



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-16-147

March 6, 2017

10 CFR 50.90

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

Watts Bar Nuclear Plant, Unit 1
Facility Operating License No. NPF-90
NRC Docket No. 50-390

Watts Bar Nuclear Plant, Unit 2
Facility Operating License No. NPF-96
NRC Docket No. 50-391

Subject: **Watts Bar Nuclear Plant (WBN) Unit 1 and Unit 2 - Non-Voluntary License Amendment Request to Modify and Clarify Technical Specification 3.6.15, "Shield Building," Condition B Note (WBN-TS-16-17)**

- References:
1. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Issuance of Amendment Regarding Temporary Use of Penetrations in Shield Building Dome During Modes 1-4 (TAC No. MC6569)," dated January 6, 2006 (ML060050378)
 2. NRC letter to TVA, "Watts Bar Nuclear Plant – NRC Integrated Inspection Report 05000390, 05000391/2015004 and 07201048/2015002," dated February 12, 2016 (ML16043A214)
 3. NRC letter to TVA, "Watts Bar Nuclear Plant – NRC Integrated Inspection Report 05000390/2016001, 05000391/2016001," dated April 7, 2016 (ML16098A323)

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.90, "Application for amendment of license, construction permit, or early site permit," the Tennessee Valley Authority (TVA) is submitting a non-voluntary license amendment request (LAR) for an amendment to Facility Operating License No. NPF-90 and NPF-96 for Watts Bar Nuclear Plant (WBN) Unit 1 and Unit 2, respectively.

WBN Units 1 and 2 Technical Specification (TS) 3.6.15, "Shield Building," Condition B requires an eight-hour completion time when the annulus pressure is not within limits. A Note associated with TS 3.6.15, Condition B states:

WBN Unit 1 TS 3.6.15

"Annulus pressure requirement is not applicable during venting operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration or while Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored.*

- *1. The combined opening time of Penetrations 1-EQH-271-0010 or 1-EQH-271-0011 is limited to a total time of five hours a day, six days a week during Cycle 7 operation.
2. Penetrations 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome may not be opened if in Action Conditions LCD 3.6.9A or 3.8.1 B.
3. Upon opening Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome, both EGTS control loops shall be placed in the A-Auto Stand-by position and returned to normal position following closure of penetration."

WBN Unit 2 TS 3.6.15

"Annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration."

The above Notes associated with TS 3.6.15, Condition B for WBN Unit 1 and Unit 2 TS are similar with the exceptions that the above footnotes for the WBN Unit 1 TS 3.6.15, Condition B Note were added by Reference 1 and were limited to the WBN Unit 1 Cycle 7 refueling outage and that the WBN Unit 1 Note states "venting operations," whereas the WBN Unit 2 Note states "ventilating operations."

In Reference 2, the Nuclear Regulatory Commission (NRC) identified the following unresolved item (URI) regarding the above Note in TS 3.6.15, Condition B:

"The licensee considered the note associated with TS LCO 3.6.15.B, which states that the annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or auxiliary building isolations not exceeding one hour in duration. The licensee considered the alignment they were in at the time to be ventilating operations and thus the requirements of TS LCO 3.6.15.B did not apply. The licensee further considered that the note, as written, allowed grace from the annulus pressure requirement for ventilating operations for an unlimited amount of time.

The inspectors were concerned about a possible allowance in the TS to have grace from annulus pressure requirements for longer than the allowed LCO required action completion time.”

As noted in Reference 3, “Through a licensing bases review, the inspectors determined that the original intent of the note was for it to be applied during short duration events.” However, in some cases the above Note associated with TS 3.6.15, Condition B, had been misinterpreted such that the one hour only applied to Auxiliary Building isolations thereby possibly allowing the Shield Building pressure requirements to be bypassed for an indefinite period. Therefore, in Reference 3, the NRC stated that TS 3.6.15, Condition B constitutes a nonconservative TS, in accordance with NRC Administrative Letter (AL) 98-10. Accordingly, this issue was entered in the TVA Corrective Action Plan and the NRC closed the URI in Reference 3. Section 3.2.1 of the enclosure to this letter describes the compensatory measures that were taken.

In order to eliminate the non-conservatism regarding the Note associated with TS 3.6.15, Condition B, and achieve consistency between WBN Unit 1 and Unit 2, the following changes are proposed in this LAR:

- The Note in TS 3.6.15 Condition B is being relocated to WBN Unit 1 and Unit 2 Surveillance Requirement (SR) 3.6.15.1 and revised to state: “Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations.”
- The footnotes associated with the Note in WBN Unit 1 TS 3.6.15 Condition B are being deleted because they expired when WBN Unit 1 entered Mode 5 at the start of the Cycle 7 refueling outage in Fall 2006.

As discussed above, this LAR corrects a nonconservative TS. To ensure the Note in TS 3.6.15, Condition B was properly applied, several corrective actions were implemented including:

- TS Bases 3.6.15 was revised to clarify the applicability of and limited duration of the Condition B Note to a maximum of one hour for all activities associated with the Note. This revision to TS Bases 3.6.15 is also reflected in Attachments 3, 4, 7, and 8 to the enclosure.
- An engineering evaluation of the Shield Building design basis with regard to pressure bounding safety analysis limitations of the Shield Building annulus was completed. The evaluation concluded that there were no design or safety issues.

The enclosure provides a description of the proposed changes, technical evaluation of the proposed changes, regulatory evaluation, and a discussion of environmental considerations. Attachments 1, 2, 3, and 4 to the enclosure provide the existing TS and Bases pages marked-up to show the proposed changes. Attachments 5, 6, 7, and 8 to the enclosure provide the existing TS and Bases pages retyped to show the proposed changes. Changes to the existing TS Bases are provided for information only and will be implemented under the Technical Specification Bases Control Program.

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TVA requests approval of the proposed TS change within 12 months of the date of this letter with implementation within 30 days following NRC approval.

The WBN Plant Operations Review Committee and the TVA Nuclear Safety Review Board have reviewed this proposed change and determined that operation of WBN Unit 1 and WBN Unit 2 in accordance with the proposed change will not endanger the health and safety of the public.

As discussed above, this LAR is required to correct a non-conservative TS. Currently plant operations are administratively controlled as described in AL 98-10. In accordance with the guidance in AL 98-10, this LAR is required to resolve a non-conservative TS and is not a voluntary request from a licensee to change its licensing basis.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Tennessee Department of Environment and Conservation.

There are no new regulatory commitments associated with this submittal.

Please address any questions regarding this request to Mr. Edward D. Schrull at (423) 751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 6th day of March 2017.

Respectfully,



J. W. Shea
Vice President, Nuclear Licensing

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Evaluation of Proposed Technical Specification Change

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant
NRC Project Manager – Watts Bar Nuclear Plant
Director, Division of Radiological Health - Tennessee State Department of
Environment and Conservation (w/o enclosures)

Enclosure

Evaluation of Proposed Technical Specification Change

Subject: Watts Bar Nuclear Plant (WBN) Unit 1 and Unit 2 - Non-Voluntary License Amendment Request to Modify and Clarify Technical Specification 3.6.15, "Shield Building," Condition B Note (WBN-TS-16-17)

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ATTACHMENTS

1. Proposed TS Changes Mark-Ups for WBN Unit 1
2. Proposed TS Changes Mark-Ups for WBN Unit 2
3. Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 1(For Information Only)
4. Proposed TS Bases Page Changes (Mark-Ups) for WBN Unit 2 (For Information Only)
5. Proposed TS Changes (Final Typed) for WBN Unit 1
6. Proposed TS Changes (Final Typed) for WBN Unit 2
7. Proposed TS Bases Changes (Final Typed) for WBN Unit 1 (For Information Only)
8. Proposed TS Bases Changes (Final Typed) for WBN Unit 2 (For Information Only)

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1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Operating Licenses (OLs) NPF-90 and NPF-96 for Watts Bar Nuclear Plant (WBN) Unit 1 and WBN Unit 2, respectively.

The proposed Technical Specification (TS) amendment revises the WBN Unit 1 and WBN Unit 2 TS 3.6.15, "Shield Building," Condition B and associated Bases. Specifically, the Tennessee Valley Authority (TVA) proposes to revise TS 3.6.15 by relocating the Condition B Note to Surveillance Requirement (SR) 3.6.15.1 and deleting the expired footnotes associated with the WBN Unit 1 TS 3.6.15 Condition B Note.

2.0 DETAILED DESCRIPTION

2.1 PROPOSED CHANGES

WBN Unit 1

The TS 3.6.15, Condition B Note currently states:

"Annulus pressure requirement is not applicable during venting operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration or while Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored.*

- *1. The combined opening time of Penetrations 1-EQH-271 -0010 or 1-EQH-271-0011 is limited to a total time of five hours a day, six days a week during Cycle 7 operation.
2. Penetrations 1-EQH-271 -0010 or 1-EQH-271-0011 in the Shield Building Dome may not be opened if in Action Conditions LCD 3.6.9A or 3.8.1 B.
3. Upon opening Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome, both EGTS control loops shall be placed in the A-Auto Stand-by position and returned to normal position following closure of penetration."

The action associated with the phrase "or while Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored.*" and the associated footnotes, were completed prior to WBN Unit 1 entering Mode 5 at the start of the Cycle 7 refueling outage in Fall 2006. Therefore, this portion of the Condition B Note is no longer required in the WBN Unit 1 TS. The remainder of the TS 3.6.15, Condition B Note is relocated to SR 3.6.15.1 and revised as follows:

"Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations."

The associated TS Bases are revised to address the Condition B revision and the Note relocation and its application with regard to ventilating operations, required annulus entries, and Auxiliary Building (AB) isolations.

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WBN Unit 2

The TS 3.6.15, Condition B Note currently states:

“Annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration.”

The TS 3.6.15, Condition B Note is relocated to SR 3.6.15.1 and revised as follows:

“Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations.”

The associated TS Bases are revised by to address the Condition B revision and the Note relocation and its application with regard to ventilating operations, required annulus entries, and AB isolations.

The proposed changes will ensure that WBN Unit 1 and Unit 2 are consistent with regard to TS 3.6.15 and TS Bases 3.6.15.

2.2 CONDITION INTENDED TO RESOLVE

The proposed changes resolve an Unresolved Item (URI) identified by the Nuclear Regulatory Commission (NRC) in Reference 1 and a nonconservative TS as identified by the NRC in Reference 2 regarding the Note associated with Condition B of TS 3.6.15. The proposed changes will also achieve consistency regarding the Note in the WBN Unit 1 and Unit 2 TS 3.6.15 (e.g., “venting” versus “ventilating”).

As noted in References 1 and 2, the Note associated with TS 3.6.15 Condition B Note, could be applied indefinitely during ventilating operations, required annulus entries, or AB isolations. Furthermore, as noted in Reference 2, the original intent of the Condition B Note was for it to be applied during short duration events. Therefore, relocating the Condition B Note to SR 3.6.15.1 provides the clarification that the Note is only to be applied for a maximum duration of one hour during ventilating operations, required annulus entries, and AB isolations. Additionally, the proposed change ensures compliance with SR 3.0.1 that requires SRs to be met during the Modes or other specified conditions in the applicability for individual limiting conditions for operation (LCOs), unless otherwise stated in the SR.

3.0 TECHNICAL EVALUATION

3.1 SYSTEM DESCRIPTION

A description of the relevant portions of the WBN Shield Building is presented below as background for evaluation of the proposed changes.

3.1.1 Shield Building

The Shield Building is a Category I structure in its entirety and is designed to remain functional in the event of a safe shutdown earthquake (SSE) or a tornado. The Shield Building is a reinforced concrete structure surrounding the steel containment structure and is designed to provide the following: radiation shielding from accident conditions, radiation shielding from parts of the reactor coolant system during operation, and protection of the containment from adverse atmospheric conditions and external missiles

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propelled by tornado winds. The Shield Building is supported by a circular base slab and covered at the top with a spherical dome. The Shield Building is located adjacent to the Auxiliary and Valve Room Buildings.

The Shield Building provides shielding as well as environmental missile protection for the containment. An annular space (i.e., the annulus) exists between the walls and domes of the steel containment and the concrete Shield Building to provide for the collection, mixing, holdup, and controlled release of containment out-leakage. Radioactive material may enter the Shield Building from the containment following a design basis accident (DBA). The Shield Building ensures that the release of radioactive material from the containment atmosphere is restricted to those leakage paths and associated leakage rates assumed in the accident analyses.

3.1.2 Containment

The containment is a low-leakage, free-standing steel pressure vessel surrounded by the reinforced concrete Shield Building. Containment piping penetration assemblies provide for the passage of process, service, sampling, and instrumentation pipelines into the containment vessel while maintaining containment integrity.

The inner steel containment and its penetrations establish the boundary of the containment, limiting the leakage of fission product radioactivity from the containment to the environment. The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rates.

3.1.3 Emergency Gas Treatment System

The Emergency Gas Treatment System (EGTS) establishes a negative pressure in the annulus between the Shield Building and the steel containment vessel. Filters in the system control the release of radioactive contaminants to the environment.

The EGTS consists of two separate and redundant trains. Each train includes a heater, a prefilter, moisture separators, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of radioiodines, and a fan. Ductwork, valves, dampers, and instrumentation also form part of the system. The moisture separators function to reduce the moisture content of the airstream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provide backup in case of failure of the main HEPA filter bank. The system initiates and maintains a negative air pressure in the Shield Building by means of filtered exhaust ventilation of the Shield Building following receipt of a safety injection signal.

3.1.4 Auxiliary Building Secondary Containment Enclosure

The Auxiliary Building Secondary Containment Enclosure (ABSCE) is that portion of the AB and Condensate Demineralizer Waste Evaporator Building that serves to maintain an effective barrier for airborne radioactive contaminants released in the AB during abnormal events.

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Entrances and exits to those portions of the AB within the primary containment barrier for both equipment and personnel are through air locks. The doors in each air lock are electrically interlocked such that only one side of the air lock can be opened at a time. A control room alarm is provided should both sides of an air lock be opened simultaneously.

The secondary containment enclosures are designed to provide a positive barrier to potential primary containment leakage pathways during a DBA. For a DBA, the Shield Building containment enclosure provides the barrier to all airborne primary containment leakage, and the ABSCE provides a barrier to through-the-line leakage from containment that can potentially become airborne. The ABSCE also maintains an effective barrier for airborne radioactive contaminants originating inside the ABSCE during normal and abnormal events.

The original WBN design credited the secondary containment enclosures to mitigate the consequences of a fuel handling accident (FHA). Although these enclosures are available to minimize the consequences of an FHA, based on WBN's use of Regulatory Guide 1.183, Revision 0, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," methodology for an FHA, the structures are no longer required for mitigation of a postulated FHA (Reference 3).

3.1.5 Auxiliary Building Gas Treatment System

The Auxiliary Building Gas Treatment System (ABGTS) is a fully redundant air cleanup network provided to filter radioactive nuclide releases from the ABSCE during a DBA to levels sufficiently low to keep the site boundary dose rates below the requirements of 10 CFR 100. This is accomplished by exhausting filtered air from the ABSCE to maintain a negative pressure within the boundary. Exhaust air leaving the ABSCE is processed by the ABGTS filter train before it is discharged to the outside. The ABGTS initiates filtered ventilation of the ABSCE exhaust air following receipt of a Phase A containment isolation signal.

3.2 TECHNICAL ANALYSIS

3.2.1 TS 3.6.15 Condition B Note

The original WBN Unit 1 TS issued with the OL on February 7, 1996 (Reference 4), contained the following Note in Condition B to TS 3.6.15:

"Annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration."

The above Note was also reflected in Condition B to TS 3.6.15 in the original WBN Unit 2 TS issued with the OL on October 22, 2015 (Reference 5).

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In Reference 6, the NRC issued Amendment 59 to the WBN Unit 1 OL that modified the Note in Condition B to TS 3.6.15 for WBN Unit 1 as follows:

“Annulus pressure requirement is not applicable during venting operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration or while Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored.*

- *1. The combined opening time of Penetrations 1-EQH-271 -0010 or 1-EQH-271-0011 is limited to a total time of five hours a day, six days a week during Cycle 7 operation.
2. Penetrations 1-EQH-271 -0010 or 1-EQH-271-0011 in the Shield Building Dome may not be opened if in Action Conditions LCD 3.6.9A or 3.8.1 B.
3. Upon opening Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome, both EGTS control loops shall be placed in the A-Auto Stand-by position and returned to normal position following closure of penetration.”

As noted in Reference 6 and the associated TS 3.6.15 Bases change, the above revision to the Note in Condition B to WBN Unit 1 TS 3.6.15 was to support the steam generator replacement project and was applicable until WBN Unit 1 entered Mode 5 at the start of the Cycle 7 refueling outage in Fall 2006.

In Reference 1, the NRC identified the following URI regarding the above Note in TS 3.6.15, Condition B:

“The licensee considered the note associated with TS LCO 3.6.15.B, which states that the annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or auxiliary building isolations not exceeding one hour in duration. The licensee considered the alignment they were in at the time to be ventilating operations and thus the requirements of TS LCO 3.6.15.B did not apply. The licensee further considered that the note, as written, allowed grace from the annulus pressure requirement for ventilating operations for an unlimited amount of time.

The inspectors were concerned about a possible allowance in the TS to have grace from annulus pressure requirements for longer than the allowed LCO required action completion time.”

As noted in Reference 2, “Through a licensing bases review, the inspectors determined that the original intent of the note was for it to be applied during short duration events.” However, in some cases the above Note associated with TS 3.6.15, Condition B, had been interpreted such that the one hour only applied to AB isolations thereby possibly allowing the Shield Building pressure requirements to be bypassed for an indefinite period of time. Therefore, in Reference 2, the NRC stated that TS 3.6.15, Condition B Note constitutes a nonconservative TS, in accordance with NRC Administrative Letter (AL) 98-10. Accordingly, this issue was entered in the TVA Corrective Action Plan. The NRC closed the URI in Reference 2.

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As discussed above, this LAR corrects a nonconservative TS. To ensure the Note in TS 3.6.15, Condition B was properly applied, several corrective actions were implemented including:

- TS Bases 3.6.15 was revised to clarify the applicability of and limited duration of the Condition B Note to a maximum of one hour for all activities associated with the Note. This revision to TS Bases 3.6.15 is also reflected in Attachments 3, 4, 7, and 8 to the enclosure.
- An engineering evaluation of the Shield Building design basis with regard to pressure bounding safety analysis limitations of the Shield Building annulus was completed. The evaluation concluded that there were no design or safety issues.

3.2.2 Shield Wall Pressure Differential Due to Operation of Various Heating, Ventilation, and Air Conditioning (HVAC) Systems

In order to address the operability related to the issue documented in the URI, an evaluation of the WBN Shield Building related HVAC systems was performed.

As noted in the TS Bases for WBN Unit 1 and Unit 2 SR 3.6.15.4, the EGTS is required to maintain a pressure equal to or more negative than -0.50 inches of water gauge ("w.g.") in the Shield Building annulus at an elevation equivalent to the top of the AB. At elevations greater than the AB, the EGTS is required to maintain a pressure equal to or more negative than -0.25" w.g. per the TS Bases for SR 3.6.15.4. The EGTS pressure control loop is set at -1.45" w.g., which is the internal pressure that the Shield Building annulus is exposed to during EGTS testing. During normal operation, the Shield Building annulus is maintained at a minimum of -5" w.g., in accordance with SR 3.6.15.1. In the event of a loss of coolant accident (LOCA), the Annulus Vacuum Control System (AVCS) isolates and both trains of the EGTS pressure control loops would be placed in service to maintain the required negative pressure.

As noted in the TS Bases for WBN Unit 1 and Unit 2 SR 3.7.12.4, the ABGTS is designed to maintain a pressure between -0.25" w.g. and -0.50" w.g. in the AB. The maximum pressure that the Shield Building wall would be exposed to would be during normal operation. An internal pressure of -5" w.g. and an external pressure of -0.25" w.g. in the AB would yield a differential pressure across the Shield Building wall of 4.75" w.g. The pressure across the Shield Building wall would be lower with the EGTS and ABGTS in service simultaneously. The pressure differential, assuming -1.45" w.g. in the Shield Building and -0.25" w.g. in the AB, would be 1.20" w.g.

Operating the ABGTS simultaneously with either the EGTS or the AVCS would actually decrease the pressure exerted on the Shield Building wall because the force applied by the ABGTS would be acting in the opposite direction to either the EGTS or the AVCS.

The design of the Shield Building is described in the WBN dual-unit Updated Final Safety Analysis Report (UFSAR) Sections 3.8.1.1 through 3.8.1.7. The Shield Building dome and cylinder wall are subjected to various design loads. The largest load is the tornado load. The UFSAR describes this load in Section 3.8.1.3. The tornado was assumed to have an "eye" whose pressure is 3 psi below ambient, a "funnel" having a rotational velocity of 300 mph, and a translational speed of 60 mph. The Shield Building was designed for wind loads corresponding to 360 mph and a maximum internal

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pressure of 3 psi. The maximum internal pressure of 3 psi (83.04" w.g.) pressure is much higher than the 0.2 psi (5.5" w.g.) exerted by the AVCS during normal operation.

The differential pressure loads as described during EGTS and ABGTS normal operation are significantly less than what the Shield Building would be subjected to during normal plant operation with the AVCS in service.

3.2.4 Conclusion

The proposed changes to delete the current TS 3.6.15, Condition B Note for WBN Units 1 and 2 and relocate the Condition B Notes to SR 3.6.15.1 do not alter the permanent plant design, including instrument setpoints, nor does it change the assumptions contained in the safety analyses. Margin of safety is related to the ability of the fission product barriers to perform their design functions during and following accident conditions. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The performance of these barriers is not significantly degraded by the proposed changes. The proposed changes allow the Shield Building annulus to be degraded for a limited period of time (i.e., one hour). However, the probability of a design basis event occurring during this time is low. When the Shield Building annulus is open, as permitted by the changes proposed in this license amendment request, administrative controls would be in place to ensure that the integrity of the pressure boundaries could be rapidly restored. Therefore, the plant and the operators would maintain the ability to mitigate design basis events and none of the fission product barriers would be affected by this change.

4.0 REGULATORY EVALUATION

4.1 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.36, "Technical Specifications," requires that the TS include limiting conditions for operation, which are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TS until the condition can be met.

10 CFR 50.67, Accident Source Term establishes limits on the accident source term used in design basis radiological consequence analyses with regard to radiation exposure to members of the public and to control room occupants.

10 CFR 100, Reactor Site Criteria establishes an exclusion area, a low population zone, and population center distance with respect to an individual whole body and total radiation dose.

10 CFR 50, Appendix A, General Design Criterion (GDC) 16, "Containment design," requires that reactor containment and associated systems be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

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10 CFR 50, Appendix A, GDC Criterion 60, "Control of releases of radioactive materials to the environment," requires that the nuclear power unit design include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences.

10 CFR 50, Appendix A, GDC Criterion 64, "Monitoring radioactivity releases," requires means to be provided for monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents.

Conclusion

The Shield Building boundary integrity ensures that the release of through-the-line leakage of radioactive materials from the primary containment would be restricted to those leakage paths and associated leakage rates assumed in the safety analyses. This restriction, in conjunction with operation of the Shield Building limits the site boundary radiation doses to within the dose guideline values of 10 CFR 50.67 and 10 CFR 100 during accident conditions. The proposed changes do not affect the ability of the Shield Building to perform its intended function. During times when the Shield Building annulus is open, the short duration of one hour is controlled to maintain the validity of the licensing basis analyses of accident consequences. Based on the low probability of an accident occurring during the one hour period that the Shield Building is inoperable, TVA concludes the proposed change is acceptable and complies with applicable regulatory requirements.

4.2 PRECEDENT

There are no other applicable regulatory precedents regarding the changes proposed in this license amendment request.

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4.3 SIGNIFICANT HAZARDS CONSIDERATION

The Tennessee Valley Authority (TVA) proposes to clarify and relocate the Watts Bar Nuclear (WBN) Plant, Unit 1 and Unit 2 Technical Specification (TS) 3.6.15, "Shield Building," Condition B Note and associated Bases. In order to clarify the use of the Condition B Note, TVA proposes to revise the WBN Unit 1 and Unit 2 TS 3.6.15, delete the expired footnotes associated with the WBN Unit 1 TS 3.6.15 Condition B Note, and relocate the Note to WBN Unit 1 and Unit 2 Surveillance Requirement (SR) 3.6.15.1.

TS 3.6.15 Condition B Notes, as currently written, could be applied indefinitely during Shield Building venting or ventilating operations, and required annulus entries. The intent of the Condition B Note was for it to be applied during short duration events. Relocating the Note to SR 3.6.15.1 provides the clarification that the Note is to be applied only for short duration events limited to a maximum of one hour during ventilating operations, required annulus entries, and Auxiliary Building (AB) isolations.

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed changes do not require physical changes to plant systems, structures, or components. The Shield Building is a passive accident mitigating feature. As such, the Shield Building is not associated with a potential accident-initiating mechanism.

The proposed revision for the Shield Building TS clarifies the one hour period associated with the Condition B Note by relocating the Note to the SR. The consequences of implementing the one hour exception are reasonable based upon the low probability of a design basis accident occurring during this time period, and the availability of an operable Shield Building to provide a filtered release to the environment (albeit with the potential for unfiltered leakage).

Based on the ability to rapidly restore an opened Shield Building annulus, the accident consequences do not cause an increase in dose above the applicable General Design Criteria, Standard Review Plan, or 10 CFR 100 limits. The plant operators continue to maintain the ability to mitigate a design basis event.

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

Enclosure

Evaluation of Proposed Technical Specification Change

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

Response: No.

The proposed changes do not require any new or different accidents to be postulated and subsequently evaluated, because no changes are being made to the plant that would introduce any new accident causal mechanisms. This license amendment request does not affect any plant systems that are potential accident initiators; nor does it have any significantly adverse effect on any accident mitigating systems.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: No.

The proposed changes do not alter the permanent plant design, including instrument setpoints, nor does it change the assumptions contained in the safety analyses. Margin of safety is related to the ability of the fission product barriers to perform their design functions during and following accident conditions. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The performance of these barriers is not significantly degraded by the proposed changes. The proposed changes allow the Shield Building annulus to be degraded for a limited period of time (i.e., one hour). However, the probability of a design basis event occurring during this time is low. When the Shield Building annulus is open, as permitted by the changes proposed in this license amendment request, administrative controls would be in place to ensure that the integrity of the pressure boundaries could be rapidly restored. Therefore, the plant and the operators would maintain the ability to mitigate design basis events and none of the fission product barriers would be affected by this change.

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

Based on the above, TVA concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 CONCLUSIONS

The proposed change allows one hour to restore an inoperable Shield Building annulus before entering Condition A due to an inoperable Shield Building and allows intermittent opening of the Shield Building annulus that the revised TS 3.6.15 controls. Based on the low probability of an event occurring during the one hour that the Shield Building annulus is open and that the Shield Building integrity can be re-established quickly to support the Auxiliary Building Gas Treatment System operation, TVA concludes that this change is acceptable.

Enclosure

Evaluation of Proposed Technical Specification Change

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) 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.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. NRC letter to TVA, "Watts Bar Nuclear Plant – NRC Integrated Inspection Report 05000390, 05000391/2015004 and 07201048/2015002," dated February 12, 2016 (ML16043A214)
2. NRC letter to TVA, "Watts Bar Nuclear Plant – NRC Integrated Inspection Report 05000390/2016001, 05000391/2016001," dated April 7, 2016 (ML16098A323)
3. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Issuance of Amendment to Allow Selective Implementation of Alternate Source Term to Analyze the Dose Consequences Associated with Fuel-Handling Accidents (TAC No. ME8877)," dated June 19, 2013 (ML13141A564)
4. NRC letter to TVA, "Issuance of Facility Operating License No. NPF-90, Watts Bar Nuclear Plant, Unit 1 (TAC M94025)," dated February 7, 1996 (ML073460319)
5. NRC letter to TVA, "Issuance of Facility Operating License No. NPF-96, Watts Bar Nuclear Plant Unit 2," dated October 22, 2015 (ML15251A587)
6. NRC letter to TVA, "Watts Bar Nuclear Plant, Unit 1 - Issuance of Amendment Regarding Temporary Use of Penetrations in Shield Building Dome During Modes 1-4 (TAC No. MC6569)," dated January 6, 2006 (ML060050378)

Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 1

Proposed TS Changes (Mark-Ups) for WBN Unit 1

3.6 CONTAINMENT SYSTEMS

3.6.15 Shield Building

LCO 3.6.15 The Shield Building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield Building inoperable.	A.1 Restore Shield Building to OPERABLE status.	24 hours
<p>NOTE</p> <p>Annulus pressure requirement is not applicable during venting operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration or while Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored.*</p> <p>Annulus pressure not within limits.</p>	B.1 Restore annulus pressure within limits.	8 hours
C. Required Action and associated Completion Time not met.	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

~~*1. The combined opening time of Penetrations 1-EQH-271-0010 or 1-EQH-271-0011 is limited to a total time of five hours a day, six days a week during Cycle 7 operation.~~

~~2. Penetrations 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome may not be opened if in Action Conditions LCO 3.6.9A or 3.8.1B.~~

~~3. Upon opening Penetration 1-EQH-271-0010 or 1-EQH-271-0011 in the Shield Building Dome, both EGTS control loops shall be placed in the A-Auto Stand-by position and returned to normal position following closure of penetration.~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.15.1	<p style="text-align: center;">-----NOTE-----</p> <p style="color: red;">Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations.</p> <p>Verify annulus negative pressure is equal to or more negative than -5 inches water gauge with respect to the atmosphere.</p>	12 hours
SR 3.6.15.2	Verify the door in each access opening is closed, except when the access opening is being used for normal transient entry and exit.	31 days
SR 3.6.15.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the Shield Building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.15.4	Verify each Emergency Gas Treatment System train with final flow ≥ 3600 and ≤ 4400 cfm produces an annulus pressure equal to or more negative than -0.61 inch water gauge at elevation 783 with respect to the atmosphere and with an inleakage of ≤ 250 cfm.	18 months on a STAGGERED TEST BASIS

Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 2

Proposed TS Changes (Mark-Ups) for WBN Unit 2

3.6 CONTAINMENT SYSTEMS

3.6.15 Shield Building

LCO 3.6.15 The shield building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
B. <u>NOTE</u> —Annulus pressure requirement is not applicable during ventilating operations, required annulus entries, or Auxiliary Building isolations not exceeding 1 hour in duration. B. -Annulus pressure not within limits.	B.1 Restore annulus pressure within limits.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.15.1	<p style="text-align: center;">-----NOTE-----</p> <p>Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations.</p> <p>-----</p> <p>Verify annulus negative pressure is equal to or more negative than -5 inches water gauge with respect to the atmosphere.</p>	12 hours
SR 3.6.15.2	Verify the door in each access opening is closed, except when the access opening is being used for normal transient entry and exit.	31 days
SR 3.6.15.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the Shield Building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.15.4	Verify each Emergency Gas Treatment System train with final flow ≥ 3600 cfm and ≤ 4400 cfm produces an annulus pressure equal to or more negative than - 0.61 inch water gauge at elevation 783 with respect to the atmosphere and with an inleakage of ≤ 250 cfm.	18 months on a STAGGERED TEST BASIS

Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 3

Proposed TS Bases Changes (Mark-Ups) for WBN Unit 1 (For Information Only)

BASES

ACTIONS

A.1

In the event shield building OPERABILITY is not maintained, shield building OPERABILITY must be restored within 24 hours. Twenty-four hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a Design Basis Accident occurring during this time period.

B.1

The Completion Time of 8 hours is based on engineering judgment. The normal alignment for both EGTS control loops is the A-Auto position. With both EGTS control loops in A-Auto, both trains will function upon initiation of a Containment Isolation Phase A (CIA) signal. In the event of a LOCA, the annulus vacuum control system isolates and both trains of the EGTS pressure control loops will be placed in service to maintain the required negative pressure. If annulus vacuum is lost during normal operations, the A-Auto position is unaffected by the loss of vacuum. This operational configuration is acceptable because the accident dose analysis conservatively assumes the annulus is at atmospheric pressure at event initiation. (Ref. 3)

~~A Note has been provided which makes the requirement to maintain the annulus pressure within limits not applicable for a maximum of 1 hour during: Ventilating operations, Required annulus entries, or Auxiliary Building isolations. Ventilating operations include containment venting, the Reactor Building Purge Ventilating System alternate containment pressure relief function, and testing of the Emergency Gas Treatment system. In addition to Note makes the requirement to maintain the annulus pressure within limits not applicable while Penetration 1 EQH-271-0010 or 1-EQH-271-0011 in the Shield Building dome is open until annulus pressure is restored. Allowing one of the Shield Building dome penetrations to be open is based on provisions being in place to close it within fifteen minutes of LOCA initiation. Limiting the time for opening either of the penetrations to a combined total of five hours a day, six days a week keeps the amount of time the Shield Building is inoperable to approximately 60 percent of the eight hour completion time for LCO-B.~~

~~During normal plant operation, the Annulus is maintained at a negative pressure equal to or more negative than -5 inches water gauge (wg) by the Annulus Vacuum Control subsystem (non-safety related) of the Emergency Gas Treatment System (EGTS). One train (loop) of the Annulus Vacuum Control subsystem is operating (controls in A-Auto) and one train is in standby (controls in A-Auto Stand-by).~~

~~Opening Shield Building dome Penetration 1 EQH-271-0010 or 1 EQH-271-0011 during Modes 1-4 will result in the Annulus pressure becoming more positive than the -5 inches wg required by Technical Specification 3.6.15. When the Annulus pressure becomes more positive than -0.812 inches wg, the EGTS control system perceives that the loop in A-Auto (i.e., the operating train) has failed. Control of Annulus pressure is then transferred to the loop in A-Auto Stand-by (i.e., the train in standby). Since the loop originally controlling Annulus~~

Note:

The highlighted text on this page and the following page was incorporated as part of Amendment 59. This amendment also added a series of notes to Technical Specification 3.6.15. As stated in NRC's Safety Evaluation for Amendment 59 (NRC's letter dated January 6, 2006), these controls were only applicable until WBN Unit 1 entered Mode 5 at the start of the Cycle 7 refueling outage. The highlighted text in this Bases section and the notes in Technical Specification 3.6.15 will be deleted via a future amendment to the Technical Specifications.

(continued)

BASES

ACTIONS

B.1 (continued)

~~pressure is perceived to have failed, only one control loop (the controller originally in A Auto Stand-by) remains functional. If a single failure of the remaining control loop were to occur, this would result in both control loops failing and would render the safety-related portion of EGTS inoperable. To prevent this situation, operator action will be taken to place both EGTS control loops in the A Auto Stand-by position when the annulus differential pressure is more positive than a -5 inches wg. If EGTS is subsequently initiated in this configuration, both trains of EGTS will start. Absent a single failure, one EGTS control loop train will manually be returned to the A Auto position when the Annulus differential pressure becomes more negative than -0.812 inches wg. In addition, the remaining EGTS control loop train will be turned off, then immediately placed in the A Auto Stand-by position (i.e., the associated isolation valves shall be closed by means of the MCR hand switch). This action is in the design and is necessary to restore the EGTS to the normal operational configuration and to prevent excess EGTS exhaust and Annulus in-leakage.~~

~~Additional assurance is administratively provided of support system operability by restricting the opening of Penetration 1 EQH 271-0010 or 1 EQH 271-0011 if in Actions for LCO 3.6.9.A EGTS, or 3.8.1.B, AC Sources — Operating. If a hatch is opened and one of the above systems becomes inoperable, the hatch will be closed.~~

C.1 and C.2

If the shield building cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.6.15.1

Verifying that shield building annulus negative pressure is within limit (equal to or more negative than - 5 inches water gauge, value does not account for instrument error, Ref. 2) ensures that operation remains within the limit assumed in the containment analysis. The 12 hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.

A Note has been provided which makes the requirement to maintain the annulus pressure within limits not applicable for a maximum of 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations. Ventilating operations include containment venting, the Reactor Building Purge Ventilating System alternate containment pressure relief function, and testing of the Emergency Gas Treatment system.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.15.2

Maintaining shield building OPERABILITY requires maintaining each door in the access opening closed, except when the access opening is being used for normal transient entry and exit. The 31 day Frequency of this SR is based on engineering judgment and is considered adequate in view of the other indications of door status that are available to the operator.

SR 3.6.15.3

This SR would give advance indication of gross deterioration of the concrete structural integrity of the shield building. The Frequency of this SR is the same as that of SR 3.6.1.1. The verification is done during shutdown.

SR 3.6.15.4

The EGTS is required to maintain a pressure equal to or more negative than - 0.50 inches of water gauge ("wg) in the annulus at an elevation equivalent to the top of the Auxiliary Building. At elevations higher than the Auxiliary Building, the EGTS is required to maintain a pressure equal to or more negative than - 0.25 "wg. The low pressure sense line for the pressure controller is located in the annulus at elevation 783. By verifying that the annulus pressure is equal to or more negative than - 0.61 "wg at elevation 783, the annulus pressurization requirements stated above are met. The ability of a EGTS train with final flow ≥ 3600 and ≤ 4400 cfm to produce the required negative pressure during the test operation provides assurance that the building is adequately sealed. The negative pressure prevents leakage from the building, since outside air will be drawn in by the low pressure at a maximum rate ≤ 250 cfm. The 18 month Frequency on a STAGGERED TEST BASIS is consistent with Regulatory Guide 1.52 (Ref. 1) guidance for functional testing.

REFERENCES

1. Regulatory Guide 1.52, Revision 2, "Design, Testing and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water Cooled Nuclear Power Plants."
 2. Watts Bar Drawing 1-47W605-242, "Electrical Tech Spec Compliance Tables."
 3. DCN 52216-A, "Elimination of A-AUTO STANDBY Hand Switch Position for EGTS Pressure Control Loops."
 4. UFSAR Section 6.2.3.2.2, "Emergency Gas Treatment System (EGTS)"
 5. Watts Bar Updated Final Safety Analysis Report, Section 9.4.6, "Reactor Building Purge Ventilating System (RBPVS)."
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Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 4

Proposed TS Bases Changes (Mark-Ups) for WBN Unit 2 (For Information Only)

BASES (continued)

APPLICABILITY (continued) limitations in these MODES. Therefore, shield building OPERABILITY is not required in MODE 5 or 6.

ACTIONS

A.1

In the event shield building OPERABILITY is not maintained, shield building OPERABILITY must be restored within 24 hours. 24 hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a Design Basis Accident occurring during this time period.

B.1

The Completion Time of 8 hours is based on engineering judgment. The normal alignment for both EGTS control loops is the A-Auto position. With both EGTS control loops in A-Auto, both trains will function upon initiation of a Containment Isolation Phase A (CIA) signal. In the event of a LOCA, the annulus vacuum control system isolates and both trains of the EGTS pressure control loops will be placed in service to maintain the required negative pressure. If annulus vacuum is lost during normal operations, the A-Auto position is unaffected by the loss of vacuum. This operational configuration is acceptable because the accident dose analysis conservatively assumes the annulus is at atmospheric pressure at event initiation.

~~A Note has been provided which makes the requirement to maintain the annulus pressure within limits not applicable for a maximum of 1 hour during Ventilating operations, Required annulus entries, or Auxiliary Building isolations. Ventilating operations include containment venting, the Reactor Building Purge Ventilating System alternate containment pressure relief function, and testing of the Emergency Gas Treatment system.~~

BASES (continued)

ACTIONS
(continued)C.1 and C.2

If the shield building cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTSSR 3.6.15.1

Verifying that shield building annulus negative pressure is within limit (equal to or more negative than -5 inches water gauge; value does not account for instrument error) ensures that operation remains within the limit assumed in the containment analysis. The 12-hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.

A Note has been provided which makes the requirement to maintain the annulus pressure within limits not applicable for a maximum of 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations. Ventilating operations include containment venting, the Reactor Building Purge Ventilating System alternate containment pressure relief function, and testing of the Emergency Gas Treatment system.

SR 3.6.15.2

Maintaining shield building OPERABILITY requires maintaining each door in the access opening closed, except when the access opening is being used for normal transient entry and exit. The 31-day Frequency of this SR is based on engineering judgment and is considered adequate in view of the other indications of door status that is available to the operator.

SR 3.6.15.3

This SR would give advance indication of gross deterioration of the concrete structural integrity of the shield building. The Frequency of this SR is the same as that of SR 3.6.1.1. The verification is done during shutdown.

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.15.4

The EGTS is required to maintain a pressure equal to or more negative than -0.50 inches water gauge (" wg) in the annulus at an elevation equivalent to the top of the Auxiliary Building. At elevations higher than the Auxiliary Building, the EGTS is required to maintain a pressure equal to or more negative than -0.25" wg. The low pressure sense line for the pressure controller is located in the annulus at elevation 783. By verifying that the annulus pressure is equal to or more negative than -0.61" wg at elevation 783, the annulus pressurization requirements stated above are met. The ability of a EGTS train with final flow ≥ 3600 cfm and ≤ 4400 cfm to produce the required negative pressure during the test operation provides assurance that the building is adequately sealed. The negative pressure prevents leakage from the building, since outside air will be drawn in by the low pressure at a maximum rate ≤ 250 cfm. The 18 month Frequency on a STAGGERED TEST BASIS is consistent with Regulatory Guide 1.52 (Ref. 1) guidance for functional testing.

REFERENCES

1. Regulatory Guide 1.52, Revision 2, "Design, Testing and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water Cooled Nuclear Power Plants."
 2. UFSAR Section 6.2.3.2.2, "Emergency Gas Treatment System (EGTS)."
 3. Watts Bar Updated Final Safety Analysis Report, Section 9.4.6, "Reactor Building Purge Ventilating System (RBPVS)."
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Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 5

Proposed TS Changes (Final Typed) for WBN Unit 1

3.6 CONTAINMENT SYSTEMS

3.6.15 Shield Building

LCO 3.6.15 The Shield Building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield Building inoperable.	A.1 Restore Shield Building to OPERABLE status.	24 hours
B. Annulus pressure not within limits.	B.1 Restore annulus pressure within limits.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.15.1	<p>-----NOTE-----</p> <p>Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations.</p> <p>-----</p> <p>Verify annulus negative pressure is equal to or more negative than -5 inches water gauge with respect to the atmosphere.</p>	12 hours
SR 3.6.15.2	Verify the door in each access opening is closed, except when the access opening is being used for normal transient entry and exit.	31 days
SR 3.6.15.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the Shield Building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.15.4	Verify each Emergency Gas Treatment System train with final flow ≥ 3600 and ≤ 4400 cfm produces an annulus pressure equal to or more negative than -0.61 inch water gauge at elevation 783 with respect to the atmosphere and with an inleakage of ≤ 250 cfm.	18 months on a STAGGERED TEST BASIS

Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 6

Proposed TS Changes (Final Typed) for WBN Unit 2

3.6 CONTAINMENT SYSTEMS

3.6.15 Shield Building

LCO 3.6.15 The shield building shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Shield building inoperable.	A.1 Restore shield building to OPERABLE status.	24 hours
B. Annulus pressure not within limits.	B.1 Restore annulus pressure within limits.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.15.1	<p>-----NOTE----- Not required to be met for 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations. ----- Verify annulus negative pressure is equal to or more negative than -5 inches water gauge with respect to the atmosphere.</p>	12 hours
SR 3.6.15.2	Verify the door in each access opening is closed, except when the access opening is being used for normal transient entry and exit.	31 days
SR 3.6.15.3	Verify shield building structural integrity by performing a visual inspection of the exposed interior and exterior surfaces of the Shield Building.	During shutdown for SR 3.6.1.1 Type A tests
SR 3.6.15.4	Verify each Emergency Gas Treatment System train with final flow ≥ 3600 cfm and ≤ 4400 cfm produces an annulus pressure equal to or more negative than - 0.61 inch water gauge at elevation 783 with respect to the atmosphere and with an inleakage of ≤ 250 cfm.	18 months on a STAGGERED TEST BASIS

Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 7

Proposed TS Bases Changes (Final Typed) for WBN Unit 1 (For Information Only)

BASES

ACTIONS

A.1

In the event shield building OPERABILITY is not maintained, shield building OPERABILITY must be restored within 24 hours. Twenty-four hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a Design Basis Accident occurring during this time period.

B.1

The Completion Time of 8 hours is based on engineering judgment. The normal alignment for both EGTS control loops is the A-Auto position. With both EGTS control loops in A-Auto, both trains will function upon initiation of a Containment Isolation Phase A (CIA) signal. In the event of a LOCA, the annulus vacuum control system isolates and both trains of the EGTS pressure control loops will be placed in service to maintain the required negative pressure. If annulus vacuum is lost during normal operations, the A-Auto position is unaffected by the loss of vacuum. This operational configuration is acceptable because the accident dose analysis conservatively assumes the annulus is at atmospheric pressure at event initiation. (Ref. 3)

C.1 and C.2

If the shield building cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.6.15.1

Verifying that shield building annulus negative pressure is within limit (equal to or more negative than - 5 inches water gauge, value does not account for instrument error, Ref. 2) ensures that operation remains within the limit assumed in the containment analysis. The 12 hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.

A Note has been provided which makes the requirement to maintain the annulus pressure within limits not applicable for a maximum of 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations. Ventilating operations include containment venting, the Reactor Building Purge Ventilating System alternate containment pressure relief function, and testing of the Emergency Gas Treatment system.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.15.2

Maintaining shield building OPERABILITY requires maintaining each door in the access opening closed, except when the access opening is being used for normal transient entry and exit. The 31 day Frequency of this SR is based on engineering judgment and is considered adequate in view of the other indications of door status that are available to the operator.

SR 3.6.15.3

This SR would give advance indication of gross deterioration of the concrete structural integrity of the shield building. The Frequency of this SR is the same as that of SR 3.6.1.1. The verification is done during shutdown.

SR 3.6.15.4

The EGTS is required to maintain a pressure equal to or more negative than - 0.50 inches of water gauge ("wg) in the annulus at an elevation equivalent to the top of the Auxiliary Building. At elevations higher than the Auxiliary Building, the EGTS is required to maintain a pressure equal to or more negative than - 0.25 "wg. The low pressure sense line for the pressure controller is located in the annulus at elevation 783. By verifying that the annulus pressure is equal to or more negative than - 0.61 "wg at elevation 783, the annulus pressurization requirements stated above are met. The ability of a EGTS train with final flow ≥ 3600 and ≤ 4400 cfm to produce the required negative pressure during the test operation provides assurance that the building is adequately sealed. The negative pressure prevents leakage from the building, since outside air will be drawn in by the low pressure at a maximum rate ≤ 250 cfm. The 18 month Frequency on a STAGGERED TEST BASIS is consistent with Regulatory Guide 1.52 (Ref. 1) guidance for functional testing.

REFERENCES

1. Regulatory Guide 1.52, Revision 2, "Design, Testing and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water Cooled Nuclear Power Plants."
 2. Watts Bar Drawing 1-47W605-242, "Electrical Tech Spec Compliance Tables."
 3. DCN 52216-A, "Elimination of A-AUTO STANDBY Hand Switch Position for EGTS Pressure Control Loops."
 4. UFSAR Section 6.2.3.2.2, "Emergency Gas Treatment System (EGTS)"
 5. Watts Bar Updated Final Safety Analysis Report, Section 9.4.6, "Reactor Building Purge Ventilating System (RBPVS)."
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Enclosure

Evaluation of Proposed Technical Specification Change

ATTACHMENT 8

Proposed TS Bases Changes (Final Typed) for WBN Unit 2 (For Information Only)

BASES (continued)

APPLICABILITY (continued)	limitations in these MODES. Therefore, shield building OPERABILITY is not required in MODE 5 or 6.
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ACTIONS

A.1

In the event shield building OPERABILITY is not maintained, shield building OPERABILITY must be restored within 24 hours. 24 hours is a reasonable Completion Time considering the limited leakage design of containment and the low probability of a Design Basis Accident occurring during this time period.

B.1

The Completion Time of 8 hours is based on engineering judgment. The normal alignment for both EGTS control loops is the A-Auto position. With both EGTS control loops in A-Auto, both trains will function upon initiation of a Containment Isolation Phase A (CIA) signal. In the event of a LOCA, the annulus vacuum control system isolates and both trains of the EGTS pressure control loops will be placed in service to maintain the required negative pressure. If annulus vacuum is lost during normal operations, the A-Auto position is unaffected by the loss of vacuum. This operational configuration is acceptable because the accident dose analysis conservatively assumes the annulus is at atmospheric pressure at event initiation.

(continued)

BASES (continued)

ACTIONS
(continued)

C.1 and C.2

If the shield building cannot be restored to OPERABLE status within the required Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.6.15.1

Verifying that shield building annulus negative pressure is within limit (equal to or more negative than -5 inches water gauge; value does not account for instrument error) ensures that operation remains within the limit assumed in the containment analysis. The 12-hour Frequency of this SR was developed considering operating experience related to shield building annulus pressure variations and pressure instrument drift during the applicable MODES.

A Note has been provided which makes the requirement to maintain the annulus pressure within limits not applicable for a maximum of 1 hour during ventilating operations, required annulus entries, or Auxiliary Building isolations. Ventilating operations include containment venting, the Reactor Building Purge Ventilating System alternate containment pressure relief function, and testing of the Emergency Gas Treatment system.

SR 3.6.15.2

Maintaining shield building OPERABILITY requires maintaining each door in the access opening closed, except when the access opening is being used for normal transient entry and exit. The 31-day Frequency of this SR is based on engineering judgment and is considered adequate in view of the other indications of door status that is available to the operator.

SR 3.6.15.3

This SR would give advance indication of gross deterioration of the concrete structural integrity of the shield building. The Frequency of this SR is the same as that of SR 3.6.1.1. The verification is done during shutdown.

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.15.4

The EGTS is required to maintain a pressure equal to or more negative than -0.50 inches water gauge (" wg) in the annulus at an elevation equivalent to the top of the Auxiliary Building. At elevations higher than the Auxiliary Building, the EGTS is required to maintain a pressure equal to or more negative than -0.25" wg. The low pressure sense line for the pressure controller is located in the annulus at elevation 783. By verifying that the annulus pressure is equal to or more negative than -0.61" wg at elevation 783, the annulus pressurization requirements stated above are met. The ability of a EGTS train with final flow ≥ 3600 cfm and ≤ 4400 cfm to produce the required negative pressure during the test operation provides assurance that the building is adequately sealed. The negative pressure prevents leakage from the building, since outside air will be drawn in by the low pressure at a maximum rate ≤ 250 cfm. The 18 month Frequency on a STAGGERED TEST BASIS is consistent with Regulatory Guide 1.52 (Ref. 1) guidance for functional testing.

REFERENCES

1. Regulatory Guide 1.52, Revision 2, "Design, Testing and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water Cooled Nuclear Power Plants."
 2. UFSAR Section 6.2.3.2.2, "Emergency Gas Treatment System (EGTS)."
 3. Watts Bar Updated Final Safety Analysis Report, Section 9.4.6, "Reactor Building Purge Ventilating System (RBPVS)."
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