



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 16, 1997

MEMORANDUM TO: Jon R. Johnson, Director  
Division of Reactor Projects  
Region II

FROM: Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

SUBJECT: TIA 97-07, VOGTLE REACTOR TRIP SYSTEM AND ENGINEERED  
SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION  
TRIP SETPOINTS - VOGTLE ELECTRIC GENERATING PLANT,  
UNITS 1 AND 2 (TAC NOS. M98528 AND M98529)

By memorandum dated March 28, 1997, Region II requested NRR's position on Southern Nuclear Operating Company's (licensee's) practice of establishing procedures for reactor trip system (RTS) and engineered safety features actuation system (ESFAS) instrument setpoints to be nominal values with tolerances beyond technical specification (TS) maximum and minimum "allowed values." The concern resulted from an inspection conducted as a follow-up to an issue at Watts Bar and Sequoyah, which have similar RTS and ESFAS TS. The staff finds the licensee's practice acceptable because they have established internal procedures to limit the resetting of trip setpoints consistent with the TS inequality value. However, at Vogtle and some other Westinghouse plants, discrepancies between the TS Bases and the approved setpoint methodology have been identified and are being evaluated by NRR for possible corrective actions. (For Vogtle, the approved setpoint methodology is specified in Westinghouse Setpoint Methodology for Protection Systems, WCAP-11269.) A discussion of the staff's views on this issue follows.

The TIA request noted that the licensee's procedures contain setpoint tolerance bands specifying setpoint ranges that the Region interprets as being able to result in the licensee setting setpoints outside the specified TS limit. However, the inspection also showed that in no case has the licensee taken advantage of procedure tolerances and set instrument trip setpoints beyond the TS "allowed value." Further, the Region stated that the licensee maintains that the TS Bases document provides guidance that a measured setpoint, which does not exceed the "allowed value," is considered operable.

In response to the TIA, the staff reviewed Vogtle's RTS and ESFAS TS, TS Bases, and setpoint methodology documents. The Vogtle TS Bases state the following:

The Trip Setpoints are the nominal values at which the bistables are set. Any bistable is considered to be properly adjusted when the "as left" value is within the band for CHANNEL CALIBRATION accuracy. [Emphasis added.]

Based on the above TS Bases statement and our review of the associated licensing documents, the staff finds that the setpoint methodology and the TS Bases both agree that the TS trip setpoint is a nominal value. However, the staff notes Vogtle's RTS and ESFAS TS limits, which are presented in the accompanying limiting conditions for operation (LCOs) as "Trip Setpoint" and "Allowable Value" table entries, specify trip setpoint minimum or maximum values (inequalities) for each function, rather than trip setpoint nominal values. The Vogtle TS Bases also state the following about nominal trip setpoints:

The Trip Setpoints used in the bistables are based on the analytical limits stated in Reference 1. The selection of these Trip Setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrument uncertainties...the Trip Setpoints and Allowable Values specified in Table 3.3.1-1 in the accompanying LCO are conservatively adjusted with respect to the analytical limits.... The actual nominal Trip Setpoint entered into the bistable is more conservative than that specified by the Allowable Value to account for changes in random measurement errors detectable by a COT [Channel Operational Test]. (Brackets added.)

The requirements of 10 CFR 50.36(a) state that specifications require summary statements of the Bases or reasons for specifications, other than those covering administrative controls, but do not become part of the technical specifications. Thus, the Vogtle TS trip setpoint inequalities specified for RTS and ESFAS functions are TS limits, which cannot be altered by the Bases discussion. For this reason, the staff interprets the Vogtle TS trip setpoints to represent the most limiting setting that is allowed for the trip setpoint.

Furthermore, from the Bases noted above, it is apparent that specifying Vogtle TS trip setpoints as inequalities represents a departure from the approved setpoint methodology. In order to satisfy the TS setpoint inequality requirement, the licensee's practice has been to routinely set the trip setpoint value conservatively to the TS trip setpoint value inequality. The staff finds this acceptable provided the licensee's setting is bounded by the setpoint methodology calibration tolerance and procedures (in the appropriate direction and magnitude). Therefore, it is the staff's position that TS compliance can be met by establishing appropriate controls to limit the resetting of the trip setpoint consistent with the TS inequality value.

The staff also compared Vogtle TS Bases, RTS, and ESFAS setpoint and allowable value TS limits to the setpoint methodology in response to the Region statement that the licensee maintains that the TS Bases document provides guidance that a measured setpoint that does not exceed the "allowed value" is considered operable. The Vogtle TS Bases state the following:

Setpoints in accordance with the Allowable Value ensure that SLs are not violated during AOOs (and that the consequences of DBAs will be acceptable, providing the unit is operated from within the LCOs at the onset of the AOO or DBA and the equipment functions as designed). Note that in the accompanying LCO 3.3.1, the Trip Setpoints of Table 3.1.1-1 are the LSSS.



The staff concludes that the licensee's position is supported by the licensed setpoint methodology. However, the assignment of the Limiting Safety System Setting (LSSS) as the nominal trip setpoint in the Vogtle TS is inconsistent with the setpoint methodology for Vogtle (WCAP-11269), which recognizes the Allowable Value as the LSSS. The Vogtle setpoint methodology considers the trip setpoint value to be the "nominal safety system setting," which is considered the desired trip setpoint for the variable. By classifying the trip setpoint as the LSSS in the TS Bases, the trip setpoint, with inequality, becomes a defined operability limit pursuant to 10 CFR 50.36 (which requires incorporation of the LSSS in the TS). Because the trip setpoint is listed as the LSSS and is further defined by an inequality, exceeding the inequality by the calibration tolerance or finding the nominal trip setpoint greater than the Vogtle TS inequality results in TS noncompliance and puts the licensee into the appropriate LCO remedial action. The first condition can occur when the nominal trip setpoint as-left value is set greater than the nominal trip setpoint inequality value but within the nominal trip setpoint calibration tolerance. In this case, the instrument setpoint is set within the assumption of the setpoint methodology (as-left) and is conservative to the Allowable Value, but the instrument could still be declared inoperable. In this regard, it is the staff's position that the Vogtle TS Bases are inconsistent with the licensing basis topical report setpoint methodology for LSSS and the licensee should undertake an action to reconcile the Vogtle TS Bases with the approved setpoint methodology.

In conclusion, the staff finds the licensee's practice acceptable provided the setting is bounded by the setpoint methodology calibration tolerance and procedures (in the appropriate direction and magnitude). It is the staff's position that TS compliance can be met by establishing appropriate controls to limit the resetting of the trip setpoint consistent with the TS inequality value, as the Vogtle licensee is currently doing.

Docket Nos. 50-424 and 50-425

cc: C. W. Hehl, RI  
G. E. Grant, RIII  
T. P. Gwynn, RIV  
K. Perkins, RIV, WCFO