

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-287 OCONEE NUCLEAR STATION, UNIT 3, DUKE POWER CO.
 AUTH. NAME: LEWIS, S.R. AUTHOR AFFILIATION: DUKE POWER CO.
 RECIP. NAME: REGION 2, ATLANTA, OFFICE OF THE DIRECTOR

DOCKET # 05000287

SUBJECT: LER 79-008/01T-0 ON 790327: OVERPOWER TRIP SETPOINTS ON TWO REACTOR PROTECTION SYS CHANNELS FOUND TO EXCEED TECH SPEC LIMITS AS RESULT OF VARIATIONS IN TOTAL RC FLOW CHANNEL RECALIBR.

DISTRIBUTION CODE: A002S COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 3+1
 TITLE: INCIDENT REPORTS

NOTES: M. CUNNINGHAM - All AMDTS TO FSAR + CHANGES TO TECH SPECS.

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| | 20 AD PLANT SYS | 1 | 1 | 21 AD SYS/PROJ | 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 | 27 OPERA LIC BR | 1 | 1 |
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DUKE POWER COMPANY
OCONEE UNIT 3

Report Number: RO-287/79-8

Report Date: April 10, 1979

Occurrence Date: March 27, 1979

Facility: Oconee Unit 3, Seneca, South Carolina

Identification of Occurrence: High RPS Flux/Flow/Imbalance Trip Settings

Conditions Prior to Occurrence: 100% Full Power

Description of Occurrence:

On March 12, 1979, upon returning to power following a maintenance shutdown, a slight decrease in the indicated reactor coolant (RC) flow compared to the flow prior to the shutdown was noted. On March 26, 1979, RC flow decreased from 112.98% design flow to 111.45% design flow. At 0800 on March 27, 1979, the Reactor Protective System (RPS) flow amplifier gain in the flux/imbalance/flow trip circuitry was increased in order to compensate for the decrease in flow, thereby maintaining a trip setpoint at 104.75% full power. This setpoint is slightly below the trip setpoint of 105.5% full power required by Table 2.3-1C of the Oconee Nuclear Station Technical Specifications, and was established in order to avoid exceeding the specified limit while providing a sufficient margin above normal operating power to prevent spurious trips. However, subsequent to increasing the flow amplifier gain, an increase in indicated RC flow was noted, and by 0400 on March 27 it had reached approximately 112.5% design flow. An initial flow check indicated that the trip setpoints for three of the four RPS channels appeared to exceed the specified setpoint of 105.5% full power due to the increase in flow. Table 3.5.1-1 of the Technical Specifications requires that the unit be brought to the hot shutdown condition within 12 hours if fewer than three RPS flux/imbalance/flow channels are operable, and a reduction in unit power was initiated at the rate of 10%/hr. When the power level had been decreased to 92%, analysis of the RC flow data extrapolated to 100% full power indicated that the trip setpoints for two RPS channels exceeded the Technical Specification limit. Channels A and C were found to be calibrated for trip setpoints of 105.89% and 105.55%, respectively. This constituted operation of the unit when a parameter subject to a limiting condition for operation was less conservative than the least conservative aspect of the limiting condition for operation established in the Technical Specifications, although the incident was of no significance with respect to safe operation of the unit. At 2000, with the unit operating at 100% full power, the trip setpoint for RPS Channel A was found to exceed the specified limit. By 2156, all four RPS flow channels had been recalibrated for a trip setpoint of 104.75% full power.

Apparent Cause of Occurrence:

The specified trip setpoints for RPS Channels A and C were exceeded as a result of slight variations in the indicated total RC flow. These flow variations have been an ongoing concern and are currently being investigated by both the utility and NSSS vendor, Babcock & Wilcox, but the exact cause has yet to be determined. During the period from March 25 to March 27, 1979, heat balance computations indicated no change in total RC flow.

Analysis of Occurrence:

Although the trip setpoints for two of the four RPS channels slightly exceeded the specified setpoint, RPS Channels B and D remained calibrated for a setpoint within Technical Specification limits. Therefore, an overpower trip would have resulted at a power level no greater than the 105.5% full power limit specified. In addition, all four channels were calibrated for trip setpoints well below the core protection limit of 112% full power. Therefore, this incident was of no significance with respect to safe operation of the unit, and the health and safety of the public were not endangered.

Corrective Action:

The flow amplifier gain for the RPS flux/imbalance/flow instrumentation was adjusted to provide for a trip setpoint at 104.75% full power for each channel. At the next refueling outage, a Technical Specification overpower trip setpoint of 107.0% full power will be implemented, and this will provide a further margin above the actual trip setpoint of 104.75%.

LICENSEE EVENT REPORT

EXHIBIT A

CONTROL BLOCK: 1 (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

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| LICENSEE CODE | | | | | | | | | | | | | | LICENSE NUMBER | | | | | | | | | | LICENSE TYPE | | | | | | | | CAT | |

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| REPORT SOURCE | | | | | | | | | | | | | | DOCKET NUMBER | | | | | | | | | | EVENT DATE | | | | | | | | REPORT DATE | |

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

On March 27, 1979, an initial flow check indicated that the overpower trip setpoints for three of the four RPS flux/imbalance/flow channels were above the Technical Specification limit. Power was reduced to 92%, and analysis of RC flow data indicated that the trip setpoints of two of the RPS channels were too high. Although this constituted operation with a parameter less conservative than the least conservative aspect of a limiting condition for operation, it is not significant with respect to safe operation of the unit, and the health and safety of the public were not affected.

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| SYSTEM CODE | | | CAUSE CODE | | | CAUSE SUBCODE | | | COMPONENT CODE | | | | | COMP. SUBCODE | | | VALVE SUBCODE | | | | | | | | | | | | |
| 17 | | | EVENT YEAR | | | SEQUENTIAL REPORT NO. | | | OCCURRENCE CODE | | | REPORT TYPE | | | REVISION | | | | | | | | | | | | | | |
| 18 | | | ACTION TAKEN | | | EFFECT ON PLANT | | | SHUTDOWN METHOD | | | HOURS | | | ATTACHMENT SUBMITTED | | | NRC FORM SUB. | | | PRIME COMP. SUPPLIER | | | COMPONENT MANUFACTURER | | | | | |
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CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

The trip setpoints were found to exceed the Technical Specification limit as a result of variations in the indicated total RC flow. The exact cause of the variations has not been determined. Power was reduced to 92% and a RC flow data analysis indicated the trip setpoints for two channels exceeded Technical Specification limits. Power was increased to 100% and the channels were recalibrated. The Tech Spec limit will be increased at the next outage.

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| FACILITY STATUS | | | | | | | | | | | | | | OTHER STATUS | | | | | | | | | | METHOD OF DISCOVERY | | | | | | | | | | DISCOVERY DESCRIPTION | | | | | | | | | |
| ACTIVITY CONTENT | | | | | | | | | | | | | | AMOUNT OF ACTIVITY | | | | | | | | | | LOCATION OF RELEASE | | | | | | | | | | | | | | | | | | | |
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