Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

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10 CFR 51.22

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

Gentlemen:

In the Matter of) Docket No. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT - TECHNICAL SPECIFICATION (TS) CHANGE NO. 00-06 - INCREASE UNIT 1 REACTOR POWER TO 3459 MWt - RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (TAC NO. MA9152)

The purpose of this letter is to provide additional environmental information for the proposed license amendment request (LAR) as recently discussed with the NRC Staff. The information is provided in the Enclosure.

This submittal contains no new commitments. TVA's previous determination that there are no significant hazards considerations associated with the proposed change remains valid. Should you have any questions, please call me at (423) 365-1824.

Sincerely,

P. L. Pace,
Manager, Licensing and Industry Affairs

Enclosures
cc (See Page 2)

Subscribed and sworn to before me
on this 26th day of September 2000

E. Jeannette Long
Notary Public

My Commission Expires June 27, 2001

Rec'd at NRC Desk by mail 10/2/00

D030

cc (Enclosure):
NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Mr. Robert E. Martin, Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

U.S. Nuclear Regulatory Commission
Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Director
Division of Radiological Health
3rd Floor
L & C Annex
Nashville, Tennessee 37423

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN)
UNIT 1 - DOCKET 390

PROPOSED TECHNICAL SPECIFICATION (TS)-00-06
ADDITIONAL ENVIRONMENTAL INFORMATION

The Watts Bar Nuclear Plant (WBNP) Final Environmental Statement (FES-OL)- Supplement 1, NUREG-0498, evaluates the environmental impact of operating Watts Bar Nuclear Plant Unit 1. The conclusions of the Final Environmental Statement are based on review of information contained in the WBNP Environmental Report. The following evaluation provides additional environmental information associated with a 1.4% power uprate of Unit 1 based on comparisons of the operating parameters established for the power uprate with the parameters and conclusions in the above referenced reports.

Section 3.1 (Plant Design and Operation) of the WBNP Environmental Protection Plan (EPP), Appendix B to the Unit 1 Facility Operating Licenses NPF-90 states that "the licensee may make changes in station design or operation, and perform tests or experiments at the station or involving station operation that affect the environment provided such activities do not involve an unreviewed environmental question and do not involve a change to the EPP." Section 3.1 requires that an environmental evaluation be prepared and recorded prior to engaging in any activity which may significantly affect the environment. Section 3.1 further states that, "A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns: (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the FES-OL, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level; or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact."

In accordance with the requirements discussed above and TVA's NEPA procedures, an evaluation assessing the proposed core power level uprate from 3411 MWt to 3459 MWt has been performed. This evaluation determines that the proposed change in power level is not environmentally significant. The following environmental evaluation specifically considers thermal effects, radiological effluents and radwaste.

Chickamauga Reservoir on the Tennessee River, including the complex of TVA-controlled dams upstream of the plant intake, TVA's Chickamauga dam (nearest downstream dam) and the plant intake channel functions as the ultimate heat sink (UHS) for heat rejected by the turbogenerator cycle (via the Condenser Circulating Water (CCW)

System) primarily through the main condensers. The normal heat rejection path at WBNP is a single loop circulating water system utilizing a cooling tower and makeup water from the Tennessee River.

The CCW system includes the circulating water pumps, conduits, yard holding pond, main condensers, hyperbolic natural draft cooling towers, desilting basin and the supplemental condenser cooling water (SCCW) system. The SCCW system supplies water from the Watts Bar Reservoir to provide a source of cooler water to the existing cooling tower discharge flume. The CCW pumping station circulates water through the CCW from the natural draft cooling towers through the supply conduit, condenser, and discharge conduit and back to the cooling towers. The waste heat is dissipated to the atmosphere by evaporation and/or conduction and convection as the CCW passes through the cooling towers. The cooling tower is designed to reject the full-load waste heat of a single unit main condenser and is designed to cool the circulating water to 73.5°F based on a mean annual design wet bulb temperature of 52.3°F and a mean annual design dry bulb temperature of 57.0°F.

Blowdown is continuously discharged to the river during normal operation of the CCW system as long as the river flow rate is not below 3500 cfs. The cooling tower blowdown line is designed to pass a maximum of 44,000 gpm with a reservoir level at el. 707.0. The blowdown line from the CCW system may be used to dilute and dispense low-level radioactive waste from the waste condensate pumps, cask decontamination pump discharge and on occasion, the steam generator blowdown. Discharge of radioactive waste into the cooling tower blowdown is to be discontinued when either the flow rate in the blowdown line is not sufficient for proper dilution or when blowdown is diverted to the yard holding pond due to insufficient river flow.

In order to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) permit No. TN0020168 a 14-inch bypass line and flow meter is installed in the holding pond discharge line to measure flow rates less than 5,600 gpm when the water in the holding pond is being discharged to the river. The yard holding pond serves as storage area for cooling tower blowdown when river flow is less than 3500 cfs (to meet the requirements of NPDES permit TN0020168). The duration of low river flow is expected to never exceed 12 hours, during which time less than half the 190 acre-feet volume of the pond would be required for storage of blowdown.

An upstream to downstream temperature rise in the Tennessee River of 3°C (5.4°F) is allowed by the NPDES permit. Historical data indicates a normal operating temperature rise of 1.8°F, leaving margin for the uprate temperature rise, which is evaluated to be less than an additional 0.1°F.

Therefore, as described in the preceding discussions, the 1.4% uprate of Unit 1 is not significant for the Chickamauga Reservoir or the UHS.

The Component Cooling Water System (CCS) removes heat from various safety and non-safety related equipment and transfers it to the Essential Raw Cooling Water (ERCW) System, and then it is

transferred to the ultimate heat sink. The CCS closed loop provides an intermediate barrier to contain radioactive or potentially radioactive sources, thus precluding direct leakage of radioactive fluids into the ultimate heat sink. The Tennessee River and Chickamauga Reservoir serve as the ultimate heat sink to safely operate, shut down, and cool down the unit.

The performance of the ERCW System is measured by its ability to remove heat from each ERCW-cooled components and transfer that heat to the UHS. The ability of the ERCW to remove heat from a component is a function of the Tennessee River (supply) temperature and the ERCW flow rate through the component. In order to comply with safety analysis and equipment limits, the ERCW must supply water from the Tennessee River at no more than 85°F and no less than 35°F during normal operation.

As described in the preceding discussions, the 1.4% uprate is not significant for the UHS, and maximum temperature limit of 85°F would not be exceeded.

The existing baseline calculations have been evaluated to determine the potential impact on the radiological effluents from a 1.4% reactor power level uprating to 3459 MWt. As previously stated in our June 7, 2000 submittal, it has been determined that the existing analyses for LOCA, SGTR, and MSLB remain bounding for the 1.4% uprate conditions.

The Gaseous Waste Processing System continues to meet its design basis under the uprated conditions, in that the gas storage tanks have sufficient capacity to store, for decay, the gases produced due to normal operation, including anticipated operational transients. The normal annual average gaseous release remains limited to a small fraction of 10CFR20 limits for identified mixtures. As discussed in our June 7, 2000 submittal, the Waste Gas Decay Tank (WGDT) radiation sources for plant operation with 18 month fuel cycles were developed by assuming a 3565 MWt core power. Thus, they would bound those expected for the 1.4% uprate core power of 3459 MWt. To meet 10 CFR 100 offsite dose limits, WBN is administratively limited to significantly less WGDT inventories than that found in the original basis. These limitations preclude any affects that the power uprate would have.

The solid waste management and liquid waste processing systems are designed to control, collect, process, store and dispose of radioactive wastes due to normal operation including anticipated operational transients. Operation of these systems are primarily influenced by the volume of waste processed. Because these systems are typically operated in a batch mode, the only potential effect is a very slight increase in the frequency at which the batches may be processed. Thus, the amount of the solid waste and liquid waste processed are not expected to significantly change as a result of the uprate.

Design Basis Accident doses for the Exclusion Area Boundary, Low Population Zone and Control Room were computed for WBNP assuming a power level of 3565 MWt (104.5% of the current 100% design).

Although the uprate will result in a small increase in the potential doses, WBNP analyzed accidents remain bounded by the existing postulated doses which are within applicable General Design Criteria (GDC) 19 and 10CFR100 limits.

In summary, the operating parameters associated with the power uprate were evaluated for the potential to affect the radiological effluents and doses. These parameters either retain the same values as the original values evaluated in the NRC's Final Environmental Statement or are bounded by those values.

NRC's Final Environmental Statement concluded that no significant environmental impact would result from operation of Watts Bar Nuclear Plant. This conclusion remains valid for the proposed power uprate.