September 27, 2007

MEMORANDUM TO: Thomas Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Mark Thaggard, Chief /RA/
Hydrologic Engineering Branch
Division of Siting and Environmental Reviews
Office of New Reactors

SUBJECT: TEMPERATURE ISSUE FOR THE SEQUOYAH NUCLEAR PLANT, UNITS 1 & 2 – TECHNICAL SPECIFICATION CHANGE REQUEST FOR ULTIMATE HEAT SINK TEMPERATURE INCREASE AND ELEVATION CHANGES (TAC No. MD2621)

The purpose of this memorandum is to clarify the issue related to the impact of the ultimate heat sink (UHS) temperature increase on the reservoir water temperature. The applicant evaluated the performance of the coolers based on the maximum UHS temperature of 87 degrees Fahrenheit and concluded that the proposed increase in river temperature will not affect the 100-day post-accident average equipment qualification temperatures (TVA-SQN-TS-06-03, Page E1-12). Excess essential raw cooling water (ERCW) flow rates will ensure that the existing heat loads and discharge temperatures are maintained. Therefore, the water temperatures at the discharge outlet and reservoir will not increase by the proposed UHS temperature change. The situation is the same for the breach of either downstream dam or diffuser pond levee, or both simultaneously.

Therefore, together with the Safety Evaluation Report dated April 24, 2007 (ML071160227), and the above investigation, the following conclusions are drawn:

1. Under a postulated dam break condition, the proposed minimum UHS water level change will not violate the provision of a 4-hour-above-670-foot limiting condition. That is, the requested minimum UHS intake water level is maintained under the proposed UHS technical specification changes with a postulated dam break scenario.

2. The result of a hydrologic simulation provided by the applicant demonstrates that, with an upstream inflow of 14,000 cubic feet per seconds, a steady reservoir level of 641 feet above the mean sea level is maintained after dam break, satisfying the minimum UHS intake water level to maintain a sufficient UHS pump suction head.

3. The temperatures at the discharge outlet and reservoir will not increase by the proposed UHS temperature change mainly because of the excess UHS cooling water.

CONTACT: Hosung Ahn, DSER/RHEB
301-415-1398

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