

Public Service  
Electric and Gas  
Company

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Vice President - Nuclear Operations

AUG 24 1994

NLR-N94152  
LCR 93-10

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

Gentlemen:

SUPPLEMENTAL INFORMATION REGARDING  
LICENSE CHANGE REQUEST 93-10  
SALEM GENERATING STATION UNIT NOS. 1 & 2  
FACILITY OPERATING LICENSE NOS. DPR-70 & DPR-75  
DOCKET NOS. 50-272 & 50-311

Public Service Electric and Gas Company (PSE&G) submitted a request for amendment of Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station Unit Nos. 1 and 2 by letter NLR-N94007 dated March 28, 1994 (LCR 93-10). This proposed change would revise the Sustained Degraded Voltage trip setpoint and allowable value due to changes in the switchyard configuration. Per telephone conversation with the NRR Licensing Project Manager on July 11, 1994, PSE&G submits the attached responses to the five (5) questions provided by the NRC at this time.

Should you have any questions on this submittal, please contact us.

Sincerely,



Attachments (2)  
Affidavit

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C Mr. T. T. Martin, Administrator - Region 1  
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475 Allendale Road  
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Mr. J. Stone, Licensing Project Manager  
U. S. Nuclear Regulatory Commission  
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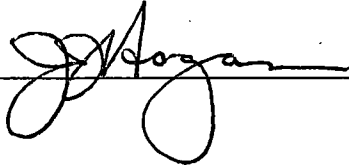
Mr. C. S. Marschall (S09)  
USNRC Senior Resident Inspector

Mr. Kent Tosch, Manager, IV  
NJ Department of Environmental Protection  
Division of Environmental Quality  
Bureau of Nuclear Engineering  
CN 415  
Trenton, NJ 08625

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

J. Hagan, being duly sworn according to law deposes and says:

I am Vice President - Nuclear Operations of Public Service Electric and Gas Company, and as such, I find the matters set forth in the above referenced letter, concerning Salem Generating Station Unit Nos. 1 and 2, are true to the best of my knowledge, information and belief.

  
\_\_\_\_\_

Subscribed and Sworn to before me  
this 24<sup>th</sup> day of August, 1994

  
Notary Public of New Jersey

KIMBERLY JO BROWN  
NOTARY PUBLIC OF NEW JERSEY  
My Commission Expires April 21, 1998

My Commission expires on \_\_\_\_\_

ATTACHMENT 1

Question 1:

Is there a time-delay for trip setpoints and the allowable value for the vital bus Loss of Voltage condition? Table 3.3-4 does not reflect any time delay.

Response:

A specific time delay is not required as part of the design basis for the first level of undervoltage protection. However, standard engineering practices for undervoltage protection provide some time delay to allow electrical systems to recover from voltage perturbations. The vital bus first level of undervoltage protection uses GE type IAV relays. These relays are time undervoltage relays with inverse time characteristics. As the voltage drops below 0.7 PU, the relays will actuate within a period of time associated with the relay. This time is shown on the time-voltage curve for the relay.

Question 2:

Were the calculations for the degraded voltage value completed for the 120 V level?

Response:

Yes. Control circuit voltage drops for the 120 volt loads have been completed under calculations ES-15.005 (Unit 1) and ES-15.006 (Unit 2). A copy of Revision 1 of the Unit 1 calculation and the associated Change Document (CD) have been provided as Attachment 2 for your information. The CD will be incorporated into calculation ES-15.005(Q) as part of the final closure of the DCP.

Question 3:

What type of field verification was done to validate the data used for the degraded voltage calculation?

Response:

The data used to perform the degraded voltage calculation is taken from the Salem Load Management System (LMS) Database. This database was developed using the following:

ATTACHMENT 1 (Cont'd)

- transformer specifications

The impedances used for calculations are conservative. The high impedances of the specifications are used for voltage drop/load flow calculation and the low impedances are used for short circuit calculations.

- transformer nameplate data

Field walkdowns were performed to determine actual nameplate data for the Station Power Transformers (SPTs) and the Auxiliary Power Transformers (APTs).

- cable impedance data

The Salem Cable Control Report (CCR) provided the cable length and type for the feeder cables. Calculation ES-10.008 provides the impedances at 25 and 90 degree C. The 90 degree C is used for load flow calculations and 25 degree C is used for short circuit calculations.

- motor data

The motor data is provided from vendor information nameplate data, and conservative assumptions when the data was not available.

This data is used in conjunction with load flow software. Both the data and the software have been verified and validated in accordance with PSE&G's QA program. The software uses the data to perform various types of load flow and short circuit calculations.

Question 4:

What controls will be used in the future to update the calculations if the bus loads change?

Response:

Design changes to the plants including changes that would affect bus loadings are controlled in accordance with procedure NC.NA-AP.ZZ-0008(Q), "Control of Design and Configuration Change, Tests and Experiments", and several lower level engineering procedures that control the Design Change Package (DCP) process. Should a design change be initiated that may impact the Electrical Distribution System, the Electrical Section of the Design

ATTACHMENT 1 (Cont'd)

Considerations Checklist Parts A and B are required to be completed in accordance with procedure NC.DE-AP.ZZ-0001 (Q). This checklist will identify the need to update the LMS database. The LMS database represents a model of the Salem Units 1 and 2 Electrical Distribution System from the 500 KV level to the 120 volt electrical distribution panel level. The LMS was utilized to complete the Degraded Grid Study calculation ES-15.008(Q) provided to the NRC in letter NLR-N94096 dated June 1, 1994. The need to revise the Degraded Grid Study calculation will be assessed based on identified changes to the LMS database.

Question 5:

Assess how the proposed Technical Specification change complies with the guidance of the NRC in its letter of June 2, 1977, under Generic Action Item (MPA 8-23) and Branch Technical Position (BTP) PSB-1?

Response:

The guidance of the NRC June 2, 1977 letter forms the basis of the Salem Unit 1 and 2 second level undervoltage protection. Although the analyses in support of the revised Sustained Degraded Voltage trip setpoint and allowable value were completed considering the guidance of Branch Technical Position (BTP) PSB-1 (NUREG-0800), analyses of the revised setpoint and allowable value are consistent with the guidance of the NRC letter dated June 2, 1977 and is still the basis for the second level undervoltage protection design. The protection provided by this system is not affected as a result of the proposed change and is still in compliance with the June 2, 1977 NRC letter.

NLR-N94152

ATTACHMENT 2

CALCULATION ES-15.008 (Q)