



Carolina Power & Light Company
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MAY 19 1995

SERIAL: BSEP-95-0231
10 CFR 50.73

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 1
DOCKET NO. 50-325/LICENSE NO. DRP-71
LICENSEE EVENT REPORT 1-95-005

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Part 50.73, Carolina Power & Light Company submits the enclosed Licensee Event Report. 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.

Please refer any questions regarding this submittal to Mr. M. A. Turkal at (910) 457-3066.

Very truly yours,

J. Cowan, Director-Site Operations
Brunswick Nuclear Plant

JC/jfm

Enclosures

1. Licensee Event Report
2. Summary of Commitments

cc: Mr. S. D. Ebnetter, Regional Administrator, Region II
Mr. D. C. Trimble, NRR Project Manager (Acting) - Brunswick Units 1 and 2
Mr. C. A. Patterson, Brunswick NRC Senior Resident Inspector
The Honorable H. Wells, Chairman - North Carolina Utilities Commission

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EXPIRES: 5/31/95

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 INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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.

FACILITY NAME (1)

Brunswick Steam Electric Plant, Unit 1

DOCKET NUMBER (2)

05000325

PAGE (3)

1 of 4

TITLE (4)

UNPLANNED ENGINEERED SAFETY FEATURE (ESF) ACTUATION DUE TO REACTOR BUILDING VENTILATION EXHAUST RADIATION MONITOR POWER SUPPLY FAILURE

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
04	19	95	95	- 05 -	00	05	18	95	FACILITY NAME	DOCKET NUMBER
										05000
										05000

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following)(11)							
POWER LEVEL (10)	0	20.402(b)		20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)		73.71(b)	
		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract and Text)	
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)			
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME

Jeanne F. McGowan, Regulatory Affairs Specialist

TELEPHONE NUMBER

(910) 457-2136

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs

SUPPLEMENTAL REPORT EXPECTED (14)

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

ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

On April 19, 1995, Unit 1 was defueled. At 0823 hours, the power supply for the Channel B Reactor Building Ventilation Exhaust Radiation Monitor failed resulting in a partial isolation of the Containment Atmospheric Control (CAC) System, a Secondary Containment Isolation and an initiation of the Standby Gas Treatment (SBGT) System. A ground terminal pressing against a wire connection to the power supply circuit board caused a short which resulted in a failure of the Channel B Reactor Building Ventilation Exhaust Radiation Monitor power supply. This event was caused by the mis-orientation of a ground terminal in the Reactor Building Ventilation Exhaust Radiation Monitor power supply. Corrective actions include ensuring the proper orientation of the ground terminal in installed and spare Reactor Building Ventilation Exhaust Radiation Monitor power supplies.

The safety significance of this event was minimal. The affected systems functioned as required on the signal from the Reactor Building Ventilation Exhaust Radiation Monitor. The reactor was defueled and no core alterations were in progress. Secondary containment was not required to be operable.

The cause classification for this event per the criteria of NUREG-1022 is design.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Brunswick Steam Electric Plant Unit 1		05000325	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
			95	- 05 -	00	

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

TITLE

UNPLANNED ENGINEERED SAFETY FEATURE (ESF) ACTUATION DUE TO REACTOR BUILDING VENTILATION EXHAUST RADIATION MONITOR POWER SUPPLY FAILURE

INITIAL CONDITIONS

On April 19, 1995, Unit 1 was defueled to support the ongoing refuel outage. Several Containment Atmospheric Control (CAC) System isolation valves were being maintained in the closed position or under equipment clearance to support outage related activities.

EVENT NARRATIVE

At 0823, Operations received the Process Reactor Building Ventilation Radiation High annunciator, the Process Reactor Building Ventilation Radiation High High annunciator, and a Primary Containment Isolation System (PCIS) Group 6B isolation. The Reactor Building Exhaust and Supply Dampers closed and the ventilation fans tripped. The following Group 6B valves closed: CAC-V10 (Outboard Drywell Purge Exhaust Valve), CAC-V15 (Primary Containment Purge Air Inlet Valve), CAC-SV-1262 (CAC-AT-1262 Outboard Sample Inlet Valve), CAC-SV-3439 (CAC-AT-1262 Outboard Sample Return Valve), and CAC-SV-3440 (Outboard Common Sample Return Valve for CAC-1260 and 1261). The other Group 6B valves were already closed or under equipment clearance. The Standby Gas Treatment System auto started as expected.

Initial investigations revealed that the Channel B Reactor Building Ventilation Exhaust Radiation Monitor had lost power. During trouble shooting it was discovered that the Channel B Reactor Building Ventilation Exhaust Radiation Monitor power supply had failed. The failed power supply was replaced and the Channel B Reactor Building Ventilation Exhaust Radiation Monitor was restored to operation at 1000 hours. The PCIS Group 6B isolation was reset, the normal reactor building ventilation was restored, and the Standby Gas Treatment System was secured.

Examination of the failed power supply revealed that a ground terminal was oriented perpendicular to the power supply circuit board. This perpendicular orientation allowed the terminal to press against a wire that was connected to the circuit board. The ground terminal was pressed against the wire covering and/or rosin (solder flux residue). During operation, while the board was energized, the increased temperature caused the wire covering and/or rosin to soften sufficiently to allow the ground terminal to contact the bare wire and resulted in the shorting out of the drive for the high voltage section of the power supply and cause a loss of power to the radiation monitor.

The exact time frame when the ground terminal was oriented perpendicular to the circuit board in this terminal board cannot be determined because the power supply was a non-Q item prior to October 1994. The power supply which failed in April was installed in the plant after it had been upgraded to Q-class in October 1994. No repairs were made to this power supply when it was installed but, based on inspection, it is apparent that work has been performed on the power supply in the past. However, since the power supply was non-Q prior to October 1994, it cannot be determined if it was sent to the vendor for repair or if the repair was performed on-site. If a non-Q item is sent off-site for repair, the purchase order used to request the repair is discarded when the

EXPIRES: 5/31/95

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Brunswick Steam Electric Plant Unit 1	05000325	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 of 4
		95	- 05 -	00	

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

non-Q item is returned. However, for Q items, the purchase orders for repair are maintained. If the non-Q power supply was repaired on-site, the work would have been performed via a generic work order. This generic work order for non-Q items is mainly used for time keeping purposes and parts issue and does not contain specific repair instructions.

The technical manual for the Reactor Building Ventilation Radiation Monitor power supplies does not specifically address this ground terminal. There are two drawings in the technical manual which show the orientation of the ground terminal. The drawings are inconsistent, one showing the ground terminal parallel to the circuit board; the other showing the ground terminal perpendicular to the circuit board. The power supplies used for the Area Radiation Monitoring System are the same as those used for the Reactor Building Ventilation Exhaust Radiation Monitors. The technical manual drawing for these power supplies are also inconsistent, one showing the ground terminal parallel to the circuit board; the other showing the ground terminal perpendicular to the circuit board. The power supplies for the Area Radiation Monitoring System have been in service for several years with no known failures.

CAUSE OF EVENT

This event was caused by the mis-orientation of a ground terminal in the Reactor Building Ventilation Exhaust Radiation Monitor power supply. This mis-orientation allowed the ground terminal to press against a wire connected to the power supply circuit board and short out the drive to the high voltage section of the power supply.

CORRECTIVE ACTIONS

1. The orientation of the ground terminal in spare Reactor Building Ventilation Exhaust Radiation Monitor power supplies have been checked to ensure proper orientation and discrepancies corrected.
2. The orientation of the ground terminal in Unit 1 Reactor Building Ventilation Exhaust Radiation Monitor power supplies has been checked to ensure proper orientation.
3. The orientation of the ground terminal in Unit 2 Reactor Building Ventilation Exhaust Radiation Monitor power supplies will be checked during the next refueling outage to ensure proper orientation.
4. An Engineering Service Request (ESR) has been initiated to change the technical manual drawings to show the ground terminal oriented correctly and to add a note addressing the significance of the ground terminal orientation.
5. The orientation of the ground terminals in the power supplies for the Unit 1 and 2 Area Radiation Monitoring System will be checked during the next scheduled calibration to ensure proper orientation.
6. Contact the vendor on the following:
 - The lack of information in the technical manuals on the importance of the ground terminal orientation.
 - The inconsistencies between technical manual drawings showing ground

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Brunswick Steam Electric Plant Unit 1	05000325	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 of 4
		95	- 05 -	00	

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

terminal orientation.

Power supply assembly practices concerning orientation of the ground terminal.

7. Revise the plant Supply Inventory System (SIS) comment screen for the power supply to include note on the orientation of the ground terminal.

SAFETY ASSESSMENT

The safety significance of this event is minimal. The affected systems functioned as designed on the invalid signal from the Reactor Building Ventilation Exhaust Radiation Monitor. The reactor was defueled and no core alterations were in progress. Secondary containment was not required to be operable.

PREVIOUS SIMILAR EVENTS

None

EIIS COMPONENT IDENTIFICATION

<u>System/Component</u>	<u>EIIS Code</u>
Reactor Building Ventilation Exhaust Radiation Monitor	45
Containment Atmospheric Control	IK
Secondary Containment Isolation System	JM
Standby Gas Treatment System	BH

Enclosure
List of Regulatory Commitments

The following table identifies those actions committed to by Carolina Power & Light Company in this document. Any other actions discussed in the submittal represent intended or planned actions by Carolina Power & Light Company. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager-Regulatory Affairs at the Brunswick Nuclear Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. Check the orientation of the ground terminal in spare Reactor Building Ventilation Exhaust Radiation Monitor power supplies to ensure proper orientation and correct discrepancies.	Complete
2. Check the orientation of the ground terminal in Unit 1 Reactor Building Ventilation Exhaust Radiation Monitor power supplies to ensure proper orientation.	Complete
3. Check the orientation of the ground terminal in Unit 2 Reactor Building Ventilation Exhaust Radiation Monitor power supplies during the next refueling outage to ensure proper orientation.	B212R1
4. Change the Technical Manual drawing showing the ground terminal perpendicular to the circuit board to show the ground terminal oriented correctly and add a note addressing the significance of the ground terminal orientation.	06/15/95
5.a The orientation of the ground terminals in the power supplies for the Unit 1 Area Radiation Monitoring System will be checked during the next scheduled calibration to ensure proper orientation.	07/22/96
5.b The orientation of the ground terminals in the power supplies for the Unit 2 Area Radiation Monitoring System will be checked during the next scheduled calibration to ensure proper orientation.	01/26/97
6. Contact the vendor on the following: · The lack of information in the technical manuals on the importance of the ground terminal orientation. · The inconsistencies between technical manual drawings showing ground terminal orientation. · Power supply assembly practices concerning orientation of the ground terminal.	Complete
7. Revise the Supply Inventory System (SIS) comment screen for the power supply to include note on the orientation of the ground terminal.	Complete