

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Oconee Nuclear Station, Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 6 9										PAGE (3) 1 OF 0 4																		
TITLE (4) Reactor Trip on High RCS Pressure																																						
EVENT DATE (5) 0 1 2 2 8 5 8 5									LER NUMBER (6) 0 0 2 0 0 0 2 2 1 8 5									REPORT DATE (7) 0 1 2 2 8 5									OTHER FACILITIES INVOLVED (8) FACILITY NAMES DOCKET NUMBER(S) 0 5 0 0 0 0											
OPERATING MODE (9) 1 0 1 0										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11) 20.402(b) <input checked="" type="checkbox"/> 20.405(c) <input checked="" type="checkbox"/> 50.73(a)(2)(iv) <input checked="" type="checkbox"/> 73.71(b) <input type="checkbox"/> 20.405(a)(1)(i) <input type="checkbox"/> 50.38(c)(1) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> 73.71(c) <input type="checkbox"/> 20.405(a)(1)(ii) <input type="checkbox"/> 50.38(c)(2) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 388A) <input checked="" type="checkbox"/> 20.405(a)(1)(iii) <input type="checkbox"/> 50.73(a)(2)(i) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 20.405(a)(1)(iv) <input type="checkbox"/> 50.73(a)(2)(ii) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 20.405(a)(1)(v) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix) <input type="checkbox"/>										50.72(b)(2)(ii)																		
LICENSEE CONTACT FOR THIS LER (12) NAME M. A. Haghi, Licensing TELEPHONE NUMBER 7 10 14 3 17 13 1-14 10 16 10																																						
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	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS																								
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SUPPLEMENTAL REPORT EXPECTED (14) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO															EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR 1 2 8 5																							

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

On January 22, 1985 at 0447 hours, Oconee Unit 1 tripped from 100% Full Power (FP). The trip occurred when all six Intercept Valves (IV) closed for unknown reasons causing high turbine header pressure which resulted in high Reactor Coolant System (RCS) pressure. The reactor tripped on high RCS pressure approximately 5 seconds after the IVs closed.

The immediate corrective action was to stabilize the unit at hot shutdown conditions. Subsequent investigations found no problem or reasons to explain the IVs closure. The unit was back on-line at 100% FP at 2330 hours. There were no abnormal releases of radioactivity and the health and safety of the public were not affected.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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 366A's) (17)

DESCRIPTION OF OCCURRENCE:

The six Intercept Valves (IVs) in lines supplying steam to the low pressure turbines serve to protect the turbine against overspeed from steam in the Moisture Separator Reheat (MSRH) System by limiting the amount of uncontrolled reheated steam. During normal operation with the turbine loaded, the IVs will be fully open.

On January 22, 1985 at 0447 hours, Oconee Unit 1 tripped from 100% Full Power (FP). The trip occurred when the IVs closed for no apparent reason causing high turbine header pressure. As a result, the Reactor Coolant System (RCS) pressure increased to the high pressure trip setpoint causing the reactor to trip approximately five seconds later.

The plant response to the reactor trip was normal. All Integrated Control System (ICS) control stations were in automatic when the IVs closed. The main turbine pressure control went to manual automatically when the IVs and Main Steam Control Valves (MSCVs) closed.

During the trip recovery the Main Steam Relief Valves (MSRVs) 2 and 10 did not reseal properly. As a result, main steam pressure had to be lowered to approximately 875 psi to reseal these valves. After the valves were reseated, main steam pressure was raised to approximately 900 psi. The MSRVs 2 and 10 have shown similar behavior in the past as documented in Licensee Event Report LER 269/84-06 dated January 2, 1985.

Following the reactor trip, the pressurizer level reached a minimum of approximately 40 inches. At 0448 hours LHP-26 valve was opened to help maintain RCS inventory with the Makeup pump (MU) "1B" in operation for normal makeup. A second MU pump "1A" started automatically on low Reactor Coolant Pump (RCP) seal injection flow. Approximately seven minutes later, the pressurizer level was regained and the MU pump "1B" was secured at 0455 hours.

Main Steam (MS) valves MS-76 and MS-79 which supply main steam to Moisture Separator Reheaters (MSRHs) IVs had to be closed manually from the Control Room. This was necessary because MS-77, MS-78, MS-80 and MS-81 would not properly operate in the automatic position. During normal operation, these four valves should remain wide open when in the automatic position. However, when these valves were put in this position, all four valves would cycle closed. So the valves were put in the open position. MS-76 and MS-79 close slower than the other four valves because these two valves are larger valves. This slower closing time added to the difficulty of controlling MS header pressure after the trip.

All possible causes for the IVs going closed were investigated from approximately 0600 hours to 1230 hours. No causes were found. At 0753 hours, the reactor was taken critical. The reactor power was then increased to 15% FP and maintained at this level until the investigation was completed. When no problems could be found the unit was put back on line and was at 100% FP at 2330 hours.

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

CAUSE OF OCCURRENCE:

The reactor tripped on high RCS pressure as a result of the IVs closing. Investigation of all sources of a signal that would close these valves did not reveal any cause. A review of past incident reports indicates that there have not been any reactor trips due to an unknown cause associated with the IVs, therefore this incident is not considered a recurring problem.

ANALYSIS OF OCCURRENCE:

Initial reactor power prior to the trip was 100% FP. The unit was operating with four RCPs, two Main Feedwater Pumps (MFWPs) and MU pump "1B" on line. The turbine load was 900 MWe. The ICS was in a fully automatic mode.

The plant response to the reactor trip was normal. The pressurizer level dropped to approximately 40 inches and the RC pressure reached a minimum of 1700 psig, which are expected values from this power level. Pump "1A" started automatically on low RCP seal injection flow and the operators manually opened valve 1HP-26 to better control RCS inventory. The pressurizer level increased to about 220", which was the maximum level during this transient, within approximately 7 minutes. The RC pressure was raised and controlled between 2100-2200 psig by the makeup, the heaters and the spray. The maximum RCS pressure during this transient was 2329 psig at the time of the reactor trip. The pressurizer relief and safety valves did not actuate.

The minimum primary coolant temperature was 538°F, due to the secondary steam pressure being lower than normal in the first few minutes after the trip. The primary coolant temperature increased to its normal post trip value of 555°F as soon as the steam generator pressure returned to normal.

The secondary side steam pressure reached a maximum of 1120 psig. The pressure then dropped to approximately 870 psig due to the second stage reheat supply valves 1MS-76 and 1MS-79, which feed the MSRHS from main steam, being open. The valves began closing at 0451 hours and were fully closed at 0452 hours. Two Main Steam Relief Valves (MSRVs), 1MS-2 and 1MS-10, did not reseal properly following the trip. Main steam pressure was reduced to about 875 psig at 0515 hours before the MSRVs reseated.

The SG levels were controlled automatically at the post trip setpoint of 25 inches. The feedwater was supplied by the main feedwater system.

No engineered safeguards, no emergency feedwater and no emergency power were actuated during this event. The health and safety of the public were not affected.

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

CORRECTIVE ACTION:

The immediate corrective action ensured that the unit was stabilized at hot shutdown conditions. The supplemental corrective actions checked all possible causes for the IVs going closed. All equipment tested was operating properly and no problem could be found. These actions also corrected a problem identified on MS-77, 78, 80 and 81. These valves should operate as designed now.

The planned corrective actions with respect to the MSRVs 2 and 10 are to disassemble and repair these valves during the next available cold shutdown.

**DUKE POWER COMPANY**

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**HAL B. TUCKER**

VICE PRESIDENT  
NUCLEAR PRODUCTION

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February 21, 1985

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

Subject: Oconee Nuclear Station, Unit 1  
Docket No. 50-269  
LER 269/85-02

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 269/85-02 concerning a Unit 1 reactor trip on high RCS pressure caused by closure of all Moisture Separator Reheater Intercept Valves on January 22, 1985. This report is submitted in accordance with §50.73 (a)(2)(iv) and §50.72 (b)(2)(ii). This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

*H.B. Tucker / HBT*

Hal B. Tucker

MAH:slb

Attachment

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