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FACIL:50-400 Shearon Harris Nuclear Power Plant, Unit 1, Carolina 05000400
AUTH.NAME AUTHOR AFFILIATION
HAMBY,M.R. Carolina Power & Light Co.
DONAHUE,J.W. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 95-010-00:on 951012,RT occurred on turbine trip due to operator error during performance of turbine mechanicla overspeed test.Enhanced switch marking & addl trianing for operating crews on command,control & teamwork.W/951113 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 5
TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:Application for permit renewal filed. 05000400

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PRIORITY 1 DOCUMENT

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Carolina Power & Light Company
Harris Nuclear Plant
PO Box 165
New Hill NC 27562

NOV 1 3 1995

U.S. Nuclear Regulatory Commission
ATTN: NRC Document Control Desk
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Serial: HNP-95-104
10CFR50.73

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 95-010-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report concerns an unexpected Reactor Trip and ESF Actuation during Turbine Mechanical Overspeed Testing.

Sincerely,

J. W. Donahue
General Manager
Harris Plant

MRH

Enclosure

c: Mr. S. D. Ebneter (NRC - RII)
Mr. N. B. Le (NRC - PM/NRR)
Mr. D. J. Roberts (NRC - HNP)

IE22
1/1

cc: Ms. D. B. Alexander
Mr. W. R. Campbell (BNP)
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Mr. C. W. Martin (BNP)
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Mr. J. P. Thompson (BNP)
Mr. T. D. Walt
HNP Real Time Training
INPO
NLS File: HI/A-2D (L. M. Randall)

NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Shearon Harris Nuclear Plant - Unit # 1	050000400	1 OF 3

TITLE (4)
Reactor Trip on Turbine Trip due to Operator Error during performance of Turbine Mechanical Overspeed 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 NAME	DOCKET NUMBER
10	12	95	95	-- 010 --	00	11	10	95	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1
POWER LEVEL (10)	5%

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)	OTHER
20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mickey R. Hamby, Manager - CAP/OEF	(919) 362-2204

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 15 single-spaced typewritten lines) (16)

During performance of the Turbine Mechanical Overspeed Trip Test, the operator incorrectly placed the Overspeed Protection Controller (OPC) switch in the OPC TEST position instead of the OVERSPEED TEST PERMISSIVE position. The OPC functioned as designed, causing the turbine governor and intercept valves to close and turbine speed to reduce. The OPC switch was returned to the IN SERVICE position, which caused the turbine control system to attempt to return the turbine to 1800 rpm causing an increase in steam flow to the turbine. The increase in steam flow caused steam generator levels to swell, generating a Steam Generator High-High Level signal. This resulted in a Turbine Trip, Reactor Trip, and Main Feedwater Isolation. The trip of the Main Feedwater Pump generated an Auxiliary Feedwater start signal to both Motor Driven AFW pumps. The plant was stabilized using Emergency Operating Procedures.

The causes of this event are a lack of operator knowledge on the turbine control panel; and Control Room command and control, teamwork, and communications. This event had minimal safety significance. Reactor power remained less than 10% during this transient and Tave decreased eleven degrees to 548 °F. During the Turbine/Reactor trip systems responded and functioned as required. This event is being reported per 10CFR50.73(a)(2)(iv) as an unplanned ESF Actuation. Corrective actions to be taken include enhancing switch marking and additional training for the Operating crews on the importance of command and control, teamwork, and communications.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shearon Harris Nuclear Plant - Unit #1	05000400	95	-- 010 --	00	2 OF 3

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

EVENT DESCRIPTION:

On October 12, 1995, at 0223, the plant was operating in Mode 1 with Reactor Power at approximately 5% power. Reactor Coolant temperature and pressure were 559 degrees F and 2235 psig respectively. The turbine (TA) was rolling at 1800 rpm and OPT-1075, Turbine Mechanical Overspeed Trip Test - 18 Month Interval, Modes 1-2, was in progress.

A step in OPT-1075 directed the operator to place the Overspeed Protection Controller (OPC) switch to the OVERSPEED TEST PERMISSIVE position. The Balance of Plant (BOP) Operator incorrectly placed the switch in the OPC TEST position instead of the OVERSPEED TEST PERMISSIVE position. The Overspeed Protection Controller functioned as designed, causing the turbine governor and intercept valves to close and turbine speed to reduce. The BOP Operator realized the OPC switch mispositioning and he announced the mistake to the Control Room. The BOP Operator asked the Senior Control Operator (SCO) if the switch should be returned to the IN SERVICE position. The SCO, based upon his knowledge of the turbine control circuit, believed the turbine speed demand would be at zero and the governor and intercept valves would remain shut. The SCO directed the BOP operator to return the switch to the IN SERVICE position. The Shift Supervisor - Nuclear (SSN) was present during this decision and did not challenge the decision to return the OPC switch to the IN SERVICE position.

Turbine speed had decreased to approximately 1690 rpm due to the closure of the governor and intercept valves. The OPC switch was returned to the IN SERVICE position, which caused the turbine control system to attempt to return the turbine to 1800 rpm causing an increase in steam flow to the turbine. The increase in steam flow resulted in turbine power, as sensed by turbine first stage pressure, to increase to greater than 10% turbine load that removed the Low Power Trips Blocked permissive P-7. The increased steam flow also resulted in a Steam Generator "swell" which resulted in Steam Generator High-High Level (JE), permissive P-14, in the "B" Steam Generator. The Steam Generator High-High Level, P-14, signal generated a turbine trip that subsequently generated a reactor trip signal with the P-7 permissive removed. The P-14 signal also initiated a feedwater isolation that closed the feedwater isolation valves and tripped the "B" Main Feedwater Pump. The trip of the Main Feedwater Pump generated an Auxiliary Feedwater start signal to both Motor Driven AFW pumps. The plant was then stabilized using Emergency Operating Procedures.

CAUSE:

The BOP Operator forgetting how the OPC switch functions caused the initial inappropriate act of mispositioning the OPC switch. This was a cognitive personnel error and was not in accordance with the procedure step as written. The contributing cause for the initial inappropriate act was the lack of OPC switch position markings. The subsequent inappropriate act was caused by a lack of control room teamwork, communications, and command and control during the decision process amoung the CO, SCO, and SSN to return the switch to the IN SERVICE position. This inappropriate act was a personnel cognitive error.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Shearon Harris Nuclear Plant - Unit #1	05000400	95	010	00	3 OF 3

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

SAFETY SIGNIFICANCE:

The safety significance for this event was minimal. Reactor power remained less than 10% during this transient and Tave decreased only eleven degrees to 548 °F. During the Turbine/Reactor trip, the plant systems responded and functioned as required. This event is being reported per 10CFR50.73(a)(2)(iv) as an unplanned ESF Actuation.

PREVIOUS SIMILAR LERs:

A review of the LER database was conducted for similar events. No similar events were found.

CORRECTIVE ACTIONS COMPLETED:

1. Counseled the involved personnel on the importance of displaying a questioning attitude and the necessity of teamwork and communications when the plant is in an abnormal condition.

2. The Manager - Operations reviewed this event with each operating crew.

3. Enhanced the OPC switch position indicating marks to indicate the switch's three positions.

CORRECTIVE ACTIONS PLANNED:

1. Review this event, including the inappropriate acts, root causes, causal factors and the corrective actions in training for the operators. Include the operation of the DEH system, specifically addressing the OPC switch and how to recognize/respond to abnormal events in general during the Training.

2. Provide refresher teamwork training for the operators that emphasizes the use of command and control, and communications. In addition, provide training on human error reduction techniques and re-enforces the use of these techniques during simulator training.

3. Complete the ESR to install permanent switch position indicating marks on the Main Control Board and Simulator OPC switches.

EIIS CODES:

TA - Main Turbine System
JE - Engineered Safety Features Actuation Circuit