



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

Nuclear Business Unit

DEC 12 1996

LR-N96414

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

Gentlemen:

LER 272/96-032-00  
SALEM GENERATING STATION - UNIT 1  
FACILITY OPERATING LICENSE NO. DPR-70  
DOCKET NO. 50-272

This Licensee Event Report (LER) entitled "Failure of Service Water Inlet Valve to Open for 2B Diesel Generator" is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73(a)(2)(ii). This LER also satisfies the special reporting requirements of Technical Specification 4.8.1.1.4.

Sincerely,

David F. Garchow  
General Manager -  
Salem Operations

100031

Attachment

SORC Mtg. 96-181

BJT/ 9612190162 961212  
PDR ADOCK 05000272  
S PDR

C Distribution  
LER File 3.7  
The power is in your hands.

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**LICENSEE EVENT REPORT (LER)**

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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.

**FACILITY NAME (1)**  
SALEM GENERATING STATION UNIT 1

**DOCKET NUMBER (2)**  
05000272

**PAGE (3)**  
1 OF 4

Failure of Service Water Inlet Valve to Open for 2B Diesel Generator

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	12	96	96	- 032	- 00	12	12	96	Salem, Unit 2	05000311
									FACILITY NAME	DOCKET NUMBER

  

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
N	000	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)					
		20.2203(a)(1)	20.2203(a)(3)(i)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)					
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71					
		20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER					
		20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A Special Report					
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)						

**LICENSEE CONTACT FOR THIS LER (12)**

**NAME**  
Brian Thomas, Licensing Engineer

**TELEPHONE NUMBER (Include Area Code)**  
609-339-2022

**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)**

**YES** (If yes, complete EXPECTED SUBMISSION DATE).  **NO**

**EXPECTED SUBMISSION DATE (15)**  
MONTH: DAY: YEAR:

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

On November 12, 1996, while performing the monthly diesel run on the 2B Emergency Diesel Generator (EDG), the Equipment Operators (EOs) noticed that the open indication light for valve 22SW39 was not lit. The EOs had started the diesel at 1424 hours and secured the EDG at 1429 hours when they identified that the 22SW39 valve was jammed closed by the engagement of the manual valve operator.

The cause of the failure of the 22SW39 to open is attributed to inadvertent mispositioning of the 22SW39 manual valve operator. PSE&G has modified the manual valve operator to prevent the inadvertent mispositioning of the SW39 valves for both Salem Units 1 and 2.

This condition is reportable in accordance with 10CFR50.73(a)(2)(ii), any event or condition that caused the plant to be in a seriously degraded condition or in an unanalyzed condition that significantly compromised plant safety.

This LER also satisfies the special reporting requirements of Technical Specification 4.8.1.1.4.

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**TEXT CONTINUATION**

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SALEM GENERATING STATION UNIT 1	05000272	96	032	00	2 OF 4

**TEXT (If more space is required, use additional copies of NRC Form 366A) (17)**

**PLANT AND SYSTEM IDENTIFICATION**

Westinghouse - Pressurized Water Reactor

Service Water System (SWS) {BI/-}

Emergency Diesel Generators (EDGs) {EK/-}

\* Energy Industry Identification System (EIIS) codes and component function identifier codes appear as {SS/CCC}

**CONDITIONS PRIOR TO OCCURRENCE**

At the time of identification, Salem Units 1 and 2 were shutdown and defueled.

**DESCRIPTION OF OCCURRENCE**

On November 12, 1996, while performing the monthly diesel run on the 2B Emergency Diesel Generator (EDG), the Equipment Operators (EOs) noticed that the open indication light for valve 22SW39 was not lit. The 22SW39 valve is the SW inlet valve to the EDG. The EOs had started the diesel at 1424 hours and secured the EDG at 1429 hours when they identified that the 22SW39 valve was jammed closed by the engagement of the manual valve operator. Inspection of the 22SW39 valve by the EO and Senior Reactor Operator (SRO) identified that the declutching spring (spring clip) that holds the manual valve operator declutching pin in place was broken. Inspection of the other remaining Unit 2 and the Unit 1 EDGs did not reveal any broken spring clips on the other EDGs' SW39 valves. Although the spring clips were not found to be damaged for the remaining valves, the service water inlet valves were found to be improperly positioned (manual wheels were not in the fully withdrawn position). Proper positioning prevents this type of occurrence on these valves. The broken spring clip was replaced on the 22SW39 manual valve operator and the remaining SW39 valves were positioned properly to avoid interference with the automatic opening function of the SW39 valve.

**ANALYSIS OF OCCURRENCE**

In order for the SW39 valve to lock in the closed position, three physical acts must occur; 1) the declutch pin has to be out of its indent (pin is held in place by the spring clip), 2) the handwheel must be driven down by some force in the downward direction, and 3) the handwheel must be turned to align the wormgear to the segment gear to engage the handwheel. The results of the root cause evaluation to date suggests that the failure of the valve to open was a result of inadvertent mispositioning and was not solely driven by the failure of the spring clip. Failure of the spring clip alone could not by itself lead to the mispositioning of the valve. Some additional actions would be necessary (i.e, manipulation of the valve, inadvertent stepping on the manual valve operator, inadvertent placement of equipment on top of the manual valve operator) to misposition the SW39 valve. Corrective actions are being undertaken to prevent the inadvertent mispositioning of the SW39 valves.

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		96	- 032	- 00		

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

ANALYSIS OF OCCURRENCE (cont'd)

The root cause investigation identified other safety related valves which use the same type spring clip. These valves were inspected by operations and have been verified to be in the correct position. This inspection identified one deformed spring clip on the 22SW72 valve. A work order has been generated to replace the spring clip for this valve prior to Unit 2 entry into Mode 3.

APPARENT CAUSE OF OCCURRENCE

The cause of the failure of the 22SW39 to open is attributed to inadvertent mispositioning of the 22SW39 manual valve operator. The mispositioning of the manual valve operator jammed the valve in the closed position preventing the 22SW39 from opening when the 2B EDG was started. Corrective actions have been implemented for the SW39 valves to prevent the inadvertent mispositioning of the valves.

PRIOR SIMILAR OCCURRENCES

A review of LERs submitted for Salem Units 1 and 2 for the past two years did not identify any similar occurrences related to equipment failure as a result of valve mispositioning.

SAFETY CONSEQUENCES AND IMPLICATIONS

Mispositioning of the SW39 valves could result in the loss of service water flow to the EDGs during an automatic start of the EDGs. However, when the EDGs receive an automatic start signal, an operator is dispatched to the EDGs and would arrive at the EDGs within minutes of the EDG start. The operator would be able to intervene at this point and establish service water flow to the EDGs by opening the SW39 valve. The previous surveillance performed on October 13, 1996, for the 2B EDG did not identify a problem with the operation of the 22SW39 valve. For the period of time from the previous surveillance test on the 2B EDG and the failure of the 22SW39 to open on November 12, 1996, Salem Unit 2 was in a defueled condition and the Unit 2 EDGs were not required to be operable. Although the manual valve operator for the SW39 valves on the Unit 1 and other Unit 2 EDGs were identified as not being in the fully withdrawn position, the monthly surveillance testing performed for these EDGs, prior to the 22SW39 failure to open, did not identify any failures of the other EDG's SW39 valves to open. Based on the above, the health and safety of the public were not affected.

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**TEXT (If more space is required, use additional copies of NRC Form 366A) (17)**

**CORRECTIVE ACTIONS**

1. PSE&G has modified the manual valve operator to prevent the inadvertent mispositioning of the SW39 valves for both Salem Units 1 and 2.
2. The spring clips were replaced on all six EDGs for Salem Unit 1 and 2.
3. A work order has been generated to replace the spring clip for valve 22SW72 prior to Unit 2 entry into Mode 3.
4. Additional corrective actions unrelated to the operability of these valves have been identified in the root cause analysis and will be tracked in accordance with PSE&G's corrective action program.

Special Reporting Requirements

The 2B EDG failure is a non-valid failure in accordance with Regulatory Guide (RG) 1.9 (component malfunctions or operating errors that did not prevent the EDG from being restarted and brought to load within a few minutes) and RG 1.108.

Technical Specification 4.8.1.1.4 states:

"All diesel generator failures, valid or non-valid, shall be reported to the Commission in a Special Report pursuant to specification 6.9.2 within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977...."

**REPORT DETAILS**

The following information is provided as specified in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977:

1. Diesel Generator unit involved: 2B
2. Number of failures in the last 100 valid tests:  
  
The 2B EDG has experienced 2 failures in the last 100 valid tests. Since this failure is a non-valid failure (test) there are no changes to these numbers.
3. The cause of the 2B EDG failure is described previously in the LER.
4. The corrective actions taken are described previously in the LER.
5. 2B EDG was returned to service immediately following the opening of the 22SW39 valve.
6. The current surveillance frequency for the 2B EDG is monthly and is not affected by this non-valid failure.