



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 91 TO FACILITY OPERATING LICENSE NO. NPF-57

PUBLIC SERVICE ELECTRIC & GAS COMPANY

ATLANTIC CITY ELECTRIC COMPANY

HOPE CREEK GENERATING STATION

DOCKET NO. 50-354

1.0 INTRODUCTION

By letter dated January 20, 1995, the Public Service Electric & Gas Company (the licensee) submitted a request for a change to the Hope Creek Generating Station (HCGS), Technical Specifications (TSs). The proposed Technical Specification (TS) revision represents changes to TS Section 3/4.11.2.6, "Explosive Gas Mixture," TS Table 3.3.7.11-1, "Radioactive Gaseous Effluent Monitoring Instrumentation," and TS Table 4.3.7.11-1, "Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements." The proposed revision would remove these items from the TSs and relocate the Bases to the Hope Creek Updated Final Safety Analysis Report (UFSAR) and the Surveillance Requirements to the applicable surveillance procedures. The Limiting Conditions for Operation (LCOs) would be eliminated. By letter dated December 18, 1995, the licensee supplemented their application by proposing that an additional requirement be added to the TS (proposed TS 6.8.4d). This proposed TS would establish program requirements for the explosive gas monitoring program. The December 18, 1995 supplement did not effect the proposed no significant hazards considerations determination contained in the January 20, 1995 application or the Federal Register notice.

2.0 BACKGROUND

Section 182a of the Atomic Energy Act (the "Act") requires applicants for nuclear power plant operating licenses to include the TSs as part of the license. The Commission's regulatory requirements related to the content of the TSs are set forth in 10 CFR 50.36. That regulation requires that the TSs include items in five specific categories, including (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls. However, the regulation does not specify the particular requirements to be included in a plant's TSs.

The Commission has provided guidance for the contents of the TSs in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" ("Final Policy Statement"), published in the Federal Register on

July 22, 1993 (58 FR 39132), in which the Commission indicated that compliance with the Final Policy Statement satisfies Section 182a of the Act. In particular, the Commission indicated that certain items could be relocated from the TS to licensee-controlled documents, consistent with the standard enunciated in *Portland General Electric Co. (Trojan Nuclear Plant)*, ALAB-531, 9 NRC 263, 273 (1979). In that case, the Atomic Safety and Licensing Appeal Board indicated that "technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety."

Consistent with this approach, the Final Policy Statement identified four criteria to be used in determining whether a particular matter is required to be included in the TSs, as follows:

- (1) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;
- (2) a process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
- (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
- (4) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.¹

As a result, existing TS requirements which fall within or satisfy any of the criteria in the Final Policy Statement must be retained in the TS, while those TS requirements which do not fall within or satisfy these criteria may be relocated to other, licensee-controlled documents.

¹The Commission recently adopted amendments to 10 CFR 50.36, pursuant to which the rule was revised to codify and incorporate these criteria. See Final Rule, "Technical Specifications," 60 FR 36953 (July 19, 1995). The Commission indicated that reactor core isolation cooling, isolation condenser, residual heat removal, standby liquid control, and recirculation pump trip systems are included in the TS under Criterion 4, although it recognized that other structures, systems, and components could also meet this criterion. (60 FR at 36956)

3.0 EVALUATION

The purpose of the explosive gas mixture TS (TS 3/4.11.2.6) is to ensure that the concentration of potentially explosive gas mixtures contained in the gaseous radwaste treatment system main condenser offgas system is maintained below the flammability limits of hydrogen. The hydrogen is mainly produced by radiolytic disassociation of water and carried over to the main condenser via the main steam lines. The hydrogen is then removed, along with other noncondensable gases, by the Steam Jet Air Ejectors (SJAE) and transferred to the gaseous radwaste treatment system. Any hydrogen not recombined in the feed gas recombiner is exhausted through the north plant vent. The effluent stream is monitored by two thermal conductivity type analyzers to determine the hydrogen concentration. These monitors are addressed in TS Tables 3.3.7.11-1 and 4.3.7.11-11.

The HCGS off-gas system is described in Section 11.3.2 of the UFSAR. Section 11.3.2.1.2.2 of the UFSAR indicates that (1) the off-gas system is equipped with dual hydrogen analyzers, and (2) the pressure boundary of the off-gas system is designed to withstand the effects of hydrogen detonation during all anticipated modes of operation. The licensee has proposed the deletion of TS requirements associated with hydrogen concentration, TS 3/4.11.2.6, and hydrogen monitoring, in TS Tables 3.3.7.11-1 and 4.3.7.11-1.

The following is an explanation of how the 10 CFR 50.36 criteria apply to hydrogen concentration and hydrogen monitoring.

Criterion 1 - Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

The hydrogen monitoring and hydrogen concentration requirements associated with the TSs apply to conditions in the main condenser off-gas system which is not within the reactor coolant pressure boundary.

Criterion 2 - A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Hydrogen off-gas concentration/detonation is not associated with any design basis accident or transient nor does it challenge the any fission product barrier.

Criterion 3 - A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of the fission product barrier.

Hydrogen monitoring for the main condenser offgas system is not a part of a primary success path and does not mitigate or prevent a design basis accident or transient.

Criterion 4 - A structure system or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.

While the UFSAR states that the pressure boundary of the off-gas system is designed to withstand the effects of a hydrogen detonation, it also states that hydrogen monitoring reduces the likelihood of hydrogen detonation. Operating experience at HCGS, however, indicates that hydrogen detonation is not a significant safety problem. Taking into consideration the fact that the main condenser is not a safety related component and that the offgas system is designed to withstand a hydrogen detonation, failure of the explosive gas mixture monitoring instrumentation would not constitute a significant abnormal degradation of the reactor coolant pressure boundary nor would it be a design basis accident or transient.

The NRC staff concludes that the TS requirements for hydrogen monitoring and hydrogen concentration in the main condenser offgas system do not meet the TS criteria in the "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" as published in the Federal Register (58 FR 39132). The NRC staff finds that sufficient regulatory control exists under 10 CFR 50.59 to address future changes to these requirements. The limiting conditions for operation and surveillance requirements associated with hydrogen monitoring and hydrogen concentration were removed from the "Standard Technical Specifications, General Electric Plants, BWR4," NUREG-1433. Accordingly, based upon the above, the hydrogen monitoring and hydrogen concentration requirements of TS Section 3/4.11.2.6, "Explosive Gas Mixture," TS Table 3.3.7.11-1, "Radioactive Gaseous Effluent Monitoring Instrumentation," and TS Table 4.3.7.11-1, "Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements," can be deleted from the HCGS TSs. However, also in accordance with NUREG-1433, the licensee has proposed an administrative control, TS 6.8.4.d, which requires that combustible gas limits for the offgas system be maintained and surveillances be conducted to minimize the potential for radiological releases in accordance with the guidance in Generic Letter 89-01, "Implementation of Programmatic Controls for RETS [Radiological Effluent Technical Specifications and the Relocation of Procedural Details of RETS] in the Administrative Controls Section of the Technical Specifications to the Offsite Dose Calculation Manual or to the Process Control Program." The NRC staff finds the proposed TS 6.8.4.d to be acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State Official was notified of the proposed issuance of the amendment. With submittal of the December 18, 1995 supplement, the State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes the surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 39452). The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (c)(10). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: D. H. Jaffe

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