

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

Oconee Nuclear Station, Unit 1

DOCKET NUMBER (2)

0 5 0 0 0 2 6 9 1 OF 0 3

PAGE (3)

TITLE (4)

Reactor Trip on High RCS Pressure Due to EHC Electrical Connection

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)
04	11	85	85	005	01	05	21	85		0 5 0 0 0 1 1

OPERATING MODE (9)

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)

POWER LEVEL (10)

110.10

20.402(b)

20.406(a)(1)(i)

20.406(a)(1)(ii)

20.406(a)(1)(iii)

20.406(a)(1)(iv)

20.406(a)(1)(v)

20.406(c)

50.34(e)(1)

50.34(e)(2)

50.73(a)(2)(i)

50.73(a)(2)(ii)

50.73(a)(2)(iii)

50.73(a)(2)(iv)

50.73(a)(2)(v)

50.73(a)(2)(vi)

50.73(a)(2)(viii)(A)

50.73(a)(2)(viii)(B)

50.73(a)(2)(ix)

73.71(b)

73.71(e)

OTHER (Specify in Abstract Draw and in Text, NRC Form 366A)

NAME

LICENSEE CONTACT FOR THIS LER (12)

Richard F. Haynes, Licensing

TELEPHONE NUMBER

AREA CODE

710 4 317 131-17 11219

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	J1J	CIOINI	A131810	N					

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)

On April 11, 1985 at 1228 hours, Oconee 1 tripped from 100% full power upon the closure of the Low Pressure Turbine intercept valves and the Main Turbine control valves. The resulting higher turbine header pressure, and reduced heat transfer, caused the RCS pressure to rise until the reactor trip set-point was reached. The trip occurred approximately 4 seconds after the valves closed.

The immediate corrective action was to stabilize the unit at hot shutdown conditions. The subsequent investigation resulted in the discovery of a faulty edge connector on a circuit board in one of the EHC cabinets. Following the repair of the connector, the unit was put back in operation. At 2246 hours on the same day, the unit tripped from 17% full power; a description of circumstances surrounding this second trip is contained in LER 269/85-06.

The health and safety of the public were not affected.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

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		8 5	- 0 0 5	- 0 1 1	0 2	OF	0 3

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

Description of Occurrence:

Oconee 1 was operating at 100% full power on April 11, 1985 when the reactor tripped at 1228 hours. The trip was caused by the closure of the main turbine control valves (CVs) and the intercept valves (IVs) associated with the low pressure turbines. The four main control valves serve to regulate the flow of main steam into the high pressure turbine, and the function of the intercept valves (two on each low pressure turbine) is to protect the low pressure turbines from overspeed, due to stored steam in the Moisture Separator Reheat (MSRH) system, following a trip.

The post trip response was normal with all the Integrated Control System (ICS) control stations in automatic. The ICS turbine pressure master went to manual automatically when the IVs and CVs went closed and caused an ICS power/load unbalance indication. ICS went into track following this.

LHP-26 was opened at 1228:18 hours with 1B HPI pump in service to help maintain RCS inventory. Approximately 2 minutes later LHP-26 was closed. At 1230:48 hours, HPI pump 1A started automatically on low Reactor Coolant Pump seal injection and ran for approximately 5 minutes. The pressurizer level was maintained at a minimum of 42 inches.

The trip resulted in the lifting of Main Steam Relief Valves (MSRVs) 4 and 10. LERs 269/84-06, 269/84-07, and 269/85-02 have documented the recurring problems with MSRVs 2, 4 and 10, in terms of the difficulty of reseating the valves after opening. The problem was encountered again following the present trip. At 1245 hours, the main steam pressure was reduced to 880 psig in order to reseal MSRVs 4 and 10. MSRVs 4 and 10 were tested and reset by 1830 hours during the Unit 1 startup.

The possible causes of the trip were investigated after 1230 hours. A similar trip, which occurred on January 22, 1985 was described in LER 269/85-02. The cause of this previous trip remained unknown, and due to the similarities between the events, the investigation was centered more closely on specific portions of the electrohydraulic control (EHC) system which dealt with the CVs and the IVs. It was discovered that a faulty circuit board edge connector in the IV fast closure circuitry was causing spurious signals which resulted in IV circuit actuation, causing the trip. By 1915 hours, the faulty connector had been replaced.

The reactor was brought back to critical at 1946 hours, but power escalation was halted at 5% of full power when valve LHP-1 could not be remotely operated from the control room. Shutdown was commenced while the problem with LHP-1 valve was being investigated. The valve was found to be sticking in its seat and was then manually opened. The reactor was critical at 2059 hours and the turbine was put on line at 2231 hours.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31 85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Cause of Occurrence:

A faulty edge connector (EHC card C-68) on a circuit board associated with the IV fast closure circuit was found to be the cause of the incident. A previous trip on spurious CV and IV actuation occurred on January 22, 1985 (LER 269/85-02). This incident is not considered to be a recurring problem.

Corrective Action:

The immediate corrective action was to stabilize the unit at hot shutdown conditions. Supplementary corrective action consisted of investigating and identifying the cause of the trip and replacing the faulty connector on the EHC card C-68. MSRVs 4 and 10 were also reset and tested. The failure of LHP-1 to respond to remote actuation was investigated and the valve was found to be sticking in the seat; the valve was opened manually.

Corrective action to be performed on MSRVs 4 and 10 will consist of disassembly, and any necessary repair to be performed during the next available cold shutdown outage.

Analysis of Occurrence:

The unit was stabilized at hot shutdown conditions after the trip. All ICS control stations were in auto before the trip and responded appropriately during the transient. There were no Engineered Safeguard actuations. There was no Emergency Feedwater actuation. The pressurizer relief valves were not challenged. The Technical Specification maximum cooldown rate of 50°F per ½ hour was not approached. Main steam pressure was reduced to approximately 880 psi to reseal MSRVs 1MS4 and 1MS10. The pressurizer level reached a minimum of approximately 42 inches. To stabilize the pressurizer level, LHP-26 was opened and HPI pump 1A started. RCS pressure reached a minimum of 1725 psi before being stabilized at approximately 2100 psi. Steam generator levels stabilized at 25 inches. No Technical Specifications were exceeded and there were no radioactive releases. Therefore, the health and safety of the public were not affected.

DUKE POWER COMPANY

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

May 30, 1985

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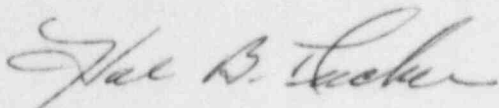
Subject: Oconee Nuclear Station, Unit 2
Docket Nos. 50-269, -270, -287
LER 269/85-05

Gentlemen:

Attached is Licensee Event Report 269/85-05, Revision 1 which was previously transmitted May 21, 1985 for the purpose of including the component failure code; the code was inadvertently omitted in the May 13, 1985 original submittal.

Revision 1 is being resubmitted in order to specify the correct set of Oconee Docket Numbers given in the subject.

Very truly yours,



Hal B. Tucker

RFH:slb

Attachment

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