



Progress Energy

MAR 04 2004

SERIAL: BSEP 04-0028

10 CFR 50.73

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Licensee Event Report 1-2004-001

Ladies and Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC) submits the enclosed Licensee Event Report. This report fulfills the requirement for a written report within sixty (60) days of a reportable occurrence.

Please refer any questions regarding this submittal to Mr. Edward T. O'Neil, Manager – Support Services, at (910) 457-3512.

Sincerely,

David H. Hinds
Plant General Manager
Brunswick Steam Electric Plant

SFT/sft

JE22

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Enclosure:

Licensee Event Report 1-2004-001

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II
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Ms. Jo A. Sanford
Chair - North Carolina Utilities Commission
P.O. Box 29510
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1. FACILITY NAME: Brunswick Steam Electric Plant (BSEP), Unit 1
 2. DOCKET NUMBER: 05000325
 3. PAGE: 1 OF 5

4. TITLE: Emergency Diesel Generator No. 3 Condition Prohibited by the Technical Specifications

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	04	2004	2004	-- 001 --	00	03	04	2004	BSEP, Unit 2	05000324
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	10. POWER LEVEL	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more)								
1	93	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)					
		20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)					
		20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)					
		20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)					
		20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)						
		20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)						
		20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(vii)						
		20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)						
		20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)						

12. LICENSEE CONTACT FOR THIS LER
 NAME: Steven F. Tabor, Lead Engineering Technical Support Specialist
 TELEPHONE NUMBER (include Area Code): (910) 457-2178

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	EK	CPLG	Nordberg	Y					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		MO	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO						

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)
 On January 4, 2004, while performing the Emergency Diesel Generator (EDG) No. 3 monthly load test, a jacket water system piping leak of sufficient quantity to render EDG No. 3 inoperable was identified. As part of the investigation into this condition a past operability review was performed. The results of this review indicate that (1) a jacket water system pipe coupling was improperly installed during a coupling gasket replacement activity performed on February 3, 2003, and (2) tightening of the improperly installed coupling on December 8, 2003, resulted in excessive further misalignment of the coupling which impacted EDG operability until the misalignment was identified on January 4, 2004. The cause of the condition is attributed to missing pipe supports which resulted in an inadequate pipe coupling alignment. Failure to perform a functional verification following coupling maintenance on December 8, 2003, is considered a contributing cause. This condition is reportable in accordance with the 10 CFR 50.73(a)(2)(i)(B), as operation prohibited by the plant's Technical Specifications (TS), in that the EDG was inoperable for a period of time greater than that allowed by the TS. By January 7, 2004, the EDG No. 3 jacket water piping configuration was restored to the as-designed condition, satisfactorily tested, and the EDG returned to service. Additional corrective actions include inspection of the other EDGs for similar jacket water configuration concerns and reinforcement of minor maintenance functional verification requirements with maintenance personnel. Previous reportable occurrences involving either the inoperability of the EDGs or degraded conditions resulting from maintenance activities within the last two years were not identified.

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FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Brunswick Steam Electric Plant (BSEP), Unit 1	05000325	2004	-- 001	-- 00	2 OF 5

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

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT DESCRIPTION

On January 4, 2004, with Units 1 and 2 operating at 93 and 96 percent power, respectively, periodic test OPT-12.2C, "No. 3 Diesel Generator Monthly Load Test," was initiated. During the test, a jacket water system [LB] piping leak with an estimated flow rate of one gallon per minute (gpm) was identified. The demineralized water system [KC] supplies normal makeup to the Emergency Diesel Generator (EDG) [EK] jacket water system. In the event of a Loss of Offsite Power (LOOP), the demineralized water system pumps are inoperable, by design. It has been determined that the volume of the identified leak rendered EDG No. 3 inoperable due to insufficient jacket water cooling under LOOP conditions. Based on this determination, EDG No. 3 was declared inoperable on January 5, 2004, and the required actions delineated in the Units 1 and 2 Technical Specification (TS) 3.8.1, "AC Sources-Operating," for one EDG inoperable were implemented.

As part of the investigation into this condition, a past operability review was performed. The results of this review indicate that (1) a jacket water system pipe coupling [LB/CPLG] was improperly installed during a coupling gasket replacement activity performed on February 3, 2003, and (2) tightening of the improperly installed coupling on December 8, 2003, resulted in coupling leakage at a rate which impacted EDG operability until the leak was identified on January 4, 2004. Since EDG No. 3 was inoperable for approximately 28 days, which exceeds the seven day Allowed Outage Time of TS 3.8.1, this condition is reportable in accordance with the 10 CFR 50.73(a)(2)(i)(B) as operation prohibited by the plant's TS.

EVENT CAUSE

The cause of the identified condition is attributed to missing pipe supports which resulted in an inadequate pipe coupling configuration. Failure to perform a functional verification following coupling maintenance is considered a contributing cause. The following discussion supports this determination.

On February 3, 2003, the rubber gaskets in the two inch dresser coupling installed on the piping that supplies jacket water to the turbine side of the EDG No. 3 turbocharger were replaced in accordance with the maintenance work management process. Post-maintenance testing verified that there was no leakage from the repaired coupling. Over the next 10 months, the engine was started numerous times to support routine testing requirements with no documented evidence of leakage at this connection.

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

On December 7, 2003, during performance of OPT-12.2C, the dresser coupling previously repaired on February 3, 2003, was observed leaking at an initial leak rate of approximately 0.5 gpm and slowing to about 40 drops per minute by approximately 35 minutes into the run. Assessment of the impact of the leak determined that the EDG remained operable. A maintenance work request was initiated to address the coupling leak, the load test was completed satisfactorily, and the EDG returned to service.

On December 8, 2003, the leaking dresser coupling was tightened in accordance with the minor maintenance process. Procedure ADM-NGGC-0104, "Work Management Process," specifies criteria for the use of the minor maintenance process and allows for the relaxation of specific administrative requirements such as the level of documentation required for minor maintenance work. ADM-NGGC-0104 indicates that a functional verification is needed when minor maintenance work is performed. An adequate functional verification would have involved a leak check of the system at system operating pressure following tightening of the coupling. A leak check with the jacket water system pressurized to normal operating pressure was not performed following completion of the maintenance activity. The lack of a functional verification following the December 8, 2003, maintenance activity prevented timely detection of the leak.

During the next scheduled operation of EDG No. 3, on January 4, 2004, the subject dresser coupling was observed leaking at a sufficient quantity to render the EDG inoperable. On January 5, 2004, repair of the degraded coupling was initiated. The coupling was disassembled and the rubber gaskets removed for inspection. The condition of the coupling internals indicated (1) the dresser coupling had moved apart sometime during or after installation on February 3, 2003, resulting in a lack of full pipe engagement within the coupling and (2) the maintenance performed on December 8, 2003, most likely exacerbated the condition; the gasket appeared to be further misaligned as a result of tightening the coupling.

During the performance of the corrective maintenance activity initiated on January 5, 2004, it was also observed that two pipe supports, originally installed on the jacket water piping to the turbocharger, were missing. The missing supports are considered an historical condition, and as such, determination of the cause of the condition was not pursued. Had the supports been properly installed, the piping would have been in the proper configuration and the dresser coupling could not have failed in the manner observed.

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FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

CORRECTIVE ACTIONS

1. The EDG No. 3 jacket water system degraded dresser coupling was replaced, missing pipe supports installed in accordance with original design requirements, the associated piping satisfactorily leak tested, and the EDG returned to service by January 7, 2004.
2. Inspections of EDG Nos. 1, 2, and 4 jacket water system pipe supports were performed and identified that one of the required supports was missing from EDG No. 1. The impact of the missing supports on EDG Nos. 1 and 3 were evaluated and determined not to be an operability concern. A support will be installed on EDG No. 1 in accordance with the work management scheduling process. No concerns were identified with EDG Nos. 2 and 4 jacket water piping support configurations during these inspections.
3. A review of the lessons learned from this occurrence has been performed with mechanical maintenance personnel.
4. Minor maintenance process requirements and expectations have been reviewed with electrical and mechanical maintenance personnel to stress the importance of performing a functional verification following the completion of minor maintenance work.

SAFETY ASSESSMENT

The safety significance of this occurrence is considered minimal. To support the past operability evaluation performed for this occurrence, engineering analyses were completed to address (1) the impact of the missing pipe supports on the structural and seismic integrity of EDG No. 3 jacket water system and (2) assess the capability to provide makeup water to the EDG No. 3 jacket water system with the degraded dresser coupling configuration and resultant one gpm leak rate during applicable design basis accident scenarios. The results of the structural analysis indicate that the missing supports and pipe misalignment had no impact on EDG No. 3 operability.

The period of concern associated with the degraded coupling is from December 8, 2003, until January 4, 2004, when the EDG was inoperable. With the exception of approximately 37.5 hours during this period, sufficient head pressure created by the elevation difference between the demineralized water storage tank and the EDG No. 3 jacket water tank fill nozzle ensured that adequate demineralized water inventory and flow capability existed to makeup the loss of the calculated leak rate (i.e., approximately one gpm) and, thereby, ensure EDG availability. Operator action would be required to establish this source of jacket water makeup. As part of normal response to any EDG start an operator is dispatched to the EDG building to monitor and ensure EDG operation. In this case, visible leakage and/or abnormal condition local annunciation would alert the operator to the loss of jacket water inventory. The applicable annunciator response procedure directs the operator to fill the jacket water expansion tank as the first action in response to such an alarm. Operators are trained on filling the tank and the associated action is a simple one step evolution. This step would be executed in sufficient time to preclude adverse impact to engine performance.

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Additional mitigating actions to provide jacket water makeup and to stop the leak could be implemented by Operations and Maintenance personnel. Other water supply sources are available within the EDG cell to provide jacket water makeup such as the fire protection hose station and nuclear service water system piping. In addition, a water activated resin impregnated gauze leak stop material, which has a cure time of approximately 30 minutes and has proven to be an effective leak stop repair, could be simply wrapped around the leaking coupling. Although not proceduralized, these actions could have been taken to maintain the EDG available.

PREVIOUS SIMILAR EVENTS

Previous reportable occurrences involving either the inoperability of the EDGs or degraded conditions resulting from maintenance activities within the last two years were not identified.

COMMITMENTS

None