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September 20, 2010

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

Subject: **Watts Bar Nuclear Plant, Unit 1 – Technical Specifications Change - Main Control Room Chiller Completion Time Extension - Supplemental Information**

Reference: Letter from TVA to NRC, "Watts Bar Nuclear Plant Unit 1 - Technical Specifications Change - Main Control Room Chiller Completion Time Extension," dated February 24, 2010

By letter dated February 24, 2010 (Reference), the Tennessee Valley Authority (TVA) submitted a request (WBN-TS-09-16) to change the Technical Specifications (TS) for Watts Bar Nuclear Plant, Unit 1 Operating License No. NPF-90.

The proposed change will revise TS 3.7.11, "Control Room Emergency Air Temperature Control System (CREATCS)." The proposed change is only applicable during plant modifications to upgrade the CREATCS chillers (referred to as the Main Control Room (MCR) chillers). This "one-time" TS change is to be implemented during Cycles 10 and 11 beginning December 1, 2010 and ending January 29, 2012.

In support of the requested License Amendment, TVA provided a technical evaluation for the proposed TS change including TVA's determination that the proposed change does not involve a significant hazards consideration, and is excluded from environmental review. As part of the detailed discussion in the amendment request, TVA described that it will be replacing both the TS-required MCR chillers as well as the non-TS required Shutdown Board Room (SDBR) chillers. TVA further described that it will employ a temporary chilled water system, including temporary chilled water equipment and backup diesel generator, to compensate for the permanent systems MCR and SBDR chillers as they undergo modification.

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TVA included information about the temporary chilled water system important to the safety basis for the proposed amendment. That information included a description of the capacity of the temporary chilled water system as well as the backup diesel generator that will be employed to provide standby power to the temporary chilled water system.

In addition, TVA provided detail regarding the routing of temporary chilled water lines. The description of the routing of the temporary chilled water lines was provided for completeness in describing the project. Information regarding the routing of the temporary chilled water lines was not needed to support the overall safety basis of the proposed TS change. Specifically, the routing of the temporary chilled water lines did not affect TVA's determination that the proposed change does not involve a significant hazards consideration. Similarly, the details of the routing of the temporary chilled water lines did not affect TVA's conclusion that the proposed amendment is eligible for a categorical exclusion pursuant to 10 CFR 51.22 (c)(9) and thus does not require an environmental impact statement or environmental assessment pursuant to 10 CFR 51.22(b).

Subsequent to submitting the License Amendment Request, TVA has continued to refine the detailed work activities that are required to complete the project. During the course of that review, TVA has identified an alternative routing path for the temporary chilled water lines associated with replacement of the SBDR chillers. The alternate routing path has significant benefit to the project and represents a safety enhancement for the proposed activities to the extent that the alternative path avoids the need to employ existing spare ABSCE penetrations or cut reinforcing steel (rebar) in the Auxiliary Building Secondary Containment Enclosure boundary to create new penetrations. The details of the alternative routing are included in Enclosure 1 to this letter.

The alternative chilled water routing path for the SBDR chiller replacement phases of the project are such that a revision to the description included in the February 24, 2010 submittal is warranted. Enclosure 1 contains revisions to the February 24, 2010 submittal including revised text and a revised Sketch A of the temporary chiller system.

Consistent 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.

The commitments made as part of the February 24, 2010 submittal are revised to reflect the improvements of the revised routing of the temporary chilled water lines. The revised commitments are described in Enclosure 2. If you have any questions regarding this change, please contact Kevin Casey at (423) 751-8523.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 20th day of September, 2010.

Respectfully,

R. M. Krich

Enclosures:

1. Description of Change to License Amendment Request TS-09-16
2. Revised Commitment No. 2
3. Revised Proposed TS Bases B 3.7.11

cc (Enclosures):

NRC Regional Administrator – Region II
NRC Resident Inspector – Watts Bar Nuclear Plant
Tennessee Department of Environment and Conservation - Division of Radiological Health

ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
OPERATING LICENSE NO. NPF-90
UNIT 1 WBN TS-09-16

DESCRIPTION OF CHANGE TO LICENSE AMENDMENT REQUEST TS-09-16

1.0 DESCRIPTION OF TEMPORARY CHILLED WATER LINE ROUTING IN FEBRUARY 24, 2010 SUBMITTAL

In Section 2.1.1 of Enclosure 1 of the February 24, 2010 submittal, the Tennessee Valley Authority (TVA) provided a description of the routing of temporary chilled water hoses under the heading "SBDR Temporary Air Conditioning Equipment Description - Reference Sketch A," starting on page E1-4 of 19. Specifically, TVA stated:

> *The supply and return hoses from the temporary chiller will be routed through qualified Auxiliary Building Secondary Containment Enclosure (ABSCE) penetrations to the Auxiliary Building common equipment areas. On the Auxiliary Building side of the penetrations, two manual isolation ball valves, one for each penetration, will be installed for isolation purposes. From the Auxiliary Building common equipment areas the chilled water supply and return hoses will be routed to Shutdown Board Room B through a qualified ABSCE penetration. From Shutdown Board Room B, the temporary chilled water supply and return hoses split into two supply and two return hoses using four manual isolation valves. One set of supply and return hoses will be routed to Mechanical Equipment Room B and the other set of supply and return hoses will be routed to Mechanical Equipment Room A both located on Elevation 757.0. Mechanical Equipment Room A and B each contain two SDBR AHUs, one designated train-A, the other designated train-B. For Phase 1, the temporary chilled water supply and return hoses will be routed to the train-B SDBR AHUs in both Mechanical Equipment Rooms. Connection to the AHU coils will be made by isolating the chilled water piping, removing the flex hoses between the AHU coils and the chilled water piping and then connecting the temporary chilled water supply and return hoses to the AHU coils using existing flange connections.*
>
> *The temporary cooling system and train-B AHUs in the two Mechanical Equipment Rooms along with the existing ductwork, dampers, instrumentations and controls will be used to cool the 6.9kV and 480V SDBR spaces located on elevation 757.0 in the event the OPERABLE train-A SDBR chiller fails during replacement activities concurrent with a DBA. Thus, the normal design air flow rates to all areas served by the 6.9kV SDBR HVAC system will be maintained.*
>
> *All temporary or modified support equipment located in the Auxiliary Building will meet TVA WBN Seismic I(L)-B (position retention) requirements with the exception that the piping and manual isolation valves located at the boundary of the ABSCE penetrations will be qualified to Seismic I(L)-A (pressure boundary and position retention) requirements.*

In addition, TVA included Sketch A depicting the temporary cooling equipment associated with replacement of the 6.9kV Shutdown Board Room Chillers.

2.0 DISCUSSION OF ALTERNATIVE TEMPORARY CHILLED WATER ROUTING

As part of a detailed review of specific work activities, TVA has identified an alternative path for the temporary chiller supply and return hoses described in the February 24, 2010 submittal. Specifically, TVA determined that routing of the hoses from the temporary chiller package can be accomplished without penetrating the ABSCE. The details of the revised hose route are described in Section 3.0. The alternative path also revises one of the Commitments which described compensatory measures taken to secure the ABSCE boundary. The details of the Commitment revision are described in Section 4.0.

TVA evaluated the merits of the alternative path. The most significant improvement achieved is that the alternative path avoids the need to employ existing spare ABSCE penetrations or cut reinforcing steel (rebar) in the Auxiliary Building Secondary Containment Enclosure boundary to create new penetrations. While existing spare penetrations could be employed or new penetrations through the ABSCE boundary could be made safely with little or no significant impact on secondary containment integrity and structural integrity, TVA's position is that such activities should be avoided when reasonable alternatives exist.

3.0 REVISED TEXT AND SKETCH A FOR ENCLOSURE 1 OF LICENSE AMENDMENT REQUEST TS-09-16

TVA proposes to replace the text from Section 2.1.1 of Enclosure 1 of the February 24, 2010 License Amendment Request (LAR) as described above with the following text:

> *The 4-inch supply and return hoses from the temporary chiller will be routed from the temporary chiller package through the Auxiliary Building General Vent Air Intake Room. The hoses will be split into two pairs of supply and return hoses and routed through the General Vent Air Intake Room ceiling using four 3-inch existing unused conduit penetrations directly into the 1A 480V Shutdown Board Room on Elevation 757.0. The hoses will then be routed across the floor to two air handling units. Reference Sketch A Revision.*
>
> *One set of supply and return hoses will be routed to Mechanical Equipment Room B and the other set of supply and return hoses will be routed to Mechanical Equipment Room A, both located on Elevation 757.0. Mechanical Equipment Rooms A and B each contain two SDBR AHUs, one designated train-A, the other designated train-B. For Phase 1, the temporary chilled water supply and return hoses will be routed to the train-B SDBR AHUs in both Mechanical Equipment Rooms. Connection to the AHU coils will be made by isolating the chilled water piping, removing the flex hoses between the AHU coils and the chilled water piping and then connecting the temporary chilled water supply and return hoses to the AHU coils using existing flange connections.*
>
> *The temporary cooling system and train-B AHUs in the two Mechanical Equipment Rooms along with the existing ductwork, dampers, instrumentations and controls will be used to cool the 6.9kV and 480V SDBR spaces located on*

elevation 757.0 in the event the OPERABLE train-A SDBR chiller fails during replacement activities concurrent with a DBA. Thus, the normal design air flow rates to all areas served by the 6.9kV SDBR HVAC system will be maintained.

4.0 REVISED COMPENSATORY MEASURES AND COMMITMENTS

Because the alternative path for the temporary chiller supply and return hoses does not breach the ABSCE boundary, TVA has revised the compensatory measure and commitments which describe securing the ABSCE boundary if a temporary chiller water hose were to break. In the February 24, 2010 LAR, compensatory measures were described in Section 3.1.3 of Enclosure 1, in the proposed TS Bases B 3.7.11, Actions in Enclosure 2 and in Commitment 2 of Enclosure 3. The revised compensatory measure regarding a break in a temporary chilled water hose is as follows (shown with reference to the ABSCE deleted as shown in strikethrough text):

2. If a temporary chilled water system hose breaks in the Auxiliary Building or Shutdown Board Room during the timeframe that the temporary equipment is installed, the ~~four~~ manual isolation ~~ball~~ valves ~~located at the ABSCE penetrations~~ will be closed immediately. Qualified personnel will be capable of closing the valves and will be stationed in the area whenever the valves are in the "Open" position and the temporary cooling system is in service.

TVA considers this compensatory measure a commitment and has provided a revised list of commitments associated with the LAR as Enclosure 2. A revised version of proposed TS Bases B 3.7.11 is provided as Enclosure 3.

5.0 TECHNICAL EVALUATION

TVA has reviewed the Technical Evaluation provided in Section 3.0 of the February 24, 2010 LAR and concluded that no changes are needed as a result of the decision to use the alternative path for the temporary chiller supply and return hoses described above.

6.0 REGULATORY EVALUATION

TVA has reviewed all of the elements of the Regulatory Evaluation provided in Section 4.0 of the February 24, 2010 LAR and concluded that no changes are needed as a result of the decision to use the alternative path for the temporary chiller supply and return hoses described above. TVA specifically determined that the conclusions of the Significant Hazards Consideration in Section 4.3 of the February 24, 2010 LAR are unchanged.

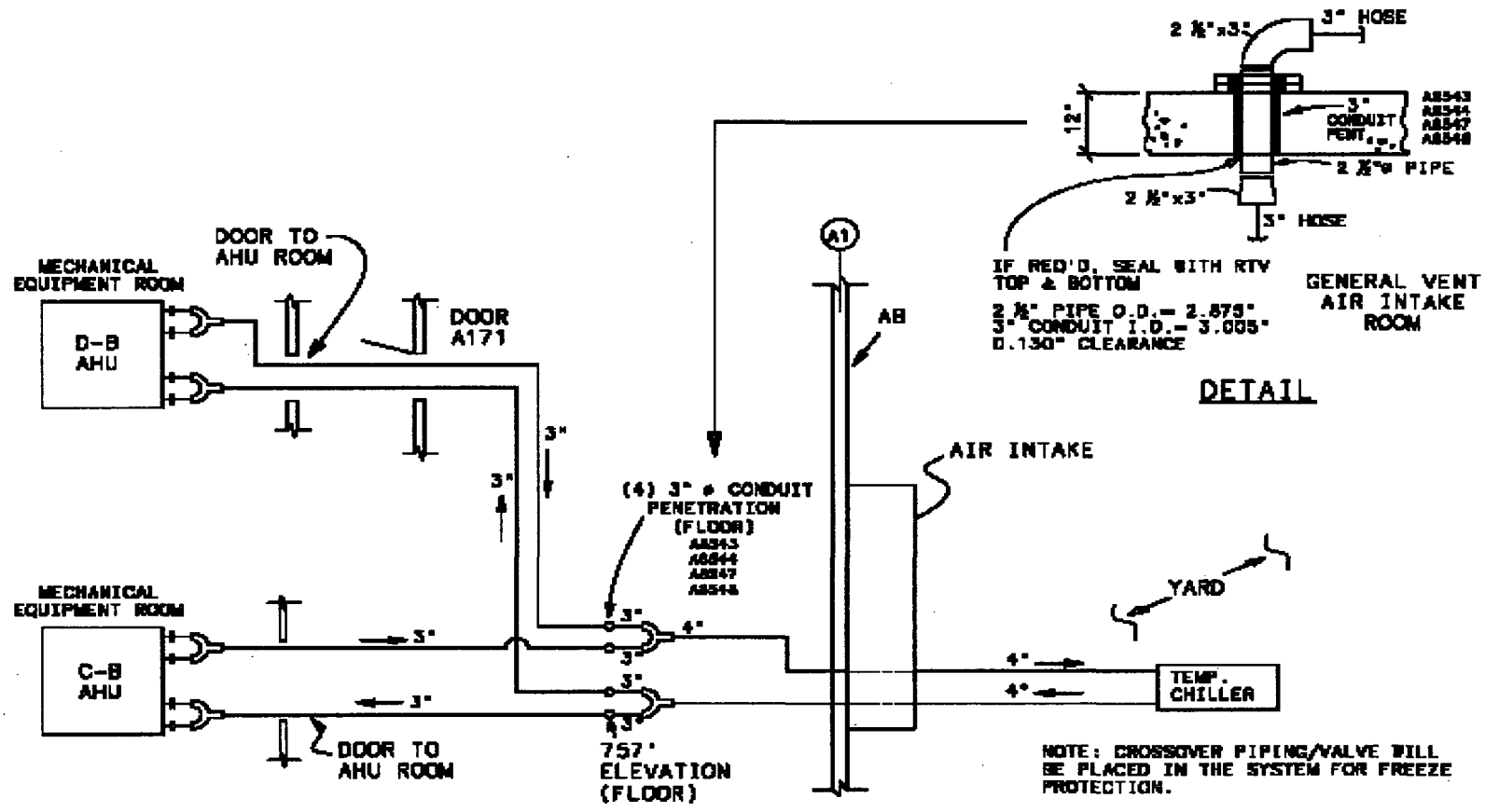
7.0 ENVIRONMENTAL CONSIDERATION

TVA has reviewed the Environmental Consideration Technical Evaluation provided in Section 5.0 of the February 24, 2010 LAR and concluded that no changes are needed as a result of the decision to use the alternative path for the temporary chiller supply and return hoses described above. TVA specifically determined that the conclusion that no environmental assessment need be prepared in connection with the proposed amendment remains unchanged.

8.0 DRAWINGS

WATTS BAR NUCLEAR PLANT

1A 480V
SHUTDOWN BOARD ROOM



SKETCH A REVISION

TEMPORARY COOLING TACF DURING REPLACEMENT OF 6.9 KV SHUTDOWN BOARD ROOM CHILLERS

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
OPERATING LICENSE NO. NPF-90
UNIT 1 WBN TS-09-16

REVISED COMMITMENT NO. 2

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1. If a temporary chilled water system hose breaks in the Control Building during the timeframe that the temporary equipment is installed, the two manual isolation ball valves located at the MCRHZ boundary will be closed immediately. Qualified personnel will be capable of closing the valves and will be stationed in the area whenever the valves are in the "Open" position and the temporary cooling system is in service.

2. If a temporary chilled water system hose breaks in the Auxiliary Building or Shutdown Board Room during the timeframe that the temporary equipment is installed, the manual isolation valves will be closed immediately. Qualified personnel will be capable of closing the valves and will be stationed in the area whenever the valves are in the "Open" position and the temporary cooling system is in service.

3. Due to lack of operating data, the availability or reliability of the new MCR chiller packages are unknown. To compensate for this uncertainty the new train-B chiller packages will be operated for a minimum of 2 weeks prior to removing the train-A MCR chillers from service for replacement.

4. During replacement of the MCR chillers, no planned maintenance activity, except for SRs 3.8.1.2, 3.8.1.3, and 3.8.1.7, that could impact the operability of the DG's that provide emergency power to the operable MCR chiller train will be performed.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
OPERATING LICENSE NO. NPF-90
UNIT 1 WBN TS-09-16

REVISED PROPOSED TS BASES B 3.7.11

BASES

APPLICABLE SAFETY ANALYSES (continued)

heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY (Ref. 3).

The CREATCS satisfies Criterion 3 of the NRC Policy Statement.

LCO

Two independent and redundant trains of the CREATCS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disabling the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

The CREATCS is considered to be OPERABLE when the individual components necessary to maintain the control room temperature are OPERABLE in both trains. These components include the chillers, AHUs, and associated temperature control instrumentation. In addition, the CREATCS must be operable to the extent that air circulation can be maintained.

APPLICABILITY

In MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies, the CREATCS must be OPERABLE to ensure that the control room temperature will not exceed equipment operational requirements following isolation of the control room.

In MODE 5 or 6, CREATCS is required during a control room isolation following a waste gas decay tank rupture.

ACTIONS

A.1

With one CREATCS train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CREATCS train is adequate to maintain the control room temperature within limits. However, the overall reliability is reduced because a single failure in the OPERABLE CREATCS train could result in loss of CREATCS function. The 30 day Completion Time is based on the low probability of an event requiring control room isolation, the consideration that the remaining train can provide the required protection, and that alternate safety or nonsafety related cooling means are available.

(continued)

BASES

ACTIONS (continued)

A.1

During modification activities to replace the CREATCS chillers, an allowance is permitted for one CREATCS train to be inoperable for 60 days provided the following compensatory measures are in place:

A temporary chilled water package will be installed and maintained in a "standby" condition. During the initial installation, the chiller skids and chilled water pumps will be stationed in the yard with the chilled water lines filled and vented at the manifolds in the Control Building Mechanical Equipment Room located on Elevation 755.0 and the Shutdown Board Room Mechanical Equipment Rooms located on Elevation 757.0. Final connection of the chilled water hoses to the SDBR or MCR AHUs will not occur until that particular HVAC train is taken out of service for chiller replacement. All necessary hardware, hoses, and fittings will be stationed at the AHUs for rapid deployment in order to connect, fill and vent the temporary chilled water hoses to the AHUs. Procedures will be provided to include instructions for startup, operation, preventative maintenance, and shutdown of the temporary cooling equipment. Qualified personnel will be provided training on these procedures. Furthermore, to provide additional defense-in-depth, the following requirements would also be implemented:

1. ***If a temporary chilled water system hose breaks in the Control Building during the timeframe that the temporary equipment is installed, the two manual isolation ball valves located at the MCRHZ boundary will be closed immediately. Qualified personnel will be capable of closing the valves and will be stationed in the area whenever the valves are in the "Open" position and the temporary cooling system is in service.***
2. ***If a temporary chilled water system hose breaks in the Auxiliary Building or Shutdown Board Room during the timeframe that the temporary equipment is installed, the manual isolation valves will be closed immediately. Qualified personnel will be capable of closing the valves and will be stationed in the area whenever the valves are in the "Open" position and the temporary cooling system is in service.***
3. ***Due to lack of operating data, the availability or reliability of the new MCR chiller packages are unknown. To compensate for this uncertainty the new train-B chiller packages will be operated for a minimum of 2 weeks prior to removing the train-A MCR chillers from service for replacement.***
4. ***During replacement of the MCR chillers, no planned maintenance activity, except for SRs 3.8.1.2, 3.8.1.3, and 3.8.1.7, that could impact the OPERABILITY of the DG's that provide emergency power to the OPERABLE MCR chiller train will be performed.***

This provision is only applicable during modification activities planned for the upgrade of the MCR chillers beginning in December 1, 2010 and ending January 29, 2012.

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