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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 112 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 May 13, 1998, the Public Service Electric & Gas Company (the licensee) submitted a request for changes to the Hope Creek Generating Station (HCGS), Technical Specifications (TSs). The requested changes would revise TS 3/4.10.8, "Inservice Leak and Hydrostatic Testing," to delete the requirement for an operable High Drywell Pressure trip function. Specifically, TS 3.10.8.a would be revised to remove the reference to the Secondary Containment Isolation Actuation Instrumentation trip function 2.b. The proposed change is consistent with NUREG-1433, Revision 1, "Standard Technical Specifications, General Electric Plants, BWR/4."

2.0 BACKGROUND

HCGS TS Table 1.2 defines five OPERATIONAL CONDITIONS. OPERATIONAL CONDITION 4 (COLD SHUTDOWN) requires the reactor mode switch to be in the shutdown position and the average reactor coolant temperature to be less than or equal to 200 °F. OPERATIONAL CONDITION 3 (HOT SHUTDOWN) also requires the reactor mode switch to be in the shutdown position but allows the average reactor coolant temperature to be greater than 200 °F.

On April 18, 1994, the NRC issued a Safety Evaluation for Amendment No. 69 to the HCGS TSs. The amendment added a new Special Test Exception, TS 3/4.10.8, "Inservice Leak and Hydrostatic Testing." TS 3/4.10.8 permits the average reactor coolant temperature specified in TS Table 1.2 for OPERATIONAL CONDITION 4 to be increased to 212 °F, during performance of inservice leak and hydrostatic testing, provided that certain OPERATIONAL CONDITION 3 Limiting Conditions for Operation (LCOs) for secondary containment isolation, secondary containment integrity, and filtration, recirculation and ventilation system (FRVS) operability are met.

One of the OPERATIONAL CONDITION 3 LCO requirements specified in TS 3.10.8.a includes the "High Drywell Pressure" Secondary Containment isolation trip function (TS Table 3.3.2-1, Trip Function 2.b). As discussed in HCGS Updated Final Safety Analysis Report (UFSAR) Section 7.2.1.1.8, drywell pressure (i.e., Primary Containment pressure) is monitored by four pressure transmitters. Each of the four transmitters provides an input to its corresponding trip

logic channel. High pressure in the drywell may indicate a break in the reactor coolant pressure boundary. As shown in TS Table 3.3.2-2, trip function 2.b, the High Drywell Pressure trip setpoint is 1.68 psig. TS 3.6.1.1 only requires PRIMARY CONTAINMENT INTEGRITY to be maintained in OPERATIONAL CONDITIONS 1, 2, and 3. Since TS 3.10.8 is only applicable to OPERATIONAL CONDITION 4, PRIMARY CONTAINMENT INTEGRITY does not need to be maintained during performance of inservice leak and hydrostatic testing. If the primary containment is open, the drywell pressure transmitters cannot be considered operable since the finite volume, for which the associated trip setpoints were selected, does not exist. Therefore, regardless of the surveillance status of the High Drywell Pressure trip function, the primary containment conditions would most likely prevent this function's initiation of a secondary containment isolation signal.

The above condition results in a conflict between the HCGS TS definition of OPERABLE and the TS 3.10.8.a requirement for an operable High Drywell Pressure trip function. The current HCGS TS requirements impose a requirement that cannot be met without defeating the purpose of having access to the primary containment for the TS 3/4.10.8 testing. Therefore, the licensee has requested that TS 3.10.8.a be revised to delete the requirement for an operable High Drywell Pressure trip function. The changes proposed in this submittal would make HCGS TS 3.10.8.a consistent with NUREG-1433, Revision 1, TS 3.10.1.a.

3.0 EVALUATION

The purpose of HCGS TS 3/4.10.8 is to allow inservice leak and hydrostatic tests to be performed in OPERATIONAL CONDITION 4 when the average reactor coolant temperature is greater than 200 °F (i.e., temperature that would normally correspond to OPERATIONAL CONDITION 3). This Special Test Exception effectively provides an exception to the OPERATIONAL CONDITION 3 requirement for PRIMARY CONTAINMENT INTEGRITY. This exception allows the primary containment to be open for performance of the tests as previously evaluated in the Safety Evaluation for Amendment No. 69 to the HCGS TSs.

TS 3/4.10.8 includes requirements that certain OPERATIONAL CONDITION 3 LCOs for secondary containment isolation, secondary containment integrity, and filtration, recirculation and ventilation system (FRVS) operability are met during performance of the inservice and hydrostatic testing. These requirements are intended to ensure that any radioactive material that leaks from the primary containment is contained and processed in order to limit release of radioactivity to the environment.

As discussed in HCGS UFSAR Sections 6.2.3.1, 7.3.1.1.10, 9.4.2.2.7, and 9.4.2.3, the Reactor Building (i.e., secondary containment), in conjunction with the FRVS, is designed to limit radiation doses during a design basis accident (DBA). The Reactor Building is automatically isolated, and the FRVS is automatically started upon receipt of any one of the following signals:

1. Low reactor water level (level 2);

2. High drywell pressure;

3. High radiation in the refueling area exhaust ducts;

4. High radiation in the Reactor Building exhaust ducts; or

5. Manual initiation signal from the control room.

The five signals listed above correspond to the five Secondary Containment Isolation trip functions currently required by TS 3.10.8.a (i.e., TS Table 3.3.2-1, Trip Functions 2.a, 2.b, 2.c, 2.d, and 2.e). As discussed above, the licensee has requested to delete the requirement for an operable High Drywell Pressure trip function. High drywell pressure can indicate a break in the reactor coolant pressure boundary. An isolation of the secondary containment and actuation of the FRVS are initiated in order to minimize the potential of an offsite dose release. The isolation on high drywell pressure supports actions to ensure that any offsite releases are within the limits calculated in the safety analysis. However, the High Drywell Pressure trip function associated with secondary containment isolation is not assumed in any UFSAR accident or transient analyses. The High Drywell Pressure trip function is required to be OPERABLE in OPERATIONAL CONDITIONS 1, 2, and 3 when considerable energy exists in the reactor coolant system (RCS) (i.e., there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas). This function is not required in OPERATIONAL CONDITIONS 4 and 5 because the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these OPERATIONAL CONDITIONS.

As discussed in the NRC Safety Evaluation for HCGS TS Amendment No. 69, the leak and hydrostatic tests are performed with the RCS near water solid and with all control rods fully inserted. Therefore, the stored energy in the reactor core would be very low and the potential for causing fuel failures with a subsequent increase in coolant activity is minimal. Even without an operable High Drywell Pressure trip function, the remaining TS 3/4.10.8 requirements associated with secondary containment isolation, secondary containment integrity, and FRVS operability would ensure that leaks from the primary containment are contained and processed in order to limit release of radioactivity to the environment.

In the event of a large loss-of-coolant accident during a leak or hydrostatic test, the RCS would rapidly depressurize thereby permitting the low pressure Emergency Core Cooling Systems, required by TS 3.5.2, to actuate and thereby keep the core flooded. This action would prevent the fuel from overheating and releasing radioactive materials. The RCS inspections required to be performed as part of the leak and hydrostatic tests would continue to be expected to detect small leaks before a significant inventory of coolant was lost.

Based on the foregoing analysis, the staff concludes that the proposed TS changes will assure acceptable consequences of any postulated accidents, are enveloped by the previously accepted analyses, and are, therefore, 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. 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. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (63 FR 35994). Accordingly, the amendment meets 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 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.

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Date: October 1, 1998