



DEC 07 2000

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U. S. Nuclear Regulatory Commission
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Washington, DC 20555

LER 311/00-003-00
SALEM GENERATING STATION - UNIT 2
FACILITY OPERATING LICENSE NO. DPR-70
DOCKET NO. 50-311

Gentlemen:

This Licensee Event Report entitled "Engineered Safety Feature - Feedwater Isolation Due to High Steam Generator Level" is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv). The corrective actions cited in this LER are voluntary enhancements and do not constitute commitments.

Sincerely,

A handwritten signature in black ink that reads "D. F. Garchow".

D. F. Garchow
Vice President – Operations

Attachment

HGB

C Distribution
 LER File 3.7

IE22

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 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

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SALEM UNIT 2

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05000311

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Engineered Safety Feature - Feedwater Isolation Due to High Steam Generator Level

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	07	00	00	003	- 00	12	07	00	FACILITY NAME	DOCKET NUMBER	
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more) (11)								
4			20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)			20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)
0			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)			<input checked="" type="checkbox"/> 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)
Howard Berrick, Licensing Engineer	(856) 339-1862

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)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

At approximately 1504 hours on 7 November 2000, with Salem Unit 2 operating in Mode 4 (Hot Shutdown), Main Feedwater Regulating Valves 21 BF 19 {SJ/FCV} automatically closed on a 21 Steam Generator High-High level.

The cause of this event was human error. The Steam Generators were being fed using the Condensate pumps. Controls technicians, working on the position indication for the 21BF19 (Main Feedwater Regulating Valve to the 21 Steam Generator) {SJ/FCV} to repair erratic indication, stroked the valve full open. The operators did not adequately anticipate the impact of the work being performed or anticipate the erratic levels that would accompany the 21BF19 work. The level in 21 Steam Generator rose to the P-14 (2/3rd Level on 1 out of 4 Steam Generators) setpoint and produced an Engineered Safety Feature Actuation, a Feedwater Isolation signal

The operators promptly restored feedwater level control to steam generators. Other corrective actions included evaluation of work control during plant transition periods, the addition of licensed personnel to the control room to control the activities in progress until the end of the outage, and a re-emphasis on the requirement for face-to-face briefings. Additionally, personnel involved will be held accountable in accordance with PSE&G procedures and policies.

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(iv), required for "any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF)..." A four-hour notification was made to the NRC in accordance with 10CFR 50.72 (b)(2)(ii) on November 7, 2000 at 1655.

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

PLANT AND SYSTEM IDENTIFICATION

Westinghouse – Pressurized Water Reactor

* Energy Industry Identification System {EIS} codes and component function identifier codes appear as {SS/CCC}

CONDITIONS PRIOR TO OCCURRENCE

At time of event, Salem Unit 2 was in Mode 4 with reactor power at 0%, starting up from its 11th refueling outage. No structures, systems, or components were inoperable at the time of the occurrence that contributed to the event.

DESCRIPTION OF OCCURRENCE

At approximately 1504 hours on November 7, 2000, a feedwater isolation signal was generated due to a high level in the No. 21 Steam Generator. As a result of the feedwater isolation signal, Main Feedwater Regulating Valve 21BF19 {SJ/FCV} and feedwater isolation valves 21-24BF13 automatically closed.

ANALYSIS OF OCCURRENCE

Prior to the event, the position indicator for 21BF19 valve {SJ/FCV} had been reported acting erratically and was thought to have been repaired under order 60011199. When the problem resurfaced during plant startup, a notification was written and approved for work.

On November 7, 2000, at approximately 1400 hours, the technician contacted the Control Room requesting permission from the Reactor Operator (RO) to work the 21BF19 position indicator. The technician also stated that he would be calling back to have the RO verify the position indication. The RO concluded that the position indicator work would only affect the indication. The Control Room Supervisor (CRS-SRO licensed) was notified and provided his concurrence to perform the work. At approximately 1430 hours, the technician called the Control Room and spoke with the RO about running the position indication open and closed. After taking local control of the valve, the technician stroked the 21BF19 valve full open.

The Steam Generators were being fed by the Condensate pumps, and stroking the Main Feedwater Regulating valve full open caused the level in 21 Steam Generator to rise unexpectedly.

At approximately 1500 hours, the technician called the RO to verify position indication. A control console bezel alarm was received due to rising Steam Generator level, and the RO attempted to close 21BF19. No action could be taken from the Control Room due to the technician having local control of the 21BF19 valve.

At 1504 hours, Overhead Annunciator Alarm OHA F-7 was received due to the High-High level in 21 Steam Generator. A feed water isolation (ESF Actuation) signal was generated as a result of the high-high level and the open feedwater regulating and isolation valves went closed.

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CAUSE OF OCCURRENCE

The cause of this event was human error. The pre-job briefing did not include Operations. Therefore, questions to ensure that all the personnel understood exactly how the work would be performed, or to ensure the operators placed the plant in a condition to make the work event-free were not asked. The Unit 2 RO, and CRS did not adequately understand the work to be performed and did not adequately assess the impact on maintaining Steam Generator levels.

Additionally, with the number activities required of the RO, and with many systems in manual, not enough probing questions were asked in trying to divide his/her attention to the multiple activities in progress.

PRIOR SIMILAR OCCURRENCES

A review of 1998, 1999 and 2000 LERs for both Salem and Hope Creek identified one similar instance of personnel error resulting in an ESF actuation. Salem LER 272/98-006-00 reported an ESF actuation of the Auxiliary Feedwater pumps in Mode 4, during a return to power. This occurred as a result of human error (not adequately monitoring steam generator levels). The corrective actions for that event addressed reinforcing operating crews responsibilities and the importance of safe operations.

SAFETY CONSEQUENCES AND IMPLICATIONS

The high level in the 21 Steam Generator occurred as a result of human error and was not caused by equipment malfunction. The safety systems responded to the high steam generator level as designed.

The feedwater system responded, as required, to the feedwater isolation signal, closing the 21 Steam Generator feedwater regulating valve (21BF19) {SJ/FCV} and the feedwater isolation valves for each steam generator (21-24BF13) during a design basis accident. The ESF Actuation on the 21 Steam Generator high-high level setpoint caused the closure of the 21BF19, which terminated the event, as well as the closure of the 21-24BF13 Feedwater Isolation valves and the 21-24BF40's (feedwater regulating bypass valves). The 21 Steam Generator level rose from 39.5% to 72.9% (Narrow Range) and RCS temperature was reduced from 335.1°F to 328.3°F over the same span of time. RCS pressure, Steam Generator pressure and Pressurizer level dropped slightly as expected from the cooldown caused by the rapid rise in condensate flow. Since the plant was in Mode 4, the 22-24BF19 valves were already closed and the main turbine was out of service. There were no safety consequences or implications associated with this event.

A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02 did not occur.

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CORRECTIVE ACTIONS

1. The operators promptly established feedwater to all steam generators and restored proper water levels.
2. Additional licensed personnel were added to control room to better control the amount of activities that were in progress until the end of the outage.
3. The work control procedures were evaluated for possible revisions to tighten control of work during plant transition periods. No work control procedural revisions were identified in this matter.
4. The requirement for face-to-face briefings was re-emphasized. Reinforcement for operating shift personnel of the standard for a face-to-face job briefing was placed in the night order book. All personnel involved have been held accountable in accordance with PSE&Gs procedures and policies.

COMMITMENTS

The corrective actions cited in this LER are voluntary enhancements and do not constitute commitments.