



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

July 18, 2012

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 - Response to Request for Additional Information Related to License Amendment Request to Change Dose Equivalent Iodine Spike Limit and Allowable Value for Control Room Air Intake Radiation Monitors (TAC NO. ME8156)

- References:
1. TVA Letter to the NRC, "Watts Bar Nuclear Plant Unit 1 - Application to Change Dose Equivalent I-131 Spike Limit and Allowable Value for Control Room Air Intake Radiation Monitors (WBN-TS-11-08)," dated March 8, 2012.
 2. NRC Letter to TVA, "Watts Bar Nuclear Station, Unit 1 - Request for Additional Information Related to License Amendment Request to Change Dose Equivalent Iodine Spike Limit and Allowable Value (TAC NO. ME8156)," dated June 18, 2012

On March 8, 2012 (Reference 1), the Tennessee Valley Authority (TVA) requested a change to Watts Bar Nuclear Plant (WBN), Unit 1, Facility Operating License No. NPF-90 in accordance with the provisions of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit." The proposed amendment will revise: 1) Technical Specification (TS) 3.3.7, "Control Room Emergency Ventilation System (CREVS) Actuation Instrumentation," by changing the Allowable Value for the main control room air intake radiation monitoring instrumentation in Table 3.3.7-1 and 2) TS 3.4.16, "RCS Specific Activity," by lowering the DOSE EQUIVALENT I-131 spike limit.

On June 18, 2012 (Reference 2), the NRC issued a request for additional information (RAI) regarding the license amendment request. The enclosure to this letter provides TVA's response to the NRC RAI.

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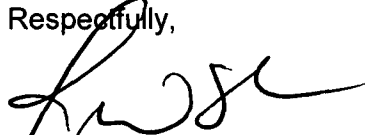
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This submittal does not contain any new regulatory commitments. In addition, no changes have been made to the enclosure and attachments of the License Amendment Request dated March 8, 2012 (Reference 1).

Please address any questions regarding this request to Terry Cribbe at 423-751-3850.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 18th day of July, 2012.

Respectfully,



J. W. Shea
Vice President, Corporate Nuclear Licensing

Enclosure:

Response to NRC Request for Additional Information dated June 18, 2012 Regarding TVA's
WBN, Unit 1 Application to Change Dose Equivalent I-131 Spike Limit and Allowable
Value for Control Room Air Intake Radiation Monitors

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Resident Inspector – Watts Bar Nuclear Plant, Unit 1
NRC Resident Inspector – Watts Bar Nuclear Plant, Unit 2
Director, Division of Radiological Health - Tennessee State Department of Environment
and Conservation

ENCLOSURE

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION DATED JUNE 18, 2012 REGARDING TVA'S WBN, UNIT 1 APPLICATION TO CHANGE DOSE EQUIVALENT I-131 SPIKE LIMIT AND ALLOWABLE VALUE FOR CONTROL ROOM AIR INTAKE RADIATION MONITORS

NRC RAI #1

The March 8, 2012, application to change the dose equivalent 1-131 spike limit and allowable value for the control room (CR) air intake radiation monitors (Agencywide Documents Access and Management System (ADAMS) Accession Number ML 12072A205) presents applicable atmospheric dispersion factors (χ/Q values) in Table 1 of the Enclosure. Please confirm that the release height of the Watts Bar, Unit 1, exhaust stacks is 23.0 meters and the other Unit 1 exhaust stacks inputs to the CR χ/Q values listed in Table 1 are those previously provided as items 5 and 6 on page 5 of Attachment 11 (ADAMS Accession Number ML 102290332) to TVA's July 31, 2010, letter (ADAMS Accession Number ML 102290258) regarding Watts Bar, Unit 2.

TVA Response

The calculation of the onsite χ/Q s assumes a release height for the exhaust stack of 23.0 meters.

In addition, the calculation of the onsite χ/Q s utilizes the same inputs as provided in items 5 and 6 on page 5 of Attachment 11 to TVA's July 31, 2010 letter, with the exception of 1) the release height for the exhaust stack is 23.0 meters instead of the 20.7 meters identified in items 5 and 6 on page 5 of Attachment 11 to TVA's July 31, 2010 letter; and 2) a value of 14.3 meters for the Control Room Air Intake Evaluation Above Grade is utilized versus the value of 14.33 meters stated in items 5 and 6 on page 5 of Attachment 11 to TVA's July 31, 2010 letter. Note: WBN, Unit 2 corrected the release height for the exhaust stack in a letter dated September 15, 2011.

ENCLOSURE

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION DATED JUNE 18, 2012 REGARDING TVA'S WBN, UNIT 1 APPLICATION TO CHANGE DOSE EQUIVALENT I-131 SPIKE LIMIT AND ALLOWABLE VALUE FOR CONTROL ROOM AIR INTAKE RADIATION MONITORS

NRC RAI # 2

Section 3.2.2.3, "Changes to Atmospheric Dispersion Factors," of the Enclosure to the March 8, 2012, application briefly discusses the Watts Bar, Unit 1, onsite and offsite χ/Q values utilized in the dose analyses associated with the current license amendment request (LAR). This section asserts that the new χ/Q values are calculated consistent with the current licensing basis (CLB) methodology using meteorological data from the more recent 20-year time period of 1991 through 2010, in place of the 1974 through 1993 data that were used to generate the CLB χ/Q values. Please discuss any changes in the CR unfiltered inleakage χ/Q values associated with the changes proposed in the current LAR.

TVA Response

The Control Room Envelope (CRE) unfiltered inleakage χ/Q s values are assumed to be the same as the Control Room intake χ/Q values. As identified in Table 1 of the TVA LAR submitted on March 8, 2012, the onsite (i.e., CRE) χ/Q s were changed to $3.85E-3 \text{ sec/m}^3$ for 0-2 hours post-accident and $3.22E-3 \text{ sec/m}^3$ for 2-8 hours post-accident.

The χ/Q values established by ARCON96 are the worst case of a set of χ/Q values. Each χ/Q set is based on the intake location. The Control Room intake locations are on opposite sides of the buildings. As such, using the worst case χ/Q value based on the intake is conservative relative to the potential locations for unfiltered inleakage into the building. This includes consideration of the door leading from the Main Control Room Habitability Zone to the Turbine Building (for egress/ingress) listed in WBN, Unit 1 Updated Final Safety Analysis Report Table 6.4-2, Air Leakage (Infiltration) Paths in the Watts Bar Main Control Room Habitability System Area Control Room.

The assumption that the CRE unfiltered inleakage χ/Q values are the same as the Control Room intake χ/Q values was previously reviewed and approved by the NRC as part of License Amendment No. 59 to Facility Operating License No. NPF-90 issued on January 6, 2006. On October 13, 2005, the NRC issued the following RAI:

"What are the control room atmospheric dispersion factors (χ/Q values) used in the dose assessment for postulated releases from the openings in the shield building dome to 1) the control room air intakes and 2) as a result of unfiltered inleakage..."

TVA responded to the RAI on November 8, 2005, by stating that the CRE unfiltered inleakage χ/Q values are assumed to be the same as the Control Room intake χ/Q values. Subsequently, the NRC issued License Amendment No. 59 to Facility Operating License No. NPF-90. The NRC's supporting Safety Evaluation Report states:

"The calculation incorporates new atmospheric dispersion coefficients (χ/Q) values as determined by ARCON96. These codes are described in TVA's letter dated May 21, 2002 (ML021440139), and have previously been used by TVA to support other TVA license amendment requests approved by the staff, such as the Tritium Production Core associated with Watts Bar License Amendment No. 40 dated September 23, 2002 (ML022540925)."

ENCLOSURE

**RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION DATED JUNE 18, 2012
REGARDING TVA'S WBN, UNIT 1 APPLICATION TO CHANGE
DOSE EQUIVALENT I-131 SPIKE LIMIT AND ALLOWABLE VALUE FOR
CONTROL ROOM AIR INTAKE RADIATION MONITORS**

"Based on the review described above, the NRC staff has concluded that the control room, EAB and LPZ χ/Q values as presented in Table 1 are acceptable for use in the design basis accident assessments performed in support of this license amendment request."