



Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

Nuclear Business Unit

FEB 9 2000

LR-N99303
LCR H99-07

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

**REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS
CLASS-1E BATTERY LCO REQUIREMENTS
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354**

In accordance with 10CFR50.90, Public Service Electric & Gas (PSE&G) Company hereby requests a revision to the Technical Specifications (TS) for the Hope Creek Generating Station (HC). In accordance with 10CFR50.91(b)(1), a copy of this submittal has been sent to the State of New Jersey.

Implementation of the proposed changes contained in this submittal will establish more appropriate Limiting Condition for Operation (LCO) Action Statement requirements for the Hope Creek Class-1E batteries. The proposed changes have been evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and a determination has been made that this request involves no significant hazards considerations. The basis for the requested change is provided in Attachment 1 to this letter. A 10CFR50.92 evaluation, with a determination of no significant hazards consideration, is provided in Attachment 2. The marked up Technical Specification pages affected by the proposed changes are provided in Attachment 3.

Upon NRC approval of this proposed change, PSE&G requests that the amendment be made effective on the date of issuance, but allow an implementation period of sixty days to provide sufficient time for associated administrative activities. Should you have any questions regarding this request, we will be pleased to discuss them with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark B. Bizzell".

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Affidavit
Attachments (3)

C Mr. H. Miller, Administrator - Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. R. Ennis
Licensing Project Manager - Hope Creek
U. S. Nuclear Regulatory Commission
One White Flint North
Mail Stop 8B1
11555 Rockville Pike
Rockville, MD 20852

USNRC Senior Resident Inspector - HC (X24)

Mr. K. Tosch, Manager IV
Bureau of Nuclear Engineering
P. O. Box 415
Trenton, NJ 08625

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JPP

BC Vice President - Technical Support (X10)
Director - QA/NT/EP (X01)
Manager - Financial Control & Co-Owner Affairs (N07)
Program Manager - Nuclear Review Board (N38)
Manager - Hope Creek Operations (H01)
Manager - System Engineering - Hope Creek (H18)
Manager - Licensing and Regulation (N21)
J. Keenan, Esq. (N21)
NBU RM (N64)
Microfilm Copy
Files Nos. 1.2.1 (Hope Creek), 2.3 (LCR H99-07)

**HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NPF-57
DOCKET NO. 50-354
REVISIONS TO THE TECHNICAL SPECIFICATIONS (TS)**

BASIS FOR REQUESTED CHANGE:

Public Service Electric and Gas Company (PSE&G), under Facility Operating License No. NPF-57 for the Hope Creek Generating Station, requests that the TS contained in Appendix A to the Operating License be amended as proposed herein to revise TS Limiting Condition for Operation (LCO) 3.8.2.1. The proposed change would provide a specific Action Statement for operating conditions where a Class-1E battery's electrolyte temperature is below the minimum limit specified in TS Surveillance Requirement 4.8.2.1.b.3. To support continued plant operation for a limited 31 day period with a battery in this degraded condition, the proposed Action Statement would implement specific restrictions on Class-1E battery parameters such that the affected battery remains fully capable of mitigating loss-of-offsite-power scenarios. For the proposed 31 day period, battery capacity margins would be allocated to support lower electrolyte temperatures, and steady state power operations could continue while actions are implemented to restore the normal minimum battery electrolyte temperature. The proposed changes to the Class-1E battery TS LCO and Action Statements are indicated on the marked-up TS pages contained in Attachment 3 of this submittal.

REQUESTED CHANGE, PURPOSE AND BACKGROUND:

A description of the design and licensing basis of the Hope Creek Class-1E batteries is contained, in part, in UFSAR Section 8.3.2.1.2.2 and in the NRC Safety Evaluations for Hope Creek TS Amendments Nos. 87 and 118. In the License Change Request (LCR) application approved by the NRC as Hope Creek TS Amendment No. 118, PSE&G raised the TS minimum battery electrolyte temperature from 60°F to 72°F. As stated in the LCR, use of the new 72°F battery electrolyte temperature in the battery sizing calculations would reduce the temperature-correction-factor-related margin to approximately 3%, and enable the remainder of the battery margin to be allocated as design margin for future load growth and less than optimum operating conditions. Consistent with Hope Creek's licensing basis commitments to the recommendations in IEEE 485-1978, "IEEE Recommended Practice for Sizing Large Lead Storage Batteries for Generating Stations and Substations," a minimum design margin of 5% was re-established for load growth and less than optimum operating conditions.

Part of the justification provided by PSE&G for the above temperature limit change relied upon the ability of the safety-related battery room ventilation systems to maintain acceptable ambient conditions. Section 9.4.1.1.4 of the UFSAR states that the battery rooms served by the safety-related Control Equipment Room Supply (CERS) system are maintained at a temperature of $77^{\circ}\text{F} \pm 3^{\circ}\text{F}$. With safety-related battery room duct heaters, controlled by individual thermostats, CERS will meet the specified temperature and ventilation requirements during normal, shutdown and accident conditions without loss of function. Sufficient redundancy is provided in the Class-1E battery system and CERS designs to accommodate single failures as required by GDC 17. Since the safety-related CERS has been designed to adequately maintain the Class-1E battery room temperatures during postulated operational conditions, PSE&G stated that the establishment of a minimum battery electrolyte temperature of 72°F in TS 4.8.2.1 is appropriate and justified.

However, the current TS would still require the battery to be declared inoperable if the battery electrolyte temperature falls below the minimum surveillance requirement acceptance limit, and within two hours (for 125 Vdc batteries), a TS shutdown action statement would be entered. Low electrolyte temperatures are postulated to occur when a safety-related battery room duct heater fails and ambient conditions can not maintain the required electrolyte temperature. Although these conditions would reduce battery capacity, the battery, with its design margins, will still be capable of performing its design basis safety functions under these anticipated plant conditions (i.e., electrolyte temperature of at least 65°F). Therefore, to avoid unnecessary plant shutdown transients, PSE&G is proposing that TS Action Statements c. and d. be added to Limiting Condition for Operation (LCO) 3.8.2 to provide a sufficiently conservative 31 day period of time to repair duct heaters or otherwise restore battery electrolyte temperatures.

The proposed TS action statements will require the immediate actions to assess the conditions of the battery and determine if continued plant operation is justified. Specifically, within two hours of determining that the average battery electrolyte temperature is below 72°F , the operators will: 1) ensure that the average battery electrolyte temperature (of every sixth cell of connected cells) is at or above 65°F ; and 2) verify that battery pilot cells meet Category A limits. At 65°F , and with an average specific gravity within Category A limits for the pilot cells, the battery margins enable the battery to perform its safety-related functions under design basis conditions. During the action statement, the battery capacity margin provided for less than optimum operating conditions (reduced specific gravity) is applied to the temperature correction factor to compensate for the reduced electrolyte temperature from 72°F to 65°F .

JUSTIFICATION OF REQUESTED CHANGES:

As stated in Section 8.3.2 of the Hope Creek UFSAR, the six 125 Vdc and two 250 Vdc Class-1E batteries are designed with sufficient capacity to independently supply their required loads for four hours without support from battery chargers. This time interval is sufficient to ensure that the Class-1E instrument ac power supply is uninterrupted during a loss of offsite power, because the battery chargers will be re-energized from Class-1E 480 V motor control centers once the standby diesel generators are started.

The proposed changes contained in this submittal would implement TS requirements that either: 1) permit continued plant operation when the above design basis for the Class-1E batteries is satisfied; or 2) place the plant in a safe shutdown condition (or for the 250 Vdc batteries, declare supported systems inoperable), consistent with the current TS Action Statements, whenever the safety function of a Class-1E battery can not be met. A Class-1E battery operating within Category A limits for the pilot cells (and within Category B limits for all connected cells) and at a 65°F battery electrolyte temperature (for a limited 31 day period) will still perform its safety-related functions. Temporary utilization of battery capacity margin to compensate for degraded operating conditions is already permitted by the Hope Creek TS for cases where a battery's specific gravity is degraded. The proposed 31 day period will enable the plant operators to initiate and complete activities to restore battery electrolyte temperature, while conservatively limiting the time that the batteries can operate in a non-conforming, but operable condition.

In addition, operators currently monitor the temperatures of the battery rooms on a daily basis. This monitoring enables the operators to detect degradations in performance of the Class-1E battery room heaters (i.e., room temperature falls below 74°F) and initiate corrective measures in a timely manner to maintain the battery electrolyte temperature. Therefore, PSE&G believes that continued operation under these conditions (with Category A and B limits met as appropriate) for a limited 31 day period, where the battery is still capable of performing its safety functions, is more appropriate than initiating a plant shutdown transient required by the TS. A two hour time limit to verify the required battery specific gravity parameters when electrolyte temperature falls below 72°F, is also appropriately conservative since the same time period is already established for inoperable batteries under LCO 3.8.2, Action Statement a. In addition, the proposed actions provide time limits similar to the existing TS requirement by requiring the operators verify that all connected cells meet Category B limits within 24 hours and once per seven days thereafter when electrolyte temperature falls below 72°F. These time limits are consistent with the frequency already established for degraded specific gravity conditions.

PSE&G believes that the proposed changes to the TS: 1) ensure that the Class-1E batteries can perform their safety-related functions whenever continued plant operation is permitted in the TS; 2) provide sufficient time for operators to restore normal battery electrolyte temperatures; 3) conservatively limit the period of time that the batteries can operate in a non-conforming, but operable, condition; and 4) enables Hope Creek to avoid unnecessary plant shutdown transients.

ENVIRONMENTAL IMPACT:

The proposed TS changes were reviewed against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, a significant increase in the amounts of effluents that may be released offsite, or a significant increase in the individual or cumulative occupational radiation exposures. Based on the foregoing, PSE&G concludes that the proposed TS changes meet the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.

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10CFR50.92 EVALUATION

Public Service Electric & Gas (PSE&G) has concluded that the proposed changes to the Hope Creek Generating Station (HC) Technical Specifications do not involve a significant hazards consideration. In support of this determination, an evaluation of each of the three standards set forth in 10CFR50.92 is provided below.

REQUESTED CHANGE

The proposed changes would provide a specific Action Statement for operating conditions where a Class-1E battery's electrolyte temperature is below the minimum limit specified in TS Surveillance Requirement 4.8.2.1.b.3.

BASIS

1. *The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.*

The proposed TS change does not involve any physical changes to plant structures, systems or components (SSC). The Class-1E batteries will continue to function as designed. The Class-1E battery system is designed to mitigate the consequences of an accident, and therefore, can not contribute to the initiation of any accident. The proposed TS LCO Action Statements will continue to ensure that the Class-1E batteries are capable of performing their required safety functions while providing a sufficiently conservative period of continued plant operation. In addition, this proposed TS change will not increase the probability of occurrence of a malfunction of any plant equipment important to safety, since the manner in which the Class-1E battery system is operated is not affected by these proposed changes. The operating limits specified in the proposed TS LCO ensure that the battery's safety functions will be accomplished. Therefore, the proposed TS changes would not result in the increase of the consequences of an accident previously evaluated, nor do they involve an increase in the probability of an accident previously evaluated.

2. *The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

The proposed TS changes do not involve any physical changes to the design of any plant SSC. The design and operation of the Class-1E battery system is not changed from that currently described in the UFSAR, only the allocation of battery design margin would be temporarily affected by the proposed TS LCO. The Class-1E battery system will continue to function as designed to mitigate the consequences of an accident. Establishing a 31 day period where a Class-1E battery would be considered operable, with electrolyte temperature at or above 65°F and Category A and Category B limits met as appropriate, does not permit plant operation in a configuration that would create a different type of malfunction to the Class-1E batteries than any previously evaluated. In addition, the proposed TS changes do not alter the conclusions described in the UFSAR regarding the safety related functions of the Class-1E batteries or their support systems.

Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. *The proposed change does not involve a significant reduction in a margin of safety.*

The proposed changes contained in this submittal would implement TS requirements that either: 1) permit continued plant operation when the safety function of the Class-1E batteries can be performed; or 2) conservatively require placing the plant in a safe shutdown condition. A Class-1E battery operating within Category A and Category B limits as appropriate and a 65°F battery electrolyte temperature (for a limited 31 day period) will still perform its safety-related functions. Temporary allocation of battery capacity margins in compensation of degraded operating conditions (low specific gravity) is already permitted by the Hope Creek TS (for a 31 day period). The ability of the Class-1E batteries to independently supply their required loads for four hours without support from battery chargers is not adversely affected by these proposed changes. Therefore, the proposed TS change does not involve a significant reduction in a margin of safety.

CONCLUSION

Based on the above, PSE&G has determined that the proposed changes do not involve a significant hazards consideration.

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TECHNICAL SPECIFICATION PAGES WITH PROPOSED CHANGES

The following Technical Specifications for Facility Operating License No. NPF-57 are affected by this change request:

<u>Technical Specification</u>	<u>Page</u>
3.8.2.1	3/4 8-12

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

- a. Channel A, consisting of:
 - 1. 125 volt battery 1AD411
 - 2. 125 volt full capacity charger 1AD413 or 1AD414
 - 3. 250 volt battery 10D421;
 - 4. 250 volt full capacity charger 10D423

- b. Channel B, consisting of:
 - 1. 125 volt battery 1BD411
 - 2. 125 volt full capacity charger 1BD413 or 1BD414
 - 3. 250 volt battery 10D431;
 - 4. 250 volt full capacity charger 10D433

- c. Channel C, consisting of:
 - 1. 125 volt battery 1CD411
 - 2. 125 volt full capacity charger 1CD413 or 1CD414
 - 3. 125 volt battery 1CD447
 - 4. 125 volt full capacity charger 1CD444

- d. Channel D, consisting of:
 - 1. 125 volt battery 1DD411
 - 2. 125 volt full capacity charger 1DD413 or 1DD414
 - 3. 125 volt battery 1DD447
 - 4. 125 volt full capacity charger 1DD444

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

- a. With any 125v battery and/or all associated chargers of the above required D.C. electrical power sources inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. With any 250v battery and/or charger of the above required DC electrical power sources inoperable, declare the associated HPCI or RCIC system inoperable and take the appropriate ACTION required by the applicable Specification.

INSERT A

INSERT A

c. With the average electrolyte temperature of each sixth cell of connected cells in any 125v battery at or below 72°F, but at or above 65°F, the battery may be considered OPERABLE for an additional 31 days, provided that:

1. Within 2 hours from identification of degraded temperature, the battery pilot cells are determined to meet Category A limits; and
2. Within 24 hours from identification of degraded temperature, and once per seven days thereafter, all connected cells are determined to meet Category B limits.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

d. With the average electrolyte temperature of each sixth cell of connected cells in any 250v battery at or below 72°F, but at or above 65°F, the battery may be considered OPERABLE for an additional 31 days, provided that:

1. Within 2 hours from identification of degraded temperature, the battery pilot cells are determined to meet Category A limits; and
2. Within 24 hours from identification of degraded temperature, and once per seven days thereafter, all connected cells are determined to meet Category B limits.

Otherwise, declare the associated HPCI or RCIC system inoperable and take the appropriate ACTION required by the applicable Specification.