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Virginia Electric and Power Company
 North Anna Power Station Units 1 and 2 - NPF-4, NPF-7
 Docket Nos. 80-338, 80-339

24 Hour Reportable Event
 Written Follow-up

A. Gibson

Event: Potential Nonconservatism in FSAR Safety Analysis for Boron Dilution
 Event during Cold Shutdown
 LER/RO 80-055/81T-0

During a review of the FSAR safety analyses for boron dilution accidents it was determined that a potential nonconservatism may exist in the cold shutdown analysis. Section 15.2.4.3 states that with a boron concentration of 1500 ppm and a dilution flow rate of 300 gpm, the reactor could go critical in 15.5 minutes. If this is compared with the analysis for hot shutdown under the same shutdown margin, (at least 1.77% ΔK) with a boron concentration of 1200 ppm and a dilution flow rate of 165 gpm, where the reactor would go critical in 30.5 minutes, it appears that the RCS volumes assumed in these two conditions are the same; that is, a full RCS.

This may not be a conservative assumption for the cold shutdown condition when the RCS may be drained to the centerline of the RCS headers for refueling or inspection activities. This smaller RCS volume (about 3215 ft³ vs. 7205 ft³) would result in a time to criticality of less than 15.5 minutes during cold shutdown.

The cause of this discrepancy is not known at this time.

We have initiated a review of the accident analysis to determine if the assumptions in the analysis are not as conservative as previously thought.

Unit 1 is presently operating in a Steady State Condition at 800 ppm and Unit 2 is in Mode 3 (Hot Standby).

Since per Tech. Spec. 3.1.1.3.2, the PG valves to the blend system are verified to be locked closed within 15 minutes after a planned dilution or makeup activity and the fact that neither unit is in cold shutdown provides justification for continued operation.

Corrective actions to be taken are pending completion of the current investigation.

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