

September 8, 2000

Mr. W. R. McCollum, Jr.
Vice President, Oconee Site
Duke Energy Corporation
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2 AND 3 RE: NOTICE OF
ENFORCEMENT DISCRETION (TAC NOS. MA9892, MA9893, AND MA9894)
(NOED NO. 00-6-009)

Dear Mr. McCollum:

By letter dated September 6, 2000, Duke Energy Corporation (Duke) requested that the NRC exercise discretion not to enforce compliance with certain actions required in Technical Specification (TS) 3.8.1, Surveillance Requirement (SR) 3.8.1.9.a, which provides for verification of voltage and frequency response of the Keowee Hydro Units (KHUs). The letter documented information previously discussed with the NRC in a telephone conference on September 5, 2000, starting at 1:00 pm. The principal NRC staff members who participated in that telephone conference included H. Berkow, R. Emch, Jr., J. Lazevnick, E. Tomlinson, J. Colaccino, C. Ogle, M. Shannon, and D. LaBarge. During this discussion, the staff informed Duke that Oconee Nuclear Station, Units 1, 2 and 3 (Oconee) were not in compliance with TS 3.8.1. Duke stated the KHUs would, therefore, be declared inoperable, entry into TS 3.0.3 would be required, and the three units would be required to be shut down within 12 hours of entering TS 3.0.3 at 3:25 pm on September 5, 2000. Consequently, Duke requested that a Notice of Enforcement Discretion (NOED) be granted pursuant to the NRC's policy regarding exercise of discretion for an operating facility, set out in Section VII.c, of the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, and be effective until such time as the staff approves an amendment modifying the SR, which was submitted on September 7, 2000. This letter documents our telephone conversation on September 5, 2000, at 3:25 pm when we orally granted this NOED. The NOED and followup amendment adds a Note to SR 3.8.1.9.a that temporarily removes the requirement to meet the upper frequency and voltage limits until the NRC issues an amendment based on a submittal to be dated no later than April 5, 2001. This latter amendment will specify appropriate annual surveillance criteria based on a detailed engineering evaluation.

When the staff approved Amendment Nos. 232, 232, and 231 for Oconee Units 1, 2, and 3, respectively, on September 4, 1998, one of the requirements of SR 3.7.1.11 was that the annual test verify each KHU can attain rated speed and voltage within 23 seconds of an emergency start signal. No limits existed on the speed or voltage. During the subsequent conversion of the Oconee TSs to the Improved TSs (ITs), limits were incorporated on the upper and lower frequency and voltage, which became a new section number (Section 3.8) and the present SR 3.8.1.9.a limits were adopted. The ITs were approved on December 16, 1998, as Amendment Nos. 300, 300, and 300 for Oconee Units 1, 2, and 3, respectively. The

Justification for Deviations associated with ITS Section 3.8 indicates that limited modifications were made to the TS requirements for consistency with the ITS Writer's Guide and ITS convention program. Therefore, Duke considered the limits associated with KHU voltage and frequency to have been added for consistency with ITS conventions, not as a change to the technical requirements, and, as such, did not represent a change to the previous testing requirements.

In recent discussions with the NRC, it has become clear that interpretation differences exist between the staff and Duke concerning the requirements of SR 3.8.1.9.a. The present annual SR states:

Verify on an actual or simulated emergency actuation signal each KHU auto starts and:

- a. Achieves frequency ≥ 57 Hz and ≤ 63 Hz and voltage ≥ 13.5 kV and ≤ 14.49 kV in ≤ 23 seconds

The NRC's interpretation of this requirement is that the bands on frequency constitute upper and lower limits for operation of the KHU. Currently, when a KHU is started, it reaches rated frequency and voltage within the required 23 seconds. Due to the physical characteristics of the KHU, the speed of the KHU continues to increase, which causes the frequency to exceed the limits specified in SR 3.8.1.9.a for a short period of time (approximately 9 seconds). Following this brief overshoot, the frequency returns to within the limits specified in SR 3.8.1.9.a. This is consistent with the way the KHUs have been operated since initial licensing and with Duke's interpretation of the SR. Duke also considers its interpretation of the SR to be consistent with the accepted and NRC-inspected method of verifying achievement of rated frequency and voltage that has been in place from the time of initial operation until the time of this interpretation.

Upon an emergency start signal, the KHU wicket gates open to accelerate the turbine-generator, then throttle to control at rated speed. To control at rated speed after acceleration, the wicket gates reposition to balance power provided (flow and head) against friction and electrical load. Friction and electrical load (loss of coolant accident loads up to 22 MWe) are small in comparison to the power provided during acceleration, so significant repositioning of the wicket gates is necessary. The wicket gates are massive and cannot respond instantly. Therefore, overshoot occurs as a necessary physical consequence of equipment design and the requirement to accelerate to rated speed within a short time (23 seconds in accordance with SR 3.8.1.9.a). Due to the physical limitations of the KHU, overshoot cannot be prevented and has been a characteristic of KHU operation since original construction.

Given the interpretation of the upper voltage and frequency limits associated with the requirements of SR 3.8.1.9.a by the NRC and the overshoot characteristics of the KHUs, this SR cannot be met. Consequently, based on this SR interpretation, both KHUs must be declared inoperable because the SR requirements are not met and all three Oconee units shut down. Therefore, Duke has requested that the requirement to meet the upper voltage and frequency limits associated with SR 3.8.1.9.a be removed temporarily until engineering evaluations can be conducted to define the appropriate limits.

Compensatory measures will include a briefing to Operations Shift Managers to increase their familiarity with the overshoot concern. Additionally, appropriate guidance will be added to the Operations Shift Manager turnover sheet.

Even though the KHUs cannot meet the upper voltage and frequency limits associated with requirements of SR 3.8.1.9.a as interpreted by the NRC, Duke has stated that they would function as intended to mitigate accident scenarios. The KHUs remain capable of attaining rated speed, frequency and voltage within 23 seconds, as delineated in UFSAR Section 6.3.3.3 (Loss of Normal Power Source). Based on test data, the temporary overshoot comes back into the range of the values in SR 3.8.1.9.a within approximately nine seconds after the overshoot begins (26 seconds after the emergency start signal).

Routine testing of the KHUs per SR 3.8.1.9.a is conducted to confirm that the KHUs will start and will be capable of accepting load within 23 seconds, as required by the UFSAR. Duke believes that this testing achieves compliance with the TSs and design basis requirements regarding the ability of the KHUs to accept loads within 23 seconds. In addition, monthly testing of each KHU is performed to confirm the operability of the KHUs and includes verification that the KHUs operate within steady-state voltage and frequency limits. These limits are identical to the frequency and voltage limits contained in SR 3.8.1.9.a.

Based on the information supplied by Duke, the staff concludes that temporary removal of the upper frequency and voltage limits from the annual surveillance test is acceptable since there is no increase in risk associated with this action. In addition, it is acceptable that the condition continue until such time as an engineering evaluation can be performed by Duke to determine the most appropriate changes to the SR that will address staff concerns. In order to allow time for Duke to perform this detailed engineering evaluation, the Note added to the SR that removes these upper limits also requires that an amendment resulting from this evaluation be submitted by April 5, 2001, is appropriate.

On the basis of the staff's evaluation of your request, we have concluded that an NOED is warranted because we are clearly satisfied that this action involves minimal or no safety impact, is consistent with the enforcement policy and staff guidance, and has no adverse impact on public health and safety. Therefore, it is our intention to exercise discretion not to enforce compliance with the upper voltage and frequency requirements of TS 3.8.1, SR 3.8.1.9.a for the period from September 5, 2000, at 3:25 pm until issuance of a license amendment, which was requested by Duke's submittal dated September 7, 2000. The staff plans to complete its review and issue the license amendment within four weeks of the date of this submittal.

As stated in the Enforcement Policy, action will be taken, to the extent that violations were involved, for the root cause that led to the noncompliance for which this NOED was necessary.

Sincerely,

/RA by Richard L. Emch Acting for/

Herbert N. Berkow, Director
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

cc: See next page

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