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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 87 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 November 23, 1994, and supplemented by letter dated August 31, 1995, Public Service Electric and Gas Company (the licensee) requested an amendment to the Technical Specifications (TS) for the Hope Creek Generating Station. The changes would: (1) revise TS Table 4.8.2.1-1 to agree more closely with the improved BWR/4 Standard Technical Specifications (STS) format, Action Statements, and Bases, (2) increase the minimum battery terminal voltage from 105 to 108 volts in TS Surveillance Requirement (SR) 4.8.2.1.b, (3) delete the asterisk (*) footnote at SR 4.8.2.1.c.4, and (4) modify SR 4.8.2.1.d to remove the load profile table from the TS and to reflect the use of simulated emergency load profiles. The August 31, 1995, letter provided additional and clarifying information that did not change the scope of the November 23, 1994, application and the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

The staff's evaluation of the licensee's proposed changes to the TS follows.

2.1 Proposed Change to TS SR 4.8.2.1.b

The licensee proposed to change TS Section 4.8.2.1.b from "At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 105 [emphasis added] volts..." to read, "At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 108 [emphasis added] volts..."

Staff Evaluation

The licensee proposed to change SR 4.8.2.1.b in order to increase the minimum battery terminal voltage from 105 to 108 volts. During the Hope Creek Electrical Distribution System Functional Inspection (EDFSI), a review of the plant D.C. systems voltage drop studies revealed that at the end of the 4-hour duty cycle for the Class-1E batteries, the minimum specified voltage values at the battery terminals of the 125-VDC

and 250-VDC systems, 105-VDC and 210-VDC respectively, may not be adequate to support certain DC loads.

A new licensee voltage drop study E-1.4(Q), Revision 3, "Hope Creek 125V & 250V Class 1E DC System Short Circuit and Voltage Drop Studies", was performed using more precise load current values. The results of this study show that the minimum acceptable battery terminal voltage for the 125-VDC system will need to be raised from the existing level of 105 VDC to 108 VDC in order to support proper operation of the connected loads. Since the subject study determined that the existing minimum battery terminal voltage for the 250-VDC system of 210-VDC was adequate, no revision is necessary. The NRC staff agrees with the new voltage drop study.

On the basis of the new voltage drop study, the staff finds that the proposed TS change is an improvement over the existing TS, in that increasing the terminal voltage to 108 volts is more conservative, and is therefore acceptable.

2.2 Proposed Change to TS Section 4.8.2.1.c

The licensee proposed to remove the asterisk (*) at the end of SR 4.8.2.1.c.4 and its corresponding (*) footnote which currently reads: "Prior to startup following the first refueling outage, this test may be performed for at least 4 hours."

Staff Evaluation

The licensee proposed the elimination of the (*) footnote for SR 4.8.2.1.c.4 since it is no longer applicable for the Hope Creek Generating Station. The NRC staff agrees that the footnote is no longer needed.

On the basis of its review of the above information, the staff finds that the proposed TS change is acceptable in that the footnote is no longer needed.

2.3 Proposed Changes to SRs 4.8.2.1.d, 4.8.2.1.e and 4.8.2.1.f

At present, SR 4.8.2.1.d.1 reads as follows:

d. At least once per 18 months, during shutdown, by verifying that either:

1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test.

The amended TS requirement would read:

> d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

The licensee proposed to delete SR 4.8.2.1.d.2 (an alternate means to verify SR 4.8.2.1.d), which describes the design load profile to be supplied while maintaining the minimum battery terminal voltage of the 125-volt and 250-volt battery systems.

The licensee also proposed to move requirements 4.8.2.1.e and 4.8.2.1.f from page 3/4 8-15 to page 3/4 8-14.

Staff Evaluation

The licensee proposed to revise SR 4.8.2.1.d.1 in order to permit the utilization of simulated emergency loads as well as actual emergency loads, which are now specified in the present surveillance requirement. The use of simulated loads to demonstrate the operability of the battery is consistent with industry practices and meets the intent of the TS surveillance requirement. Therefore, the staff finds that the TS change is acceptable in that use of the simulated loads provides a test that is as vigorous as use of actual loads.

The licensee proposed to remove the design load profile associated with SR 4.8.2.1.d.2 in accordance with the staff guidance contained in Generic Letter 91-08 since the load profile values, based on the latest battery sizing calculations, are located in the Hope Creek Updated Final Safety Analysis Report (UFSAR) and the station surveillance testing procedures. In addition, surveillance requirements 4.8.2.1.e and 4.8.2.1.f are relocated for administrative purposes and are acceptable in that it does not change the TS requirements.

On the basis of its review, the staff finds that the proposed TS change is acceptable in that location of the load profile in the UFSAR, alone, provides adequate regulatory control under 10 CFR 50.59 to address future changes to this requirement.

2.4 Proposed Changes to TS Table 4.8.2.1-1

The licensee proposed to change TS Table 4.8.2.1-1, which at present, depicted as shown below:

TABLE 4.8.2.1-1
BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A[1] Limits for each designated pilot cell	CATEGORY B[2] Limits for each connected cell	Allowable[3] value for each connected cell
Electrolyte Level	≥ Minimum level indication mark, and < ¼" above maximum level indication mark(c)	≥ Minimum level indication mark, and ≤ ¼" above maximum level indication mark (d)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts[c]	> 2.07 volts
		≥ 1.195	Not more than .020 below the average of all connected cells
Specific Gravity[a]	≥ 1.200[b]	Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195[b]

[a]Corrected for electrolyte temperature and level.

[b]Or battery charging current is less than 2 amperes when on float charge.

[c]May be corrected for average electrolyte temperature.

[d]Electrolyte level may exceed ¼" above maximum level indication mark if an equalizing charge is in progress or an equalizing charge has been completed within the previous 72 hours.

[1]For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

[2]For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

[3]Any Category B parameter not within its allowable value indicates an inoperable battery.

The amended Table 4.8.2.1-1 is to be moved up to page 3/4 8-15, leaving page 3/4 8-16 intentionally blank and is depicted as shown below:

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

PARAMETER	CATEGORY A:(*) LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B:(*) LIMITS FOR EACH CONNECTED CELL	CATEGORY C:(#) ALLOWABLE VALUE FOR EACH CONNECTED CELL
Electrolyte Level	≥ Minimum level indication mark and < ¼" above maximum level indication mark(d)	≥ Minimum level indication mark and ≤ ¼" above maximum level indication mark(d)	Above top of plates and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts(c)	> 2.07 volts
Specific Gravity(a)	≥ 1.200(b)	≥ 1.195 AND Average of all connected cells >1.205(b)	Not more than .020 below the average of all connected cells AND Average of all connected cells ≥ 1.195(b)

(*) With parameters of one or more cells in one or more batteries not within limits (i.e., Category A, Category B or Category A and B limits not met), the battery may be considerable OPERABLE provided that:

1. Within 1 hour, pilot cell electrolyte levels and float voltages are verified to meet Category C Allowable Values, AND
2. Within 24 hours, and once per 7 days thereafter, all battery cell parameters meet Category C Allowable Values, AND
3. Within 31 days, all battery cell parameters are restored to within Category A and Category B limits of this Table.

(#) Any Category C parameter not within its Allowable Value indicates an inoperable battery.

(a) Corrected for electrolyte temperature and level.

(b) or battery charging current is less than 2 amperes when on float charge.

(c) May be corrected for average electrolyte temperature.

(d) Electrolyte level may exceed ¼" above maximum level indication mark if an equalizing charge is in progress, or an equalizing charge has been completed within the previous 72 hours.

Staff Evaluation

The licensee proposed to revise TS Table 4.8.2.1-1 to agree with the BWR/4 ISTS format, ACTIONS and BASES. Specifically, the subject Table has been revised to incorporate CATEGORY C and to change the time periods necessary to determine the operability of safety-related batteries (i.e., when finding one or more cells of a battery outside the CATEGORY A and B limits, requiring a pilot cell verification within 1 hour and permitting 31 days for restoration of battery cell parameters to within the CATEGORY A and/or B limits). This change takes into consideration that, while the battery is degraded, sufficient capacity exists to perform the intended function, and the revised time periods permit sufficient time to fully restore the cell parameters to normal limits. In addition, the licensee stated that the subject batteries were evaluated using a 25 percent additional capacity margin for aging compensation and possess a 5 to 10 percent design margin for load growth and/or less than optimum operating conditions.

Given that the proposed Table 4.8.2.1-1 format agrees with the applicable text of BWR/4 STS and design margin exists to mitigate any short-term degradation in the battery parameters, the NRC staff concludes that the revised TS Table 4.8.2.1-1 is acceptable in that it provides at least an equivalent level of battery surveillance.

2.5 Proposed Changes to TS BASES, A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The licensee proposed to change TS BASES, A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS. At present, on page B 3/4 8-2, TS BASES reads as follows: "Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to Z [emphasis added] days. During this Z [emphasis added] day period..."

The amended TS would read: "Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 31 [emphasis added] days. During this 31 [emphasis added] day period..."

The licensee also proposed to delete the word "and" before "(4) the allowable value..." and insert the following text at the end of the last paragraph on page B 3/4 8-2:

> ; (5) the TABLE 4.8.2.1-1 NOTATION 31 day ACTION time was derived taking into consideration that while battery capacity is degraded, sufficient capacity exists to perform the intended function while providing a time period adequate to permit full restoration of the battery cell parameters to normal limits.

Staff Evaluation

The licensee proposed the changes in the TS BASES in order to be consistent with and to support the changes in TS Table 4.8.2.1-1.

The NRC staff agrees with the licensee's proposed TS Bases in that they reflect the requirements in the associated TS.

3.0 SUMMARY AND CONCLUSION

By letter dated November 23, 1994, as supplemented by letter dated August 31, 1995, the licensee requested changes to the Hope Creek Generating Station TS. The proposed changes would: (1) revise TS Table 4.8.2.1-1 to agree more closely with the improved BWR/4 STS format, Action Statements, and Bases, (2) increase the minimum battery terminal voltage from 105 to 108 volts in TS Surveillance Requirement (SR) 4.8.2.1.b, (3) delete the asterisk (*) footnote at SR 4.8.2.1.c.4, and (4) modify SR 4.8.2.1.d to remove the load profile table from the TS and to reflect the use of simulated emergency load profiles.

After a preliminary review of the above TS changes, the staff identified a concern regarding certain differences between the licensee's submittal and the applicable Improved Standard Technical Specifications (ISTS) section for TS Table 4.8.2.1-1. These differences pertained to 1) a typographic error which failed to specify electrolyte level for the one hour verification of Category C Allowable values and 2) an omission of a required action to repeat every 7 days that the battery meet Category C limits. By letter dated August 31, 1995, the licensee submitted corrections which resolved the above differences with the ISTS format.

On the basis of its review, the staff finds the amended TS is an improvement over the existing TS and, therefore, approves the requested changes for the Hope Creek Generating Station.

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 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 proposed findings that the amendment involves no significant hazards consideration, and there has been no public comment on such findings (60 FR

39449). 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 31, 1995