The NRC staff finds that this is another method beside the leak detection system to monitor any potential leakage from the untensioned stud number 34 and therefore is acceptable.

Based on the above, the NRC staff determines that the licensee has appropriate leakoff monitoring systems, RCS leakage detection systems, TS LCO limits, and ASME Code system leakage test requirements to monitor potential pressure boundary leakage. Therefore, the NRC staff finds that the licensee provided reasonable assurance that the leakage integrity of the RPV head closure flange will be maintained during normal operation with one untensioned stud during the period requested in the LAR. Therefore, the NRC staff finds that the proposed changes to the TSs satisfy GDC 14 and GDC 30.

3.1.3 Evaluation of Proposed Technical Specification Changes

Enclosure 1 to the LAR dated May 4, 2023, states that no changes were needed to WBN Unit 1 TS 3.4.3 "RCS Pressure and Temperature (P/T) Limits" and TS 3.4.12 "Cold Overpressure Mitigation System (COMS)," because the reactor vessel studs are not modeled in the supporting analyses. This evaluation was also supported by a Westinghouse analysis that concluded that functionality of 53 of the 54 studs is acceptable. The NRC staff finds that the RCS pressure and temperature limit curves in TS 3.4.3 and cold overpressure mitigation system in TS 3.4.12 are not affected by the untensioned stud number 34 because the reactor vessel studs are not part of calculations used to derive the pressure temperature limits and cold overpressure mitigation system parameters. Therefore, the staff finds that TS 3.4.3 and TS 3.4.12 do not need to be revised as part of the subject license amendment request.

WBN Unit 1 TSs define a TS MODE as follows:

A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.

TS Table 1.1-1 lists specific Modes of operation as MODE 1 (Power Operation), MODE 2 (Startup), MODE 3 (Hot Standby), MODE 4 (Hot Shutdown^b), MODE 5 (Cold Shutdown^b), and Mode 6 (Refueling^c) with footnotes which specify the reactor head closure bolt requirements as follows:

- (a) Excluding decay heat.
- (b) All reactor vessel head closure bolts fully tensioned.
- (c) One or more reactor vessel head closure bolts less than fully tensioned.

TVA's proposed TS change would modify the TS Table 1.1-1 footnotes b and c as shown in bold text below (no change is proposed to note a):

- (b) **For transitioning from the Unit 1 Cycle 18 refueling outage, through Cycle 19, and prior to Cycle 20 operation, all required reactor vessel head closure bolts fully tensioned. The required number of head closure bolts is at least 53 of 54 bolts (stud 34 has been removed from service).**
- (c) **For transitioning from the Unit 1 Cycle 18 refueling outage, through Cycle 19, and prior to Cycle 20 operation, one or more required reactor vessel head closure bolts less than fully tensioned. The required number of head closure bolts is at least 53 of 54 bolts (stud 34 has been removed from service).**

The NRC staff reviewed the proposed changes against the requirements of 10 CFR 50.36. Section 50.36(b) of 10 CFR states,

The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to § 50.34.

The NRC staff's review of the licensee's licensing-based analysis applicable to the proposed changes for WBN Unit 1 TSs as documented in its application, demonstrated in Section 3.0 of this SE that the required number of fully tensioned closure studs, which may be less than the total number of studs, does not adversely affect the operation of WBN Unit 1 RPV, and that the structural integrity and leakage integrity of the RPV closure studs and RPV closure flange would continue to be maintained with the required number of head closure bolts as proposed by the licensee. Regarding the WBN Unit 1's leakage detection system, the NRC staff noted that the licensee stated, "The WBN reactor coolant leakage detection system (see WBN Unit 1 TS 3.4.13, "RCS Operational LEAKAGE") conforms to the guidance in Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems." Since the proposed TS change is derived from the NRC approved analysis, and TS 3.4.13 remains unchanged, the modified TS is acceptable for Unit 1 operations during the specific time period as identified in revised Table 1.1-1, footnotes b and c.

Section 50.36(c)(1) of 10 CFR requires,

(1) Safety limits, limiting safety system settings, and limiting control settings. (i)(A) Safety limits for nuclear reactors are limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain physical barriers that guard against the uncontrolled release of radioactivity. If any safety limit is exceeded, the reactor must be shut down.

Section 50.36(c)(2)(i) of 10 CFR requires,

LCOs, which "are the lowest functional capability or performance levels of equipment required for safe operation of the facility." The regulation also requires that when an LCO of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met.

The NRC staff's review of the licensee's analysis concluded that the impact of one stud being out of service is acceptable because the structural integrity of the WBN Unit 1 RPV closure studs and RPV closure flange would continue be maintained within allowable limits and leakage integrity would be maintained. In addition, the staff notes that since the proposed changes do not change any other part of the WBN Unit 1 technical specifications, they have a negligible impact on the categories of technical specifications required by 10 CFR 50.36 and the other technical specification requirements for WBN Unit 1. Since the proposed TS change is derived from analysis that the NRC finds acceptable and the other WBN Unit 1 technical specification requirements (e.g. TS 3.4.13) remain unchanged, the modified TS is acceptable for Unit 1 operations during specific time period as identified in revised Table 1.1-1, footnote b.

Based on the evaluation above, the NRC staff finds the modified WBN Unit 1 TS is acceptable since the TSs would continue to specify the lowest functional capability or performance levels of equipment required for safe operation of the facility in accordance with the requirements of 10 CFR 50.36.

3.2 Technical Conclusion

Based on the discussion above, the NRC staff finds that the licensee has provided reasonable assurance of structural integrity during normal operation through Cycle 19 of the RPV studs, and leak integrity of the RPV closure head flange considering that the location number 34 stud has been removed from service. In addition, NRC staff finds that the proposed changes to WBN Unit 1 TS Table 1.1-1, "MODES," satisfy the requirements of 10 CFR 50.36 because the changes are derived from analysis that the NRC finds acceptable as demonstrated above, and therefore the modified TSs would continue to specify the lowest functional capability or performance levels of equipment required for safe operation of the facility in accordance with the TSs specified requirements.

4.0 EMERGENCY SITUATION

The NRC's regulations in 10 CFR 50.91(a)(5) state that where the NRC finds that an emergency situation exists, in that failure to act in a timely way would result in derating or shutdown of a nuclear power plant, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, the NRC may issue a license amendment involving no significant hazards consideration without prior notice and opportunity for a hearing or for public comment. In such a situation, the NRC will publish a notice of issuance under 10 CFR 2.106, providing for opportunity for a hearing and for public comment after issuance.

In the application letter dated May 4, 2023, the licensee requested that the NRC process the proposed amendment on an emergency situation basis. The licensee stated that during WBN Unit 1 refueling outage U1R16 in 2020, it was determined that RPV head stud hole #34 had damaged threads and stud #34 was removed from service. The licensee stated that the review of the stud hole #34 non-conformance was evaluated under the provision of 10 CFR 50.59 and it was determined that a revision to Watts Bar Updated Final Safety Analysis Report (UFSAR) Table 5.4-1, "Reactor Vessel Design Parameters," could be made to reflect that only 53 of the 54 studs are required to be installed and tensioned. The licensee determined at the time that this UFSAR revision did not require prior NRC approval. The licensee's evaluation also determined that a TS change was not required because they believed that the intent of the footnotes (b) and (c) to WBN Unit 1 TS Table 1.1-1 was still being satisfied and that no changes were needed to WBN Unit 1 TS 3.4.3, "RCS Pressure and Temperature (P/T) Limits" and TS 3.4.12, "Cold Overpressure Mitigation System (COMS)," because the reactor vessel studs are not modeled in the supporting analyses. The licensee's evaluation was also supported by a Westinghouse analysis that concluded that functionality of the RPV with 53 of the 54 studs is acceptable.

During outage U1R18, when WBN, Unit 1, had transitioned from Mode 6 to Mode 5, the NRC challenged TVA compliance with footnotes (b) and (c) to WBN Unit 1 TS Table 1.1-1. The NRC position is that footnotes (b) and (c) refer to "all reactor vessel head closure bolts" and this means all originally licensed 54 reactor vessel head closure bolts. On May 3, 2023, the licensee transitioned WBN Unit 1 from Mode 5 back to Mode 6 pending the review and approval of this emergency LAR.

The NRC staff reviewed the licensee's basis for processing the proposed amendment as an emergency amendment (as discussed above) and determined that an emergency situation exists consistent with the provisions in 10 CFR 50.91(a)(5). Furthermore, the NRC staff determined that: (1) the licensee used its best efforts to make a timely application; (2) the licensee could not reasonably have avoided the situation; and (3) the licensee has not abused the provisions of 10 CFR 50.91(a)(5). Based on these findings, and the determination that the amendment involves no significant hazards consideration as discussed below, the NRC staff has determined that a valid need exists for issuance of the license amendment using the emergency provisions of 10 CFR 50.91(a)(5).

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The NRC's regulation in 10 CFR 50.92(c) states that the NRC may make a final determination, under the procedures in 10 CFR 50.91, that a license amendment involves no significant hazards consideration if operation of the facility, in accordance with the amendment, would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

As required by 10 CFR 50.91(a), by letter dated May 4, 2023, the licensee provide its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

Overall protection system performance will remain within the bounds of the accident analyses because no hardware changes are proposed [The NRC staff does characterize the change from 54 to 53 required bolts as a hardware change, however, the NRC determined that this does not impact the licensee's conclusions]. Because the stresses remain within ASME Code allowables, the proposed change will not affect the probability of any event initiators. Nor will the proposed change affect the ability of any safety related equipment to perform its intended function. There will be no degradation in the performance of nor an increase in the number of challenges imposed on safety related equipment assumed to function during an accident situation.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different accident from any accident previously evaluated?

Response: No.

There are no hardware changes nor are there any changes in the method by which any safety related plant system performs its safety function [The NRC staff does characterize the change from 54 to 53 required bolts as a hardware change, however, the NRC determined that this does not impact the licensee's conclusions]. The method of plant operation is unaffected. Leakage would be precluded because adequate compression remains. Analysis demonstrates that any gap opening remains less than the springback recovery of the inner closure O-ring

[The NRC staff has reviewed the supporting analysis and determined that the outer closure O-ring was also shown to be acceptable, such that the RPV maintains the originally-designed double-layered protection against leakage and that the RPV leakage detection system, which measures conditions between the inner and outer O-rings, will remain effective]. Because stresses remain within ASME Code allowables, no new accident scenarios, transient precursors, failure mechanisms, or limiting single failures are introduced as a result of this change.

Therefore, the proposed amendment will not create the possibility of a new or different accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed change does not affect any safety limits or controlling numerical values for a parameter established in the updated final safety analysis report or any specific values that define margin that are established in the plant's licensing basis. ASME Section III stress limits for affected components are not exceeded. Plant specific evaluations indicate that the reactor vessel will continue to meet ASME Code allowable stress criteria with the required reactor pressure vessel closure studs fully tensioned. The proposed change does not alter nor exceed the acceptance criteria for any analyzed event. There will be no effect on the manner in which safety limits or limiting safety system settings are determined nor will there be any effect on those plant systems necessary to assure the accomplishment of protection functions.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above evaluation, the NRC staff concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as allowed by the criteria contained in 10 CFR 50.91.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment on May 5, 2023. The State official had no comments.

7.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: R. Grover, NRR
R. Elliott, NRR
J. Tsao, NRR
K. Hsu, NRR
D. Dijamco, NRR

Date: May 5, 2023

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 - ISSUANCE OF AMENDMENT NO. 161 REGARDING A ONE-TIME USE CHANGE TO FOOTNOTES APPLICABLE TO TECHNICAL SPECIFICATION TABLE 1.1-1 "MODES" (**EMERGENCY CIRCUMSTANCES**) (EPID L-2023-LLA-0064) DATED MAY 5, 2023

DISTRIBUTION:

PUBLIC	RidsNrrDexEmib Resource
PM File Copy	RidsNrrDssStsb Resource
RidsACRS_MailCTR Resource	RGrover, NRR
RidsNrrDorlLpl2-2 Resource	RElliott, NRR
RidsNrrPMWattsBar Resource	JTsao, NRR
RidsNrrLARButler Resource	KHsu, NRR
RidsRgn2MailCenter Resource	DDijamco, NRR
RidsNrrDssStsb Resource	

ADAMS Accession No.: ML23125A220

NRR-058

OFFICE	NRR/DORL/LPL2-2/PM	NRR/DORL/LPL2-2/LA	NRR/DEX/EMIB/BC	NRR/DNRL/NVIB/BC
NAME	PBuckberg	RButler	SBailey	ABuford
DATE	05/05/2023	05/05/2023	05/05/2023	05/05/2023
OFFICE	NRR/DSS/STSB/BC	OGC - NLO	NRR/DORL/LPL2-2/BC	NRR/DORL/LPL2-2/PM
NAME	VCusumano	ELicon	DWrona	PBuckberg
DATE	05/05/2023	05/05/2023	05/05/2023	05/05/2023

OFFICIAL RECORD COPY