

Virginia Electric and Power Company
Surry Power Station
P. O. Box 315
Surry, Virginia 23883

January 14, 1991

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

Serial No.: 91-019
Docket No.: 50-280
License No.: DPR-32

Gentlemen:

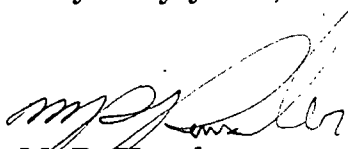
Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report for Unit 1.

REPORT NUMBER

90-019-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be reviewed by Corporate Nuclear Safety.

Very truly yours,



M. R. Kansler
Station Manager

Enclosure

cc: Regional Administrator
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323



EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Surry Power Station, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 8 0										PAGE (3) 1 OF 4																																																												
TITLE (4) All Six Main Feedwater Flow Transmitters Rendered Inoperable as a Result of Failure to Follow Procedures During Performance of a Hydrostatic Test																																																																																
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 NAMES												DOCKET NUMBER(S)																																									
1			2			1			8			9			0			9			0			0			1			9			0			0			0			1			1			4			9			1															0 5 0 0 0											
OPERATING MODE (9) N									THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																																																																							
POWER LEVEL (10) 0 0 0									20.402(b)									20.405(c)									50.73(a)(2)(iv)									73.71(b)																																												
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NAME M. R. Kansler, Station Manager																				TELEPHONE NUMBER AREA CODE 8 0 4 3 5 7 - 3 1 8 4																																																												
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																																																
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On December 18, 1990, with Unit 1 critical at 1×10^{-7} amperes Intermediate Range power indication following a refueling outage, Control Room Operators noted that one of two redundant Main Feedwater flow channels for the "A" Steam Generator was indicating approximately 0.5 million lbs. mass/hr. feedwater flow while indicated flow should have been zero. Instrument Technicians dispatched to investigate the indication found all six Main Feedwater flow transmitters isolated, equalized, and drained. A six hour Limiting Condition for Operation (LCO) was entered at 2040 hours in accordance with Technical Specifications. The transmitters were returned to service at 2131 hours and the LCO terminated. This event had no safety consequences since the protective function provided by the feedwater flow transmitters (reactor trip on low steam generator level with steam/feedwater flow mismatch) would still have been performed. The cause of the event was personnel error by a Virginia Power Test Engineer who failed to follow certain procedure requirements during performance of a hydrostatic test. Instrument Technicians verified that other safety related secondary instrumentation was correctly lined up. A station policy will be issued regarding who is responsible for performing valve manipulations. A Root Cause Evaluation is in progress, and additional corrective action will be implemented as found necessary. This report is required by 10CFR50.73(a)(2)(vii)(A).

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Surry Power Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 0	LER NUMBER (6)			PAGE (3)		
		YEAR 9 0	SEQUENTIAL NUMBER — 0 1 9 —	REVISION NUMBER 0 0	0 2 OF 0 4		

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

1.0 DESCRIPTION OF THE EVENT

On December 18, 1990, a Surry Unit 1 startup was in progress following a scheduled refueling outage. With Unit 1 critical at 1×10^{-7} amperes Intermediate Range power indication, Control Room Operators noted that one of the two Main Feedwater flow channels (EIIS-SJ, CHA) for the "A" Steam Generator was indicating approximately 0.5 million lbs./hr. feedwater flow while indicated flow should have been zero.

Instrument Technicians were dispatched to investigate the anomalous indication. At 2040 hours, the technicians discovered that all six (two independent channels measure flow to each of three steam generators) Main Feedwater flow transmitters (EIIS-PT) were isolated, equalized, and drained at their respective transmitter racks. This condition rendered the instruments incapable of providing Main Feedwater flow signals. All six flow channels were declared inoperable at this time.

These Main Feedwater flow transmitters provide input signals to the reactor trip on low steam generator water level in coincidence with steam/feedwater flow mismatch. Technical Specification 3.7.B.1 requires that either of the following minimum combinations of process instrumentation be operable to perform this function:

- One steam generator narrow range level channel and two steam/feedwater flow mismatch channels per steam generator, or
- Two steam generator narrow range level channels and one steam/feedwater flow mismatch channel per steam generator.

With all six Main Feedwater flow channels inoperable, a six hour Limiting Condition for Operation (LCO) was entered at 2040 hours in accordance with Action 7.B of Technical Specification Table 3.7-1, since the number of operable channels was one less (per steam generator) than the minimum channels operable requirement.

Instrument Technicians returned the transmitters to service at 2131 hours, and the six hour LCO was terminated.

This report is required by 10CFR50.73(a)(2)(vii)(A) since a single condition caused multiple independent channels to become inoperable in a single system designed to shut down the reactor.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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FACILITY NAME (1)

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

2.0 SAFETY CONSEQUENCES AND IMPLICATIONS

The reactor trip signal on low steam generator water level in coincidence with steam/feedwater flow mismatch provides protection against an anticipated sudden loss of normal feedwater. This anticipatory trip function is designed to preserve the steam generator heat sink for removal of long-term residual heat. A reactor trip signal is generated when the following signals are present for any one steam generator:

- a. One of two feedwater flow channels less than steam flow by more than 709,000 lbs. mass/hr., and
- b. One of two steam generator narrow range water level channels less than 20%.

With the feedwater flow transmitters isolated, equalized, and drained, no feedwater flow indication would have been generated as feedwater flow to the steam generators was established. With the transmitters isolated, however, the steam/feedwater flow mismatch input to the trip logic could still have been satisfied. The steam flow transmitters were operable, and, as steam flow increased, the required flow mismatch setpoint would have been reached. The steam generator narrow range water level channels were also operable, and the required trip logic would have been satisfied if any steam generator level were to decrease to less than 20%.

Additionally, the steam generator low-low level reactor trip (two of three steam generator narrow range level channels less than 17% in any steam generator) remained operable to provide protection against a loss of normal feedwater.

Since the required protective function would still have been performed, there were no actual or potential consequences to the health and safety of the public.

3.0 CAUSE OF THE EVENT

The root cause of the event was personnel error involving a failure to adhere to procedural requirements governing valve alignments and restorations during hydrostatic testing. On December 4 through December 7, 1990, hydrostatic testing of the Main Feedwater system was conducted following system maintenance and modifications during the Unit 1 refueling outage. During a pre-test walkdown to verify system valve lineup, a Virginia Power Test Engineer isolated and equalized the

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

Main Feedwater flow transmitters. These transmitters were outside the test boundary; however, past experience indicated that the test boundary valves could leak, hence, the transmitters were isolated as a precaution against possible overpressurization. This evolution was not conducted in compliance with the hydrostatic test procedure, TMP-7. The procedure requires that all valve realignments be recorded on procedure attachments and that the Shift Supervisor approve the isolation and restoration. The transmitter isolation valves were not added to the attachment nor was the Shift Supervisor's approval requested.

4.0 IMMEDIATE CORRECTIVE ACTION(S)

The affected feedwater flow channels were declared inoperable, and an LCO to place the unit in hot shutdown within six hours was entered at 2040 hours in accordance with Technical Specification 3.7, Table 3.7-1, Action 7.B. Instrument Technicians returned the transmitters to service at 2131 hours, and the six hour LCO was terminated.

5.0 ADDITIONAL CORRECTIVE ACTION(S)

Instrument Technicians verified correct valve lineups for other safety-related secondary plant instrumentation.

6.0 ACTIONS TO PREVENT RECURRENCE

A Root Cause Evaluation is being performed and corrective actions will be implemented as found necessary.

The station policy regarding who is responsible for performing valve manipulations will be reviewed and clarified or reinforced as needed.

The Station Manager and Assistant Station Managers are currently participating in General Employee Training sessions to emphasize to all employees the need for procedural compliance.

7.0 SIMILAR EVENTS

LER 281/81-083: During a Unit 2 startup following a refueling outage, one main steam flow transmitter on each of the "A" and "B" Main Steam Lines was found isolated.

LER 281/80-011: During a Unit 2 startup following a refueling and steam generator replacement outage, all six main steam flow transmitters were found to be isolated with their fuses removed.

8.0 MANUFACTURER/MODEL NUMBER

N/A