CP&L
Carolina Power & Light Company
Brunswick Nuclear Project
P. O. Box 10429
Southport, NC 28461-0429
March 23, 1990

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

BRUNSWICK STEAM ELECTRIC PLANT UNIT 2
DOCKET NO. 50-324
LICENSE NO. DPR-62
LICENSEE EVENT REPORT 2-90-002

Gentlemen:

In accordance with Title 10 to 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 in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,

J. L. Harness, General Manager
Brunswick Nuclear Project

TH/mcg

Enclosure

cc: Mr. S. D. Ebneter
Mr. E. G. Tourigny
BSEP NRC Resident Office

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NRC FORM 366 (5-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

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-630), 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)	PAGE (3)
Brunswick Steam Electric Plant, Unit 2	0 5 0 0 0 3 2 4	1 OF 0 4

TITLE (4)

Group 1 Isolation on Low Condenser Vacuum

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)
0 2	2 4	9 0	9 0	— 0 0 2	— 0 0	0 3	2 3	9 0		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	4	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)	X 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 (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		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	TELEPHONE NUMBER
Tony Harris, Regulatory Compliance Specialist	AREA CODE 9 1 9 4 5 7 - 2 0 3 8

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

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

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

While Unit 2 was in cold shutdown on 2/24/90, a Group 1 isolation occurred when the undervoltage relay for the Electro Hydraulic Control (EHC) system 125v dc power supply was replaced, following recalibration for Plant Modification 86-058. The event was initiated by mode indication of the main turbine speed selection switch (EIIS/TA/SIS) changing from "valves closed" to "1800 rpm" upon the swap of EHC power supplies when the undervoltage relay was reinstalled. The mode change, coupled with the existing low vacuum condition (cold shutdown), initiated the Group 1 isolation logic.

Investigations into this event have determined that the cause of the event was the lack of recognition of the significance of having the turbine reset while performing EHC evolutions. No further corrective actions are considered necessary for this event. This event had no safety significance, as the reactor was shutdown for a planned outage.

Event

Unit 2 Group 1 isolation on low condenser vacuum while replacing undervoltage relay on EHC 125v dc power supply, following recalibration of the relay for PM 86-058.

Initial Conditions

Unit 2 was in cold shutdown. The main turbine was reset at 0818 to allow cycling of a moisture removal valve. An undervoltage relay, ITE-27S, No. 239U6345, which senses the loss primary power supply to the Electro Hydraulic Control (EHC) System switches power to alternate battery supply, was being replaced following recalibration for Plant Modification (PM) 86-058.

Event Description

On 2/24/90, at 1226, a Group 1 isolation occurred when the undervoltage relay for the EHC system 125v dc power supply was being replaced following recalibration. The initial calibration of the relay was found not to be acceptable as written due to a clerical error in the initial calibration paperwork. The undervoltage relay was removed for a verification of the calibration, using an approved plant procedure.

Upon re-installation of the relay, the EHC turbine high speed logic initiated and the turbine received an 1800 rpm speed signal, which caused the turbine stop valves to open. Existing low condenser vacuum, due to plant condition (cold shutdown), resulted in a valid signal for Group 1 isolation. B21-F019, Main Steam Line Drain Valve, closed as a result of the signal. Other valves associated with the Group 1 signal logic were closed prior to the event. The Group 1 isolation signal was reset at 1240. A work request/job order (WR/JO), 90-AEGC1, was generated to determine the reason for the isolation signal.

Event Investigation

As a result of investigations initiated from WR/JO 90-AEGC1, it was determined that the occurrence was a design condition that would occur upon the loss of EHC 125v dc power. PM 86-058 (Unit 2) removed a relay on the turbine trip logic for loss of EHC System 125v dc power supply. This removal of this circuit was based on a concern generated by the site Scram Reduction Committee of a possible single failure of the relay's normally energized contacts

that may result in a turbine trip/reactor scram during operation.

As a result of the removal of this relay, the associated turbine trip logic was disabled for loss of 125v dc power supply. With the turbine trip logic disabled, speed logic to the turbine is allowed to initiate, selecting 1800 rpm. This initiates opening of the turbine stop valves. The presence of the existing plant condition of low condenser vacuum, coupled with the turbine speed signal, initiated the designed Group 1 protective isolation. It is also recognized that the same configuration exists in Unit 1 as a result of PM 86-057.

Event Cause

The cause of the event was the lack of recognition of the significance of having the turbine reset while performing maintenance/testing/troubleshooting on the EHC system during reactor modes when low condenser vacuum exists. Events of this nature can be expected when the turbine is reset and maintenance on the EHC system is conducted in a low condenser vacuum condition.

The paperwork error that initiated the recalibration was a clerical error. Calibration data was recorded as 1 to 2 (instead of .1 to .2), which was outside of the acceptance criteria. The individual that had performed the initial calibration was no longer with the company, and the error could not be verified. Recalibration of the relay was performed to ensure that the acceptance criteria had been met. Recalibration data was within acceptable criteria.

A similar event occurred on Unit 1 in 1988 (LER 1-88-07) following reset of the main turbine trip signal resulting from too high reactor water level.

Corrective Actions

CP&L has reviewed this event and has determined that no further corrective actions are required. Efforts will be taken to better control EHC maintenance/testing/troubleshooting with the turbine reset; however, due to the lack of safety significance, additional corrective actions are not warranted.

Event Assessment

This event had no safety significance. A Group 1 isolation on low condenser vacuum is an Engineered Safety System Feature isolation.

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Brunswick Steam Electric Plant, Unit 2	0 5 0 0 0 3 2 4	9 0	— 0 0 2	— 0 0	0 4 OF 0 4

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

Loss of condenser vacuum is an event which would lead to a failure of heat removal capability and subsequent reactor pressure increase caused by a sudden reduction of steam flow during power operation. Full power operation is the most limiting condition for this transient. Even though the isolation for low condenser vacuum is present for all operating conditions, its function is non-essential during reactor shutdown conditions, as no steam flow is present to be reduced and lead to reactor pressure increases. Since this event would not have occurred during power operation with the loss of EHC power supply (low condenser vacuum signal not present), this event would not have been a credible event under reasonable, alternative conditions.

EIIS CODES

Main Turbine	EIIS/TA
Electro Hydraulic Control	EIIS/TG
125v dc power supply	EIIS/EI
undervoltage relay	EIIS/EI/27
Turbine high speed logic	EIIS/TA/SIS
Main Steam Line drain valve	EIIS/SE/*
Group 1 protective isolation	EIIS/JM

*No EIIS Component Code Available