



Carolina Power & Light Company

Brunswick Nuclear Project  
P. O. Box 10429  
Southport, N.C. 28461-0429

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 1 AND 2  
DOCKET NO. 50-325 AND 50-324  
LICENSE NO. DRP-71 AND DPR-62  
LICENSEE EVENT REPORT 2-92-008

Gentlemen:

In accordance with Title 10 of the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is submitted in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,

J. M. Brown, Plant Manager Unit 2  
Brunswick Nuclear Project

GMT/qmt

230107

Enclosure

cc: Mr. S. D. Ebnetter  
Mr. R. H. Lo  
Mr. R. L. Prevatte

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION  
COLLECTION REQUEST: 4.0 HRS. FORWARD COMMENTS REGARDING  
BURDEN ESTIMATE TO THE REGIONAL AND REPORTS MANAGEMENT BRANCH  
(9-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555,  
AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF  
MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

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OTHER FACILITIES INVOLVED (8)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 30.8 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)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)
Brunswick Steam Electric Plant Unit 2	05000324	YEAR  92		SEQ NO.  008	REV NO.  0	2

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

## **TITLE**

Failure to Meet Tech Spec Required Number of Operable NSW Pumps Due to Through-Wall Leakage of Piping Off of Nuclear Header to Diesel Generators

## **INITIAL CONDITIONS**

Units 1 and 2 were in Cold Shutdown (0% power, Operating Condition 4) for a maintenance outage. Nuclear Service Water (NSW) Pump 1A was inoperable because Emergency Diesel Generator (EDG) #1 was under clearance for maintenance work. The diesel generators had been declared inoperable due to work on the walls of the EDG building.

## **EVENT NARRATIVE**

On October 19, 1992, a through-wall leak developed on the Unit 2 Diesel Generator Jacket Water Cooler Service Water Supply Line. Consequently, the Unit 2 flow path supply to the diesel generators was declared inoperable. The 2A and 2B nuclear service water pumps consequently could not perform their required function and were declared inoperable (but available). Additionally, Diesel Generator #1 was under clearance for maintenance work, resulting in NSW Pump 1A being in inoperable status, and only one NSW pump (NSW Pump 1B) being available.

Technical Specification 3.7.1.2, Action b requires that, in Operating Conditions 4 and 5 with less than two operable site nuclear service water pumps, the diesel generators be declared inoperable and the action required by Technical Specification 3.8.1.2 be taken. Technical Specification 3.8.1.2 requires that with less than the minimum required AC electrical power services operable, all operations involving irradiated fuel handling, core alterations, positive reactivity changes, or operations that have the potential of draining the reactor vessel be suspended.

Since less than the required number of NSW pumps were available as a result of this event, the actions in Technical Specification 3.8.1.2 were appropriate; however, in this instance the actions required by Technical Specification 3.8.1.2 had already been taken because the diesel generators had previously been declared inoperable due to work on the walls of the EDG building.

The weepage identified by Operations personnel on October 19, 1992 initially appeared to be at two locations through the lagging (fire coating) on line 2-SW-29 18-157: approximately 5 feet upstream of the 2-inch nipple at Valve 2-SW-V256 and approximately 18 inches downstream of the 18-inch flange located downstream of Valve 2-SW-V255. A work request/job order was written to investigate the problem and a tracking LCO was established.

On October 20, 1992, the fire coating was removed from the 18-inch pipe at the two identified locations. A 120 dpm (approximately 1/2 to 1 ppm) through-wall leak was found downstream of the flange. No leak was identified near the nipple. Due to the amount of spray resulting from the leak, the pipe could not be properly flapped to create an acceptable UT surface. Therefore, the decision was made to install a soft patch and clamp to mitigate the effects of the spray.

Grids were made to include areas extending approximately 2 feet on each side of the soft patch and UTs were performed. Except in the location of the through-wall leak, no areas below nominal wall thicknesses were identified. UT examinations were also performed in the area approximately five feet from the two-inch nipple at the field weld.

**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-500), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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Brunswick Steam Electric Plant Unit 2	05000324	92	008		0	3

TEXT (If more space is required, use additional NRC Form 306A's) (17)

No areas below the nominal wall thicknesses were identified as a result of these examinations.

On October 21, 1992, it was determined that in order to prepare the line for further UT examination or internal inspection, the entire Unit 2 SW supply line would need to be drained, making the line inoperable and unavailable. Based on the existing configuration and operability status of the service water system and of the diesel generators, it was decided to declare the line inoperable (but available for use), and to proceed with a permanent repair (spool piece replacement) after repair work on DG #1 is completed. Active LCOs A2-92-1198 and A1-92-1197 were established.

**CAUSE OF EVENT**

The cause of this event was a degraded pipe lining which resulted in pipe failure. The 18-inch pipe, downstream of the flange is cement-lined carbon steel. A failure of the cement lining allowed for erosion/corrosion of the carbon steel at an isolated location, resulting in the through-wall leak.

The degradation of the cement lining allowed the salt water to corrode the carbon steel pipe. The UT examination results indicate that the failure is isolated. UT examinations were performed on an area on each side of the through-wall leak and no significant wall thinning was identified. In the same band as the through wall-leak, two sections were found to be thin (less than 1/2 inch wall thickness). No other areas below nominal wall thickness were found. The exact reason for this particular failure is indeterminate; however, it is plausible that the cement was chipped when the flange was installed as part of the upstream piping replacement. The remaining carbon steel, cement-lined pipe is scheduled for replacement with CuNi, under Plant Modifications 92-047, 91-070, 91-071, and 91-072.

The Unit 2 18-inch DG SW piping was video inspected and cleaned during the 1991 Unit 2 Refueling Outage. Minor rust plumes were noted in the area where the through-wall leak occurred; however, these rust plumes were not considered significant, based on experience. Other areas of piping that were video inspected did not reveal rust plumes.

**CORRECTIVE ACTIONS**

The flange and piping upstream are CuNi, installed in 1985. A permanent code repair to the pipe through-wall leak on line 2-SW-29-18-157 has been scheduled to be completed prior to the end of Unit 2 Refueling Outage No. 11 (B212R1) (WR/JO 92-BCHD1)). BNP personnel will perform UT inspections of other susceptible locations on the 18-inch carbon steel cement-lined header. Installation and implementation of CuNi replacement piping for the existing cement-lined carbon steel pipe in the SW supply and discharge lines to the emergency diesel generators for both Unit 1 and Unit 2 is scheduled to be completed prior to the end of Unit 1 Refueling Outage No. 10 (B111R1).

The examinations performed on inaccessible piping modifications will place more emphasis on non-destructive examination of suspect areas in video-taped inaccessible piping for future SW inspection/repair plant modifications. This will be accomplished prior to the associated outage for each SW inspection/repair modification as follows: Unit 1 Nuclear SW Header - Unit 1 Refueling Outage No. 8 (B109); Unit 2 Nuclear SW Header - Unit 2 Refueling Outage No. 10 (B211); Unit 1 Conventional SW Header - Unit 1 Refueling Outage No. 9 (B110); Unit 2 Conventional SW Header - Unit 2 Refueling Outage No. 11 (B212).

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

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

## **SAFETY ASSESSMENT**

Based on the results of UT examinations, this appears to be an isolated event. UT examinations performed on an area on each side of the area in the SW piping where the through-wall leakage occurred indicate no significant wall thinning. Both units were in Cold Shutdown (Operating Condition 4, 0% power) when this event occurred. The actions required by Technical Specification 3.8.1.2, which would have resulted from the inoperability of the Unit 2 SW flow path to the diesel generators, had already been taken as a result of the DGs being declared inoperable due to work on the walls of the EDG building. Consequently, this event is considered to be of minimal safety significance.

## **PREVIOUS SIMILAR EVENTS**

None identified.

## **EIIS COMPONENT IDENTIFICATION**

### System/Component

### EIIS Code

Essential Service Water System  
2-SW-2-18-157

BI  
PSP