

Public Service
Electric and Gas
Company

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November 20, 1987
NLR-N87217

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

Gentlemen:

REQUEST FOR AMENDMENT
FACILITY OPERATING LICENSES DPR-70 AND DPR-75
SALEM GENERATING STATION
DOCKET NOS. 50-272 AND 50-311

In accordance with the requirements of 10CFR50.90, Public Service Electric and Gas Company (PSE&G) hereby transmits a request for amendment of Facility Operating Licenses (FOL) DPR-70 and DPR-75 for the Salem Generating Station, Unit Nos. 1 and 2, respectively. In accordance with the requirements of 10CFR170.21, a check in the amount of \$150.00 is enclosed. In accordance with the requirements of 10CFR50.91(b)(1), a copy of this request has been sent to the State of New Jersey as indicated below.

The amendment request modifies Section 3/4.8.1.1 of both the Salem Unit 1 and Salem Unit 2 Technical Specifications to address the changes to action statements and surveillance requirements suggested in NRC Generic Letter 84-15. The proposed change is intended to improve and maintain diesel generator reliability and achieve consistency in the Operating AC Sources technical specifications for both Salem units. Section 3/4.8.1.2 of both the Salem Unit 1 and Salem Unit 2 Technical Specifications was also modified to reference the Additional Reliability Actions of NRC Generic Letter 84-15. The attachment to this letter contains further discussion and justification for these proposed revisions. This amendment request, pending the necessary review and approval, requires no special consideration regarding the date of issuance or effective date.

This submittal includes one (1) signed original, including affidavit, and thirty-seven (37) copies pursuant to 10CFR50.4(b)(2)(ii).

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Should you have any questions on the subject transmittal, please do not hesitate to contact us.

Sincerely,

Steven E. Mittinger
for CARM

Attachments

C Mr. D. C. Fischer
USNRC Licensing Project Manager

Mr. T. J. Kenny
USNRC Senior Resident Inspector

Mr. W. T. Russell, Administrator
USNRC Region I

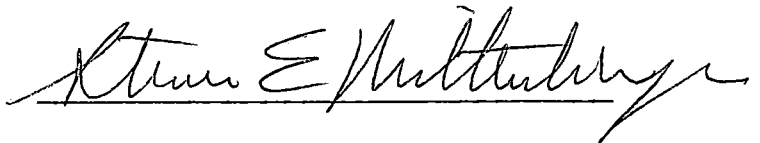
Mr. D. M. Scott, Chief
Bureau of Nuclear Engineering
Department of Environmental Protection
380 Scotch Road
Trenton, NJ 08628

Ref: LCR 87-07

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

Steven E. Miltenberger, being duly sworn according to law deposes and says:

I am Vice President of Public Service Electric and Gas Company, and as such, I find the matters set forth in our letter dated November 20, 1987 , concerning Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station, are true to the best of my knowledge, information and belief.



Subscribed and Sworn to before me
this 20th day of November, 1987



Notary Public of New Jersey

My Commission expires on _____

EILEEN M. OCHS
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 16, 1992

ATTACHMENT

PROPOSED CHANGE TO
TECHNICAL SPECIFICATIONS
SALEM UNITS 1 AND 2

LCR 87-07

DESCRIPTION OF CHANGE

Modify Section 3/4.8.1.1 of both the Salem 1 and 2 Technical Specifications to address the changes to action statements and surveillance requirements suggested in NRC Generic Letter 84-15. The proposed change is intended to improve and maintain diesel generator reliability and achieve consistency in the diesel technical specifications for both Salem units.

Modify Section 3/4.8.1.2 of both the Salem 1 and 2 Technical Specifications to reference the Additional Reliability Actions of NRC Generic Letter (GL) 84-15.

REASON FOR CHANGE

Salem Units 1 and 2 each have three ALCO 18 cylinder V-type, medium speed diesel engines. Each engine is connected to a 4160 volt generator. The generators are used as an emergency power supply for each of the station vital buses. The diesel generator units have a 2600 kwe continuous rating and a 3100 kwe one-hour rating. The diesels are designed to start and be up to required voltage and frequency within 13 seconds of either a blackout condition and/or a safety injection signal.

The diesel generator testing program differs between the two Salem units because of the differences in the applicable Standard Technical Specification surveillance requirements at the time of issuance of the Facility Operating License for each Salem unit. However, the monthly surveillance tests are conducted under the same conditions. Most diesel generator starts (including starts for surveillance purposes) take place from ambient conditions. There is one feature available on the Salem diesels that differs from certain others used in the nuclear industry. This feature is a pre-lubrication system and lube oil heating system which serves to circulate warmed oil through the diesel when it is at rest. The temperature of the oil is maintained between approximately 110° F and 120° F with the pre-lubrication system in operation. This system is necessary for this type of diesel as the manufacturer does not support the starting of the diesel when the temperature falls below 100° F.

The sample technical specifications provided in GL 84-15 (herein referred to as the "sample TS") were reviewed in detail by PSE&G. Many of the suggestions contained in the sample TS were determined to provide a preferable alternative to the current testing program. It is clear that the proposed program will give a more accurate indication of diesel generator reliability. There are several

factors which lend themselves favorably to this conclusion. These are:

- 1) Maintaining diesel generator reliability records on a per diesel generator basis rather than on a per nuclear unit basis will help to identify specific deficiencies of a particular diesel and will also serve to pinpoint sources of unreliability.
- 2) The remedial action criteria presented in GL 84-15 is set up such that when a specific diesel is identified as being near the minimum desired reliability, corrective actions are taken to ensure that the reliability is improved with minimum effect on the other diesel generators for that nuclear unit.
- 3) The accelerated surveillance schedule will provide a mechanism to regain a good reliability status for a diesel in need of remedial action.
- 4) The goals of 0.95 per demand for the minimum desired reliability and 0.90 per demand for the minimum allowable reliability are realistic goals.
- 5) The extended time criteria for running the remaining operable diesels when an offsite circuit or another diesel is inoperable is beneficial. This will serve to prevent overtesting of diesel generators with good reliability histories.

For these reasons, PSE&G requests a license change to adopt many of the changes suggested by GL 84-15 in an effort to contribute to diesel generator reliability and to provide for more realistic monitoring of diesel generator performance on an individual basis.

Technical specification consistency between both Salem units through this proposed license change was accomplished in two phases. The first phase was the upgrading of the Salem Unit 1 testing requirements to those additional requirements addressed during the licensing of Salem Unit 2. This consisted of adding the more detailed Salem Unit 2 testing requirements to comparable sections of the Salem Unit 1 Technical Specifications and represents a conservative change. The second phase was the consistent application of appropriate sections of the GL 84-15 Sample TS for both Salem units.

The following discussion will address the proposed changes resulting from the application of the GL 84-15 Sample TS to each affected section of the Salem Unit 1 Technical Specifications (as upgraded) and the Salem Unit 2 Technical Specifications and the basis for the change.

Technical Specification 3/4.8.1.1

Limiting Condition for Operation 3.8.1.1

The proposed amendment removes the footnote related to LCO 3.8.1.1.b.2 which equates an inoperable fuel transfer pump with an inoperable diesel generator. One fuel transfer pump supplies more than twice the amount of fuel which all three diesels will use at their maximum ratings. As such, the loss of one fuel transfer pump and/or one storage tank should not result in the declaration of diesel inoperability unless the fuel transfer system cannot be restored after a prescribed period of time. To address the inoperability of the fuel transfer system, a separate action statement has been added (Action Statement 3.8.1.1.g) which allows 72 hours to repair the equipment before declaring the diesel inoperable.

Action Statement 3.8.1.1.a

The reason to perform diesel operability tests following the loss of one offsite circuit is to ensure that a backup power source is available and capable of performing its intended function. The current action statement requires verification of diesel starting capability within one hour and then once every 8 hours thereafter. Demonstration of diesel starting capability within one hour of a loss of an offsite power source and subsequent testing every 8 hours thereafter is both excessive and unwarranted. If the diesel has been surveillance tested within the previous 31 days, an operability test provides little further assurance of diesel availability than what has been provided by the preceding surveillance test. The loss of an offsite circuit does not suggest that any diesel has become less reliable. Consistent with these statements, operability testing within 24 hours is more reasonable than testing within one hour. Diesel testing within the first 24 hours will provide assurance that no starting problems exist and also provide time for inspection prior to testing. Furthermore, the 24 hour time period permits sequential testing of the diesels rather than simultaneous testing of the diesels and is consistent with the statements of GL 84-15.

Repetitive operability testing every 8 hours is both unwarranted and counterproductive in providing assurance of diesel starting capability. In as much as fast starts have been identified as contributing to premature diesel engine degradation, repetitive testing is counterproductive to the stated purpose of providing continued assurance of starting capability. Consistent with GL 84-15, one operability start per diesel should provide assurance of start capability in the event of a loss of an offsite power circuit.

Action Statement 3.8.1.1.b

The reason to perform a diesel operability test following the loss of a diesel is to assure that the remaining diesels will be available and capable of starting as designed. Specifically, an

operability test of the remaining diesels provides assurance that the remaining operable diesels are not subject to the same failure (i.e. common mode failure). Rather than relying on previous surveillance testing, operability testing within 24 hours is proposed consistent with GL 84-15.

The sample TS presented in GL 84-15 allows for diesels to be inoperable for a time period to be specified by the licensee but not to exceed a certain number of cumulative days per year. The proposed change retains the previous limit of 72 hours. It has been the experience at Salem that, with proper planning, most maintenance can be performed on the diesels within 72 hours. Using the "maximum cumulative inoperability time" suggested in the sample TS would require the redefinition of Tech Spec 3.0.5 because of the impact of emergency power sources on other Tech Spec related equipment and in consequence would require an extensive Probabilistic Risk Analysis. PSE&G feels that this approach to diesel inoperability will only add confusion to the interpretation of the Tech Spec, in addition to creating another administrative tracking function.

Action Statement 3.8.1.1.c

This action statement covers the appropriate responses when declaring one offsite circuit and one diesel generator inoperable. Consistent with the proposed changes to Action Statements 3.8.1.1.a and 3.8.1.1.b, proposed Action Statement 3.8.1.1.c will provide adequate assurance of diesel availability by one time testing while eliminating extra diesel starts. Additionally, performance of the test within 8 hours provides the required assurance while also providing added time for inspection prior to test. This change is also consistent with GL 84-15.

Action Statement 3.8.1.1.d

This action statement covers the appropriate responses when two offsite power circuits are declared inoperable. The reasoning for the proposed action statement is consistent with that presented above for Action Statement 3.8.1.1.c. As previously noted, loss of an offsite circuit does not suggest that a diesel has become less reliable since its previous surveillance test. Given the significance of losing both offsite circuits, one operability test per diesel within 8 hours provides adequate assurance of diesel reliability. This change is also consistent with GL 84-15.

Action Statement 3.8.1.1.e

This action statement covers the appropriate responses when declaring two or more diesels inoperable. There are no substantial differences between this action statement and Action Statement 3.8.1.1.d of the existing Salem Unit 2 Tech Specs. The proposed change provides clarification of the required actions upon restoration of at least two of the three diesel generators.

Action Statement 3.8.1.1.f

The proposed amendment moves the requirements to perform the Additional Reliability Actions to a separate action statement. Although not in the same format, the action statement is consistent with the sample TS proposed in Generic Letter 84-15.

Action Statement 3.8.1.1.g

The purpose of this action statement is to separately address the inoperability of a fuel transfer pump and/or a fuel storage tank. A 72 hour time period is allowed to repair the equipment before declaring a diesel inoperable. Since one fuel transfer pump supplies more than twice the amount of fuel which all three diesels will use at their maximum ratings, the loss of one fuel transfer pump and/or one fuel storage tank should not result in the declaration of diesel inoperability unless the fuel transfer system cannot be restored within the permitted period of time.

Surveillance Requirement 4.8.1.1

The proposed Tech Spec testing frequency is based on a matrix of the number of valid failures in the last 20 and 100 valid tests on a per diesel generator basis consistent with GL 84-15. PSE&G feels that the testing of a redundant diesel based on the failure of another diesel is excessive and not technically justifiable. Such testing adversely affects the performance and reliability of the other diesels. Changing the specification to a per diesel basis addresses individual diesel reliability and enhances overall reliability by requiring remedial actions only on diesel generators which are experiencing failures.

The proposed changes to Surveillance Requirement 4.8.1.1 for the most part represent the adoption of the proposed surveillance requirements of the sample TS presented in GL 84-15 and the achievement of consistent testing requirements for both Salem units.

The proposed amendment adds the Additional Reliability Actions and Diesel Generator Requalification Program given in the sample TS. Since GL 84-15 does not present a mechanism for restoring the diesel to operable status if the Additional Reliability Actions of Table 4.8-2 have been entered due to 5/20 or 11/100 failures, an additional statement has been added to the table. This statement notes that the diesel can be restored to operable status if it passes two consecutive tests in a 72 hour period. The requirements to continue the requalification test program remain in force.

The sample TS also has a 14 day supplemental reporting requirement on Attachment I to Table 4.8-2. These reports are to be generated for each diesel failure when in the Reliability Improvement Program. The proposed amendment changes this to a 30 day report. The requirement to have a comprehensive report submitted to the Commission within 14 days of an event is excessive and may often

result in the need for amended reports due to the limited amount of time allowed for preparation of the original submittal. By extending this time frame to 30 days, an adequate amount of time will be provided to investigate the event, gather and analyze data, and prepare a comprehensive report.

The proposed amendment has added a footnote to Surveillance Requirement 4.8.1.1.2.a.2 to clarify when it is required to start a diesel from the ambient condition. The Salem diesels must be at rest for up to 12 hours to achieve ambient conditions. For this reason, timely accomplishment of testing performed for reasons other than to meet the test schedule of Table 4.8-1 would be difficult. For example, if a diesel run is to be performed following a maintenance activity, a 12-hour hold period may be required in order to adhere to the ambient condition criterion. Application of the ambient condition requirement only to testing performed to meet the test schedule of Table 4.8-1 will provide for sufficiently frequent testing from the ambient condition.

The proposed amendment also removes the requirements for the diesel generators to be at ambient conditions prior to performing the accident blackout loading test. This test ties into the guidance of GL 84-15 and NRC Reg. Guide 1.108 to perform the test within 5 minutes of completing the 24-hour run. In addition, the proposed amendment changes the 5 minute requirement to 10 minutes. PSE&G does not feel that 5 minutes provides enough time to complete the required procedural steps to perform this test. The additional 5 minutes should in no way decrease the reliability of the diesels and will allow the operator to perform the required procedural steps at an unhurried pace.

Table 4.8-1, Diesel Generator Test Schedule, has been amended to be in accordance with the requirements of GL 84-15 and Reg. Guide 1.108. However, the requirement presented in the GL 84-15 sample TS to test the diesel at least once per seven days until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one or less has not been adopted. PSE&G feels that there is no need to increase the testing frequency for an additional seven tests provided the other reliability criteria are met.

Surveillance Requirement 4.8.1.1.2.c.4 of the GL 84-15 sample TS provides several options on how to start a diesel for its monthly test. PSE&G does not feel that these options are necessary and has kept the current Salem 2 Tech Spec which is comparable as is.

Proposed Surveillance Requirement 4.8.1.1.2.c.6.(c) for verifying that the automatic diesel generator trips are bypassed is different than the comparable GL 84-15 sample TS due to the design of the diesel generators and ESFAS at Salem. The Salem diesels are designed to have all but the following trips bypassed; (1) engine overspeed, (2) low lube oil pressure, (3) 4 Kv bus differential, and (4) generator differential.

Also, Surveillance Requirement 4.8.1.1.2.d.9 of the GL 84-15 sample TS has not been included in the proposed amendment. This surveillance requires that the diesel generator is capable of being synchronized to the offsite power source while the diesel is loaded. This cannot be done due to the design of Salem as the vital bus infeed breakers do not have synchronizing capability.

The proposed amendment includes the surveillance requirement for a continuous rating load rejection test noted in the GL 84-15 sample TS. This surveillance requirement is not included in the existing Salem 2 Tech Specs.

The surveillance requirements for the fuel storage and transfer system in the GL 84-15 sample TS are included with the monthly diesel runs.

The proposed amendment also includes two surveillances which were not referred to in the GL 84-15 sample TS. These are (1) a surveillance for verifying that the diesel cannot be reconnected to a loaded bus after tripping and (2) a surveillance to verify that all the diesels will start and come up to speed simultaneously after any modifications which could affect diesel generator interdependence.

Technical Specification 3/4.8.1.2

The proposed amendment adds Action Statement 3.8.1.2.b to reference the Additional Reliability Actions of GL 84-15. In addition, a footnote has been added to the surveillance requirements to include clarification of valid successful tests and failures while in MODES 5 and 6. Also, some editorial changes have been made in the wording of the Action Statement in order to make it consistent with similar items in Action Statement 3.8.1.1.

NO SIGNIFICANT HAZARDS EVALUATION

The proposed changes to Technical Specifications 3/4.8.1.1 and 3/4.8.1.2 for both Salem 1 and 2 would not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated. Reducing the test frequency and modifying diesel generator starting and loading requirements is intended to enhance diesel reliability by minimizing severe test conditions which can lead to premature failures. The proposed changes will continue to assure availability of the diesels and should serve to enhance the reliability and consequently the overall safe operation of the diesel generators.

(2) create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed change affects testing frequency, starting and loading practices only and has no impact on the accident analysis. No new operating modes or

equipment are introduced which could initiate or affect the progression of an accident.

(3) involve a significant reduction in a margin of safety. The changes in the testing requirements do not affect the capability of the diesels to perform their required function. Rather, the purpose of the proposed changes is to increase the overall reliability of the diesels. In adopting many of the suggestions identified in GL 84-15, the requested change would implement actions which have been determined by the NRC to reduce the risk of core damage from station blackout events.

The NRC has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870) of license amendments that are considered not likely to involve a significant hazards consideration. In this case, the proposed changes fall into three of these categories (II.1, II.2, II.7) in that: (1) the change is in part administrative in that it is being proposed for both Salem units to achieve technical specification consistency and improve operator understanding, (2) the change, to some extent, includes additional surveillance requirements not included in the sample TS of GL 84-15 (diesel interdependence, verification that diesel cannot reconnect to a loaded bus after tripping) and upgrades the existing Salem Unit 1 surveillance requirements to those of Salem Unit 2 and (3) the change attempts to conform to NRC staff interpretations of satisfactory diesel generator testing requirements as presented in GL 84-15. The change will result in no change to the required function of the diesel generators and is intended to extend their service life.

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