PSEG

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

Nuclear Business Unit

MAR 2 9 1999

LR-N990146

Regional Administrator
U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Gentlemen:

LICENSEE EVENT REPORT 272/99-001-00
SALEM GENERATING STATION – UNIT 1
FACILITY OPERATING LICENSE NO DPR 70
DOCKET NO. 50-272

This Licensee Event Report entitled "REACTOR SCRAM AS A RESULT OF TURBINE TRIP" is being submitted in accordance with the criteria of 10CFR50.73(a)(2)(iv)

Sincerely,

David F. Garchow
General Manager-
Salem Operations

Attachment

/JCN

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

Distribution:
LER File 3.7

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the 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 If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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SALEM GENERATING STATION UNIT 1	05000272	1 OF 3

TITLE (4)

REACTOR SCRAM AS A RESULT OF TURBINE TRIP

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
										05000
02	28	99	99	001	00	03	29	99	FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1
POWER LEVEL (10)	60

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	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)		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)	X	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
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
John C. Nagle Senior Licensing Engineer	609-339-3171

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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)**

At 1:38 AM, on February 28, 1999, the Salem Unit 1 Reactor was automatically shut down due to a Low Oil Pressure Trip of the Main Turbine. The unit was operating at 60% power prior to the shutdown and was being maintained at this power level to allow maintenance troubleshooting activities. Preparations were also being made to allow maintenance to repair a leaking Main Turbine Lube Oil Cooler. While adjusting the cooler isolation valve, the operators inadvertently positioned the valve off of its closed seat, allowing oil from the in service cooler to enter the partially drained out-of-service cooler. This diverted flow caused a momentary drop in the turbine oil pressure and resulted in the automatic shutdown of the Main Turbine and Reactor. A root cause investigation determined that the cause of this event was personnel error.

This event is being reported pursuant to §50.73(a)(2)(iv) Licensees shall report "any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)."

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Salem Generating Station Unit 1	05000272	99	- 0 01	00	2 OF 3

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor

(Main Turbine Lube Oil Cooler Swap Over Valve) {LL/ISV}*

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

CONDITIONS PRIOR TO OCCURRENCE

The unit was operating at 60% power prior to the shutdown and was being maintained at this power level to allow maintenance troubleshooting to be performed on the 12 Steam Generator Feed Pump. Preparations were also being made to allow maintenance to repair a leaking Main Turbine Lube Oil Cooler.

DESCRIPTION OF OCCURRENCE

At 1:38 AM, on February 28, 1999, the Salem Unit 1 Reactor was automatically shutdown due to a Turbine Trip. The operators were adjusting the position of a Schutte and Koerting six way valve {LL/ISV}on the main turbine lube oil system. This valve is used to select between the two available coolers and also acts as an isolation valve for the out-of-service cooler. Preparation were being made to perform maintenance on the out-of-service oil cooler. Due to excess leakage into the cooler attempts were being made to more tightly seat the TL45 valve. While adjusting the isolation valve, the operators positioned the valve partially off of its closed seat, allowing oil from the in-service cooler to enter the partially drained out-of-service cooler. This diverted flow caused a momentary drop in the turbine oil pressure and resulted in the automatic shutdown of the Main Turbine. The turbine trip caused the Reactor to trip, as designed.

The operators responded to the automatic shutdown as directed by the plant's Emergency Operating Procedures and the unit was stabilized and placed in a shutdown condition without incident.

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SALEM GENERATING STATION UNIT 1	05000272	99	0 01	00	3 OF 3

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

CAUSE OF OCCURRENCE

The cause of the shutdown was operator error. The error was attributed to mis-operation of the cooler swap-over valve. Operation of this valve is an infrequent occurrence. The operators did not know that their attempts to more tightly close the valve would result in the valve being partially moved off of the closed seat. A 4-hour report was made to the NRC as required by the plant's Emergency Classification Guide and 10CFR50.72(b)(2)(ii).

The event investigation has determined that there was a broad lack of awareness of the precise design and operation of this unique valve. The valve is equipped with two handwheels mounted one behind the other on the same axis. The outer handwheel selects the cooler and the inner handwheel seats the valve. Prior to the this event personnel believed that the inner handwheel locked and unlocked the valve position. In fact, the inner handwheel raised and lowered the valve plug (a tapered cylinder) thus seating and unseating the valve

PRIOR SIMILAR OCCURRENCES

A review of 1997 and 1998 Licensee Event Reports and Inspection Reports for Salem Units 1 and 2 did not identify any incidents where lack of knowledge of equipment design features resulted in a significant plant transient.

SAFETY CONSEQUENCES AND IMPLICATIONS

Although the turbine trip and attendant reactor shutdown have minimal safety consequences, it is not desirable to unnecessarily challenge these systems. All systems and safety features performed as designed and the unit safely shut down.

CORRECTIVE ACTIONS

Lesson plans have been revised to explicitly demonstrate the manner in which this valve functions. Operating Procedures have been revised to address the proper operation of the valve. Lessons Learned will be provided to the operating crews prior to the end of the second quarter (June 30, 1999).