



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-32
AND AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-280 AND 50-281

1.0 INTRODUCTION

By letter dated January 30, 1996, the Virginia Electric and Power Company (the licensee), submitted a request to amend the plant's Technical Specifications (TS) 3.1.F.4, 3.1.F.5, 3.1.F.6 and Table 4.1-2B, Item 1 related to sampling of the reactor primary water for dissolved oxygen, chlorides and fluorides. The licensee proposes to modify TS 3.1.F.4 by deleting the requirements for sampling for dissolved oxygen whenever water temperature is below 250°F and Item 1 of Table 4.1-2B by including a note stating that there is no need to sample for chlorides and fluorides when fuel is removed from the reactor vessel and the reactor coolant inventory is drained below the reactor vessel flange level. In TS 3.1.F.5 and 3.1.F.6, only administrative changes were made to improve their clarity.

2.0 EVALUATION

TS 3.1.F.4 requires sampling for dissolved oxygen, chlorides and fluorides at all modes of operation, including cold shutdown and refueling modes when the temperature of primary coolant is below 250°F. The licensee found that taking samples during a refueling operation is especially burdensome because when the reactor is depressurized, there is no driving force to move the primary coolant to the sampling points. Normal sampling is, therefore, not possible and the only way to take samples is for the operator to enter the reactor vessel area and take samples manually by dipping a sampling container into the available inventory. This, of course, would result in a high radiation exposure. But even this method becomes impractical when the reactor vessel upper internals or vessel head are installed.

The purpose of monitoring concentration of these chemicals in the primary coolant is to ensure that they do not reach levels causing stress corrosion cracking of the reactor's austenitic steel components. However, this type of corrosion is very temperature dependent and at lower temperatures corrosion rates are significantly reduced. For the modes of operation where primary coolant is maintained at a lower temperature, monitoring of the concentrations of these chemicals becomes, therefore, less important.

Electric Power Research Institute in their guidelines for primary water chemistry (EPRI Report NP-7077, November 1990) recommends that oxygen in reactor coolant should be monitored only when its temperature exceeds 250 degrees F. In addition, during reload operation, measuring of oxygen concentration in reactor coolant becomes redundant because, with the reactor vessel head removed, primary coolant is exposed to containment atmosphere. The amount of oxygen dissolved in coolant can be, therefore, calculated from its partial pressure in air. Because of these considerations, deletion of the requirement in TS 3.1.f.4 for oxygen measurement when coolant temperature is below 250 degrees F is justified.

Chlorides and fluorides are more aggressive corrosion agents than oxygen and even at the temperatures below 250° they can cause corrosion damage to the reactor components. They have to be, therefore, monitored. However, during reload operation, when fuel is removed and the reactor vessel is drained to below its flange level, coolant inventory stays constant with no new coolant being added and it can be safely assumed that the concentration of contaminants will not change from what it was before the start of reload operation. In this case monitoring is not needed. However, it has to be resumed as soon as the reload mode is over and fresh coolant is added to the reactor vessel. This consideration justifies the proposed modification of TS Table 4.1-2B, Item 1 which would not require sampling for chloride and fluoride concentrations when the reactor vessel coolant inventory is drained to below the vessel flange.

3.0 SUMMARY

The staff has evaluated the proposed amendments to the plant's TS, which modify sampling requirements of the primary reactor coolant for oxygen, chlorides and fluorides. The licensee provided satisfactory justifications for deleting sampling requirements for oxygen when primary coolant temperature is below 250°F and for chlorides and fluorides when during reload operation fuel is removed from the reactor vessel and reactor coolant inventory is drained below the reactor flange. Based on its evaluation, the staff concludes that the proposed amendments of TS 3.1.F.4 and Table 4.1.-2B, Item 1 are acceptable. The staff also finds the amendments to TS 3.1.F.5 and 3.1.F.6 acceptable in that they are editorial changes to improve clarity and maintain consistency throughout the TS.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendments. The State official had no comment.

5.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 these amendments involve no significant hazards consideration and there has been no public comment on such finding (61 FR 13533). 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 these amendments.

6.0 CONCLUSION

The Commission has concluded, based on 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) the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: April 29, 1996