UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 235 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 255 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 215 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

DOCKET NOS. 50-259, 50-260, AND 50-296

1.0 INTRODUCTION

By letter dated June 12, 1998, as supplemented August 14, 1998, the Tennessee Valley Authority (TVA or the licensee) submitted proposed amendments to revise the Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3 Technical Specifications (TS) to perform surveillances at an interval that is compatible with a 24-month fuel cycle. The U.S. Nuclear Regulatory Commission's (the Commission's or NRC's) proposed action on the BFN application for an amendment was noticed on September 9, 1998 (63 FR 48269).

2.0 BACKGROUND

Improved reactor fuels allow licensees to consider an increase in the duration of the fuel cycle for their facilities. The U.S. Nuclear Regulatory Commission (NRC or the staff) has reviewed requests for individual plants to modify TS surveillance intervals to be compatible with a 24-month fuel cycle. On April 2, 1991, the staff issued Generic Letter (GL) 91-04, Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle, to provide generic guidance to licensees for preparing such license amendment requests. TS that specify an 18-month surveillance interval could be changed to state that these surveillances are to be performed once per refueling interval, i.e., 24-months. The TS provision to extend surveillances by 25 percent of the specified interval would extend the time limit for completing these surveillances from the existing limit to a maximum of 30 months.

To provide an acceptable basis for increasing the surveillance intervals, GL 91-04 guidance states that licensees' evaluations should:

(1) confirm that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval,

(2) confirm that the values of drift for each instrument type (make, model number, and range) and application have been determined with a high probability and a high degree

of confidence and provide a summary of the methodology and assumptions used to determine the rate of instrument drift with time based upon historical plant calibration data,

(3) confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number, and range) and application that performs a safety function and provide a list of the channels by TS section that identifies these instrument applications,

(4) confirm that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis. If this results in revised setpoints to accommodate larger drift errors, provide proposed TS changes to update trip setpoints. If the drift errors result in a revised safety analysis to support existing setpoints, provide a summary of the Updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded,

(5) confirm that the projected instrument errors caused by drift are acceptable for control of plant parameters to effect a safe shutdown with the associated instrumentation,

(6) confirm that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests, and channel calibrations,

(7) provide a summary description of the program for monitoring and assessing the effects of increased calibration surveillance intervals on instrument drift and its effect on safety, and

(8) maintain a program to monitor calibration results ad the effect on instrument drift that will accompany the increase in calibration intervals.

3.0 EVALUATION

Licensee provided its evaluations in two submittals involving two groups; Group 1, noninstrument calibration related surveillance requirements (SRs) and Group 2, SRs that involve instrument calibrations. They are discussed below.

3.1 Group 1 Noninstrument Drift Related SRs

In its June 12, 1998 submittal, the licensee addressed the noninstrument drift related SRs. The licensee performed qualitative evaluations in accordance with the GL guidance. The licensee's evaluations included consideration of safety function, and Final Safety Analysis Report (FSAR) event type and purpose of the surveillance test, to determine the potential effect of the increased test interval on plant safety. The licensee categorized the affected SRs into eight surveillance types and assessed the impact of extending their surveillance interval on plant safety. Based on its assessment, the licensee determined that the affected systems and

components have either other forms of testing performed on a more frequent basis that would discover possible failures or multiple redundant channels and redundant functions that could accomplish the safety function. The licensee concluded that extending the surveillance intervals to accommodate 24-month fuel cycles would have insignificant effect on plant safety.

The licensee also performed a survey of plant-specific and industry historical maintenance and surveillance data and determined that, except on rare occasions, the failure rate for the BFN system was better than the industry average. Where the BFN failure rate was higher than the industry average, the licensee performed a closer inspection of the data. The licensee's more-detailed review showed that the majority of these failures occurred while BFN units were in their extended outage and only eight failures were reported since the units returned to service. Also only one of the eight failures was on a system of interest to this evaluation. The licensee determined that this failure rate is significantly lower than the industry average. The licensee's evaluation did not reveal any adverse trends or failures for any system or component that would impact plant safety.

Based on its evaluation, the licensee determined that extending the surveillance interval would have insignificant effect on plant safety and would not invalidate any assumption in the plant's licensing basis. The licensee's evaluation is consistent with the GL guidance and, therefore, the staff finds the extension of the surveillance interval for the non-instrument drift related SRs acceptable.

3.2 Group 2, SRs that involve instrument calibrations

In its submittal dated August 14, 1998, the licensee addressed the SRs that involve instrument calibrations. The licensee used the projected 30-month drift (24 months + 25%) for as-found and as-left data taken from the historical instrument calibration surveillance data. The projected drift value agreed with the values used in the setpoint calculations. In cases in which there were insufficient data to perform a statistical evaluation, the licensee stated that vendor data or existing generic studies were used to conservatively determine a value for the drift. The licensee also stated that the assumptions of the drift value in the setpoint calculation were accurate because the plant drift value was bounded by the current setpoint calculation value and no change in the current calculation was required.

The licensee also stated that calculations were performed to ensure that the current operating setpoints provide an adequate margin to the TS allowable values and the analytical limits. The projected instrument errors caused by drift are acceptable for control of plant parameters to achieve a safe shutdown. In addition, all conditions and assumptions of the setpoint and safety analyses have been fully verified and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests, and channel calibrations.

The licensee stated that special attention will be paid to the monitoring of the performance of those instruments in the two cases noted above where drift was found outside the allowable values. Evaluation and review of the recorded as-found and as-left values will be routinely performed through TVA's maintenance program, and failures will be addressed through the corrective action program. The staff considers these monitoring methods acceptable.

Based on the above evaluation, the staff concludes that the proposed TS change in instrumentation surveillance frequency to a 24-month interval is consistent with the guidance of GL 91-04 and is, therefore, acceptable. The staff also concludes that the monitoring program is adequate for assessing the effects of the increased instrument calibration surveillance intervals on future instrument drift and is, therefore, acceptable. The staff has reviewed the licensee's proposed TS changes and determined that they reflect the change in the surveillance intervals to 24 months and are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official (Kirk Whatley) was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (63 FR 48269). Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based upon the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: November 30, 1998