

LICENSEE EVENT REPORT

EXHIBIT A

CONTROL BLOCK:

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 (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 | S | C | N | E | E | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 1 | 1 | 1 | 1 | 1 | 4 | 5

7 8 9 14 15 25 28 30 37 38

LICENSEE CODE LICENSE NUMBER LICENSE TYPE CAT

CON'T

0 1

REPORT SOURCE L 6 0 5 0 0 0 2 8 7 7 1 1 1 0 7 9 8 1 1 3 0 7 9 9

60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 The RCS cooldown rate limit was exceeded after power to the ICS was lost for
0 3 approximately two and one-half minutes. A number of indicators of primary
0 4 and secondary conditions were lost during the loss of ICS power. However,
0 5 no ES actuation setpoints were reached, and adequate RCS inventory was
0 6 maintained. No damage was incurred. Therefore, this incident did not affect
0 7 the health and safety of the public.

0	8											50				
7	8	9	SYSTEM CODE		CAUSE CODE		CAUSE SUBCODE		COMPONENT CODE				COMP. SUBCODE		VALVE SUBCODE	
0	9		I	E	E		A		C	K	T	B	R	K	E	Z
7	8		9	10	11	12	13	14	15	16	17	18	19	20		
(17) LER/RQ REPORT NUMBER		EVENT YEAR				SEQUENTIAL REPORT NO.				OCCURRENCE CODE		REPORT TYPE		REVISION NO.		
21		7		9		0		1		3		0		1		
23		24		25		26		27		28		29		30		
ACTION TAKEN		FUTURE ACTION		EFFECT ON PLANT		SHUTDOWN METHOD		HOURS		ATTACHMENT SUBMITTED		NPRO-4 FORM SUB.		PRIME COMP. SUPPLIER		
A		X		A		C		0		1		7		0		
33		34		35		36		37		38		39		40		
(18)		(19)		(20)		(21)		(22)		(23)		(24)		(25)		
E		3		5		5										
43		44		45		46		47		48		49		50		

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The loss of ICS power resulted from blown fuses in the normal inverter and
1 1 failure of a transfer switch to transfer automatically to regulated AC power.
1 2 When ICS power was restored, excessive feedwater flow caused a rapid RCS cool-
1 3 down. A redundant transfer switch has been installed, and personnel have
1 4 been instructed in order to respond properly to a loss of ICS power.

FACILITY STATUS		% POWER		OTHER STATUS		METHOD OF DISCOVERY		DISCOVERY DESCRIPTION	
1	5	E	28	0	9	9	29	NA	30
ACTIVITY		CONTENT		AMOUNT OF ACTIVITY		LOCATION OF RELEASE		31	
1	6	Z	32	Z	34	NA	35	NA	36
PERSONNEL EXPOSURES		NUMBER		TYPE		DESCRIPTION		37	
1	7	0	0	0	37	Z	38	NA	39
PERSONNEL INJURIES		NUMBER		DESCRIPTION		40		41	
1	8	0	0	0	40	NA	41	NA	42
LOSS OF OR DAMAGE TO FACILITY		TYPE		DESCRIPTION		43		44	
1	9	Z	42	NA	43	NA	44	NA	45
PUBLICITY		ISSUED		DESCRIPTION		45		46	
2	0	Y	44	Press Release on November 12, 1979					46
NRC USE ONLY		47							

NAME OF PREPARER

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Analysis of Occurrence:

A preliminary evaluation indicates that this cooldown transient is bounded by a previous transient which occurred at another facility, and which has been rigorously analyzed. This analysis showed that no damage had been incurred. In addition, although operation of the fourth reactor coolant pump at RCS temperatures less than 500°F continued contrary to operating precautions, it is considered that no unacceptable hydraulic loading conditions on the fuel assemblies resulted. Throughout the transient, adequate core cooling and RCS water inventory were maintained. However, the excessive cooldown rate constitutes operation with a parameter subject to a limiting condition for operation less conservative than the least conservative aspect of the limiting condition for operation. Therefore, the incident must be reported pursuant to Technical Specification 6.6.2.1.a(2), although the health and safety of the public were not affected.

Corrective Actions:

Immediately following the occurrence, all operations personnel were instructed in the manual transfer of ICS power and were instructed to review the alarm procedures dealing with loss of ICS power. The RCS wide range pressure recorder in each control room was tagged to indicate that it remains operable after loss of ICS power. The source range pen on the source and intermediate range recorder, which had stuck during the event, was replaced and verified to be working properly. Prior to the restart of Oconee 3, an investigation of the failure of the MFWP's to trip on low suction pressure subsequent to the HWP and CBP trips was made. A faulty time delay trip relay for MFWP A was discovered, but no cause for the failure of MFWP B could be determined. The ICS power automatic transfer switch and the blown KI inverter fuses were replaced, and a redundant automatic transfer switch was added. The redundant transfer switch has a longer time delay than the original transfer switch, and will actuate only in the event of a failure of the first automatic switch. This modification will also be completed for Oconee 1 (during the current refueling outage) and for Oconee 2 (during the upcoming refueling outage early in 1980). In the meantime, for Oconee 2, personnel have been predesignated to transfer ICS power manually in the event the automatic transfer fails. The power supply for the emergency feedwater flow indication has been changed from the KI to the KX inverter, and the power supplies for the OTSG full range level indication and one of the pressurizer level indications were changed to the KU inverter. Thus, the loss of the KI inverter will not result in loss of these indications. An emergency procedure dealing with actions to be taken in response to a loss of ICS power has been prepared, and the alarm procedures have been revised to reflect the newly-installed transfer switch. Longer term corrective actions include rewiring the controls for the pressurizer power-operated relief valve to allow manual control upon loss of ICS power, the replacement of a static inverter on Oconee 1 to determine whether use of a different type of inverter provides greater reliability, and the replacement of the automatic transfer switches with a different type. A review of the power supplies for ICS and non-nuclear instrumentation will be made to identify further improvements in reliability which can be made. The failure of MFWP B to trip will be further investigated, and the positioning of the feedwater control valves will be reviewed to determine the reason for the OTSG level behavior. In addition, consideration will be given to expanding the capabilities of the Event Recorder to obtain better data for analysis of a transient. Finally, all operating personnel are reviewing the details of the incident and subsequent corrective actions to assure prompt and correct operator action.

DUKE POWER COMPANY
Oconee Unit 3

Report Number: RO-287/79-13

Report Date: November 30, 1979

Occurrence Date: November 10, 1979

Facility: Oconee 3, Seneca, South Carolina

Identification of Occurrence: RCS Cooldown Rate Limit Exceeded

Conditions Prior to Occurrence: 99% Full Power

Description of Occurrence:

At 1516 on November 10, 1979, Oconee 3 was operating at approximately 99% full power when a spurious low condenser hotwell level signal tripped the hotwell pumps (HWP's). This caused condensate booster pump (CBP) A to trip on low suction pressure, resulting in a reactor runback due to low feedwater flow. The reactor tripped on high Reactor Coolant System (RCS) pressure from approximately 75% full power. Approximately 20 seconds after the reactor trip, power to the Integrated Control System (ICS) was lost when fuses in the KI inverter were blown and the automatic transfer to regulated AC power failed. ICS power was manually transferred to the regulated AC supply approximately two and one-half minutes later. As a result of the loss of ICS power, both main feedwater pumps (MFWP's) tripped and a number of control room indicators of primary and secondary conditions became inoperable. The steam-driven and motor-driven emergency feedwater pumps started automatically, and the RCS wide range pressure indication was unaffected. Due to the loss of indicators, high pressure injection (HPI) pump C was started manually. HPI pump A was operating prior to the transient, and HPI pump B had started on low reactor coolant pump seal flow. When ICS power was restored, RCS pressure was 1700 psig and pressurizer level was approximately 20" and increasing. Pressure and pressurizer level returned to normal over the next several minutes. No engineered safeguards actuation setpoints were reached. Approximately ten minutes after the reactor trip, once-through steam generator (OTSG) B level increased abruptly after HWP A and CBP A were restarted, resulting in a rapid RCS cooldown from 532°F to 420°F, exceeding the cooldown rate of 100°F/hr allowed by Oconee Nuclear Station Technical Specification 3.1.2.1. Hot shutdown conditions were established by 1800 on November 10, and a normal cooldown followed.

Apparent Cause of Occurrence:

When ICS power was restored, the turbine bypass valves opened to 50%, the null position. They were manually throttled immediately but remained partially open for twenty minutes, resulting in reduced main steam pressure and contributing to the excessive RCS cooldown rate. Also contributing to the cooldown was the fact that the auxiliary steam header was being fed from Oconee 3. In addition, when HWP A and CBP A were started, OTSG B level increased abruptly until the main feedwater control and startup valves were closed. The reason for the blown fuses in the KI inverter leading to the loss of ICS power has not been determined. The automatic transfer to regulated AC power failed due to an inoperable transfer switch.

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 7912070442 DOC. DATE: 79/11/30 NOTARIZED: NO
 FACIL: 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co.
 AUTH. NAME AUTHOR AFFILIATION
 LEWIS, S. R. Duke Power Co.
 RECIP. NAME RECIPIENT AFFILIATION
 Region 2, Atlanta, Office of the Director

DOCKET #
 05000287

SUBJECT: LER 79-013/01T-0: on 791110, RCS cooldown rate exceeded Tech Specs limit after power to intergrated control sys was lost for approx 2.5 minutes. Caused by blown inverter fuses & transfer switch failure. Redundant switch installed.

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NOTES: M. CUNNINGHAM - ALL Amend-ments TO FSAR AND CHANGES TO TECH SPECS

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	09 I&E	2	2	11 MPA	3	3	
	14 TA/EDO	1	1	15 NOVAK/KNIEL	1	1	
	16 EEB	1	1	17 AD FOR ENGR	1	1	
	18 PLANT SYS BR	1	1	19 I&C SYS BR	1	1	
	20 AD PLANT SYS	1	1	22 REAC SAFT BR	1	1	
	23 ENGR BR	1	1	24 KREGER	1	1	
	25 PWR SYS BR	1	1	26 AD/SITE ANAL	1	1	
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DEC 10 1979

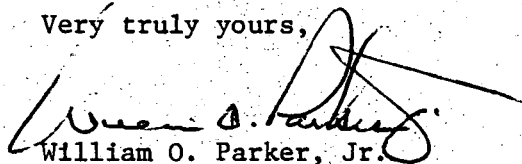
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ccp

Mr. Harold R. Denton, Director
December 10, 1979
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each Ocone unit would have been energized by Standby Bus No. 2. In addition, the breaker for Standby Bus No. 1 could have been closed manually from the Control Room if desired. Therefore, this incident is not considered to be significant with respect to safe operation, and the health and safety of the public were not affected.

Very truly yours,



William O. Parker, Jr.

SRL:scs

cc: Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II
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Atlanta, Georgia 30303