PSEG

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

Salem Generating Station

October 5, 1994

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

SALEM GENERATING STATION
LICENSE NO. DPR-70
DOCKET NO. 50-272
UNIT NO. 1

SUPPLEMENTAL LICENSEE EVENT REPORT 93-014-02

This submittal is made to reclassify an occurrence as a Voluntary Report for informational purposes. This occurrence had been previously identified as reportable pursuant to Code of Federal Regulations 10CFR 50.73.

Sincerely yours,

J. J. Hagan
General Manager -
Salem Operations

MJPJ:pc

Distribution

190068

IE22
1/1

NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Salem Generating Station - Unit 1	05000 272	1 OF 04

TITLE (4) Voluntary Reporting of 4 Kilo-Volt Vital Bus Second Level Undervoltage (UV) Protection Dropout Setpoint.

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									Salem Unit 2	05000 311
07	22	93	93	-- 014 --	02	10	05	94	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	80	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	x OTHER
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	Voluntary
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
M. J. Pastva, Jr. - LER Coordinator	(609) 339-5165

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	x	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On 7/22/93, it was determined that the 91.6% dropout setpoint for second level undervoltage protection of both Salem Units' 4 kilovolt (KV) vital buses would not fully protect the 230 and 460 volt (V) motors should the 4KV bus voltage degrade to less than 93.2%, but greater than 91.6%. At that time it was concluded the intent of the Updated Final Safety Analysis Report and guidance provided in "Safety Evaluation And Statement Of Staff Positions Relative To The Emergency Power Systems For Operating Reactors" NRC letter, dated 6/2/77, were not fully met. Continued operation of both Salem Units was based upon self-imposed administrative controls on 4KV bus alignment until implementation of design changes to change the dropout setpoint. A subsequent detailed study shows the motors would have performed their intended safety functions with the 91.6% setpoint. As such, this report is made voluntarily for informational purposes.

REQUIRED NUMBER OF DIGITS/CHARACTERS FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 – FACILITY NAME 8 TOTAL – DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as {xx}

REPORT IDENTIFICATION:

Voluntary Reporting Of 4 Kilo-Volt Vital Bus Second Level Undervoltage (UV) Protection Dropout Setpoint

Date of Discovery: 7/22/93

Report Date: 10/5/94

This report was initiated by Incident Report No. 93-320.

INITIAL CONDITIONS:

Unit 1: Mode 1 Reactor Power 80% - Unit Load 815 MWe

Unit 2: Mode 1 Reactor Power 100% - Unit Load 1140 MWe

DISCUSSION:

On July 22, 1993, an initial determination was made that the 91.6% dropout setpoint for second level undervoltage protection of both Salem Units' 4 kilovolt (KV) vital buses {VJ}, would not fully protect the 230 and 460 volt (V) motors should the 4KV bus voltage degrade to less than 93.2%, but greater than 91.6%. At that time it was concluded the intent of the Updated Final Safety Analysis Report (UFSAR) and guidance provided in "Safety Evaluation And Statement Of Staff Positions Relative To The Emergency Power Systems For Operating Reactors" NRC letter, dated June 2, 1977, were not fully met. This was identified during a self-initiated adequacy review to ensure the intent of the 1977 NRC letter was being met. Continued operation of both Salem Units was based upon ensuring that the 4KV bus voltage would be maintained at or above 93.2% by imposition of additional administrative controls on 4KV bus alignment until implementation of design changes to change the dropout setpoint. The NRC was notified of this determination pursuant to 10CFR50.72(b)(1)(ii)(B). In addition, on August 20, 1993, this issue was reported pursuant to the requirements of 10CFR50.73(a)(2)(ii)(B) and 10CFR50.73(a)(2)(v)(D)

A subsequent detailed study shows the motors would have performed their intended safety functions with the 91.6% setpoint. Therefore, a reportable occurrence with the setpoint, as described, does not

DISCUSSION: (cont'd)

exist pursuant to 10CFR50.72 or 10CFR50.73.

ANALYSIS:

In July 1993, a self-initiated adequacy review concluded the 91.6% dropout setpoint for second level undervoltage protection of both Salem Units' 4 KV vital buses, would not fully protect 230 and 460V motors. Continued operation of both Salem Units was based upon the following self-imposed administrative controls regarding 4KV bus alignment:

1. Hourly logging of 4KV vital bus voltages, maintained between 4.3KV and 4.5KV.

2. Maintaining only two vital buses energized from their operating transformer, if both the corresponding group buses are on their respective Auxiliary Power Transformer (APT).

3a. Maintaining three vital buses energized from the operating transformer, if one of the corresponding group buses is transferred to the operating Station Power Transformer (SPT) or

3b. Maintaining three vital buses energized from the operating transformer, if the load which can be transferred from the APTs is reduced by 5 mega volt amps.

However, revision 01 to calculation ES-15.008(Q), "Salem Units 1 and 2 Degraded Grid Study", shows worst case recovery vital bus voltage is 93.2% of 4KV following transfer of the APTs to the SPTs.

A subsequent detailed study shows that the 230 and 460V motors will perform their safety functions with the 91.6% setpoint. As such, the self-imposed administrative controls serve to add greater enhancement to the performance of these motors, from a reliability standpoint.

The initial determination that the 91.6% dropout setpoint did not meet the intent of the UFSAR and the BTP resulted from overly restrictive conservatism in reviewing/assessing the ES-15.008(Q), revision 01 calculations, without benefit of the results of the subsequent detailed study. Dropout setpoint selection at 91.6% was based on the lowest voltage the 4.16KV motors could be allowed to operate (i.e. 90%) due to voltage drops in the motors' cables and relay inaccuracy considerations.

SIGNIFICANCE:

This report is made for informational purposes, since the dropout setpoint provides adequate protection for the worst case design basis event. As such, this issue is not reportable pursuant the requirements of 10CFR50.73.

ACTIONS TAKEN/PLANNED:

Related design changes, including changing the dropout setpoint, were implemented on Unit 1 during its last refueling outage and are scheduled for Unit 2 during its next refueling outage.

The self-imposed administrative controls will be maintained for Unit 2 until implementation of the aforementioned design changes.

License Change Requests have been submitted to revise Technical Specifications regarding the second level undervoltage relay setpoint.

The importance of adequately considering lower voltage levels whenever evaluating 4KV setpoints for changes has been discussed with the Electrical Engineering Group.

Appropriate changes to the UFSAR will be implemented.

Appropriate documents will be revised to incorporate the results of the subsequent study involving the 91.6% dropout setpoint.

General Manager -
Salem Operations

MJPJ:pc
SORC Mtg. 94-077