July 29, 2008

Mr. William R. Campbell, Jr.
Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 1 – GENERIC LETTER 2008-01, "MANAGING GAS ACCUMULATION IN EMERGENCY CORE COOLING, DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY SYSTEMS," PROPOSED ALTERNATIVE COURSE OF ACTION (TAC NO. MD7895)

Dear Mr. Campbell:

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." In the GL, the staff requested licensees submit information demonstrating that the emergency core cooling, decay heat removal, and containment spray systems are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance.

In GL 2008-01, the NRC staff required that each licensee submit the requested information within 9 months of the date of the GL. However, if a licensee could not meet the requested 9-month response date, the GL stated that the licensee was required to provide a response within 3 months of the date of the GL (3-month response) describing the alternative course of action it proposed to take and the basis for the acceptability of the proposed alternative course of action.

By letter dated June 6, 2008, Tennessee Valley Authority (TVA) provided a revised 3-month response to GL 2008-01 for Watts Bar Nuclear Plant Unit 1 (WBN-1). As discussed in the enclosed NRC staff assessment of the TVA submittal, the staff reviewed TVA's proposed alternative course of action and the associated basis for acceptance and concluded that, with the exception of the clarifications and associated requests discussed in the enclosure, they are acceptable for WBN-1. This letter allows TVA to implement its proposed alternative course of action, provided implementation is consistent with the clarifications and associated requests.

Further, the staff requests that for the portions of the subject systems that are accessible prior to the fall 2009 refueling outage for WNB-1, TVA provide all GL requested information to the NRC by October 11, 2008. The staff also requests that TVA address how it plans to track long-term actions (e.g., Corrective Action Program and/or commitment tracking) in its 9-month submittal. Further, the staff requests that TVA provide all of the remaining GL information for the subject systems within 90 days following completion of the fall 2009 refueling outage for WNB-1.

If you have any questions regarding this letter, please feel free to contact me at (301) 415-1457.

Sincerely,

/RA/

Patrick D. Milano, Senior Project Manager
Watts Bar Special Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure:
Staff Assessment

cc w/encl: See next page

Further, the staff requests that for the portions of the subject systems that are accessible prior to the fall 2009 refueling outage for WNB-1, TVA provide all GL requested information to the NRC by October 11, 2008. The staff also requests that TVA address how it plans to track long-term actions (e.g., Corrective Action Program and/or commitment tracking) in its 9-month submittal. Further, the staff requests that TVA provide all of the remaining GL information for the subject systems within 90 days following completion of the fall 2009 refueling outage for WNB-1.

If you have any questions regarding this letter, please feel free to contact me at (301) 415-1457.

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NRC STAFF ASSESSMENT OF 3-MONTH RESPONSE

TO GENERIC LETTER 2008-01

WATTS BAR NUCLEAR PLANT UNIT 1

DOCKET NO. 50-390

1.0 BACKGROUND

On January 11, 2008, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072910759). The GL requested licensees submit information to demonstrate that these systems (hereinafter referred to as the "subject systems") are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance. Specifically, the GL requested licensees provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations* (10 CFR), GL 2008-01 required that each licensee submit the requested information within 9 months of the date of the GL (e.g., 9-month response). The GL also stated that if a licensee could not meet the requested 9-month response date, the licensee was to provide a response within 3 months of the date of the GL (e.g., 3-month response) describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

By letter dated April 10, 2008 (ADAMS No. ML081050481), the Tennessee Valley Authority (TVA, the licensee) requested a 1-month extension to the alternative 3-month response in order to further evaluate the scope and/or need for piping walkdowns to support gas void evaluations. On April 30, 2008 (ADAMS No. ML081160547), the NRC staff granted the extension of this due date until May 12, 2008. By letter dated May 9, 2008 (ADAMS No. ML081360101), TVA provided its initial response to GL 2008-01 for Watts Bar Nuclear Plant Unit 1 (WBN-1).

2.0 LICENSEE'S PROPOSED ALTERNATIVE COURSE OF ACTION

By letter dated June 6, 2008 (ADAMS No. ML081630086), TVA submitted a revised 3-month response to GL 2008-01 for WBN-1, which provided more specific criteria for the basis of the proposed alternative course of action and more responsive commitments. TVA indicated that it would complete, within the requested 9 months, a significant amount of the requested actions, including reviews of plant design, licensing basis documentation and system operating and testing procedures, and submit this information to the NRC by October 11, 2008. However, TVA indicated that the walkdown of some segments of piping of the subject systems, including the emergency core cooling system (ECCS), residual heat removal (RHR), and containment spray system (CSS) for WBN-1 would not be completed within the requested response time.

The licensee cannot complete the walkdowns because portions of the subject systems are inaccessible during power operation due to the need to: (1) enter into the reactor building and/or radiation environments, (2) remove insulation from piping of the subject systems, (3) remove shielding, or (4) erect scaffolding to obtain adequate access for the requested detailed inspections. For piping located outside containment, most field walkdowns to determine pipe configuration details would be performed before October 11, 2008. The licensee identified that the following systems contain piping sections that would not be accessed until the next refueling outage because of the potential for high dose exposure or the need for extensive scaffolding:

- Piping in the subject systems located outside the reactor building that is inaccessible because it is in a high-radiation area or requires scaffolding for access, where erection of that scaffolding during operation could pose a risk to worker safety or to safe operation of the plant.

- Piping in the reactor building annulus that is inaccessible because it is in a high-radiation area or requires scaffolding for access.

- Safety injection (SI) system discharge piping – containment penetration to reactor coolant loops.

- SI system discharge piping – cold leg accumulator tanks to reactor coolant loops.

- CSS and RHR spray systems discharge piping – containment penetration to riser.

- Chemical volume control system discharge piping – containment penetration to reactor coolant loops.

- RHR system suction and discharge piping – containment penetration to reactor coolant loops.

These excluded portions may contain segments that are accessible without posing undue risks to operations or radiological/occupational safety. Such segments will be included in the field walkdowns performed by October 11, 2008. The licensee indicated that GL 2008-01 adverse conditions discovered at the Sequoyah Nuclear Plant (SQN) would be entered into the Corrective Action Program (CAP) and evaluated for applicability at WBN-1 because of the design and construction similarity between SQN and WBN-1. The licensee's CAP ensures that deficiencies identified at one unit will be considered for applicability to the other units.

As an alternative course of action, the licensee listed the following commitments in its letter dated June 6, 2008:

(1) By October 11, 2008, complete the GL 2008-01 actions for the subject systems, with the exception of the investigative or confirmatory walkdowns postponed until the WBN-1 Cycle 9 refueling outage.

(2) Complete the detailed walkdowns of WBN-1 inaccessible piping sections of GL 2008-01 subject systems prior to startup after the Cycle 9 refueling outage.

(3) Complete the evaluations of GL 2008-01 subject systems using results of the detailed walkdowns of inaccessible piping sections and submit supplemental responses to NRC documenting completion of the walkdowns and any impact upon the GL 2008-01 9-month response as a result of completed evaluation within 90 days following startup from the WBN-1 Cycle 9 refueling outage.

(4) GL 2008-01 adverse conditions discovered at SQN will be entered into the CAP and evaluated for applicability at WBN-1 due to their design and construction similarities.

TVA stated that it has confidence that the GL 2008-01 subject systems can fulfill their required design functions, based on its operating experience, which includes system walkdowns, detailed evaluations, and testing performed since plant licensing. In addition, TVA has performed plant modifications to install vent valves on intermediate high points in the ECCS and RHR system. Existing plant procedures require venting the ECCS and RHP pumps and piping on a 31-day frequency. Further, TVA stated that by October 11, 2008, it will complete GL 2008-01 requested actions, with the exception of the confirmatory walkdowns that will be done during the fall 2009 refueling outage. The outage walkdowns are expected to be validation activities of the design reviews for the subject systems.

Based on the above considerations, TVA concluded that completing detailed walkdowns outside the required 9-month period, but no later than startup from the WBN-1 Cycle 9 refueling outage, and submission of a supplemental response to the GL within 90 days after the outage is an acceptable course of action.

3.0 NRC STAFF ASSESSMENT

The NRC staff finds that, with the exception of the clarifications and associated requests discussed below, TVA's proposed alternative course of action is acceptable based on the operating experience, procedures, and plant modifications associated with managing gas accumulation at WBN-1. However, the NRC staff notes that: (1) the 3-month submittal dated June 6, 2008, did not clearly describe the content of the 9-month submittals, and (2) while TVA committed to provide its supplemental response within 90 days after restart from the Cycle 9 refueling outage, it did not clarify that the Cycle 9 refueling outage stated in the commitments discussed in Section 2.0 of this assessment is the next refueling outage that is planned for the fall of 2009. The NRC staff requests that the licensee submit the information requested in the GL as follows:

(1) Nine-Month Initial Submittal - For the portions of the subject systems that are accessible prior to the fall 2009 refueling outage for WNB-1, provide all GL requested information to the NRC by October 11, 2008.

(2) Nine-Month Supplemental (Post-Outage) Submittal - Except for the long-term items described below, provide all remaining GL requested information for the subject systems to the NRC within 90 days following completion of the fall 2009 refueling outage for WNB-1.

For each of these submittals (the 9-month initial and supplemental submittals) and consistent with the information requested in the GL, TVA should provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

The NRC staff noted that the TVA submittal dated June 6, 2008, did not mention other potential long-term actions that were identified in the GL. For instance, the industry is assessing whether it is necessary to perform pump testing to determine the allowable limits on ingested gas volume in pump suction piping, as well as, whether analysis development is needed to assess gas transport in the subject system piping as a function of system flow. It is unlikely that this industry effort will be complete for the 9-month initial or supplemental submittals. Further, technical specifications (TS) changes may be necessary to reflect the improved understanding achieved from the response to the GL, but these cannot be fully developed for the 9-month initial or supplemental submittals. A TS Task Force change traveler may provide a generic example that can be adopted by licensees. The NRC staff requests that TVA address in its 9-month submittal how it plans to track such long-term actions (e.g., CAP and/or commitment tracking). The NRC plans to perform follow-up inspections of licensee responses to GL 2008-01 at all plants using a Temporary Instruction inspection procedure.

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