



Attachment

Licensee Event Report 83-025/03L-0

During the Startup Test Program, while at 100% power, the "A" Reactor Recirculation Pump MG set exciter field breaker tripped open, causing a loss of "A" Reactor Recirculation pump leading to Operations declaring the loop inoperable and entering LCO per Technical Specification 3.4.1.1 and 3.4.1.3 (hot shutdown in 12 hours). There were no consequential effects on the public health and safety, as the plant was operated within the parameters allowed by the action statement. The operator manually lowered the operating Recirc Pump's MG set speed to 50% per the Shift Supervisor's direction, in accordance with ON-64-002 procedure and in preparation for restart of the tripped pump.

This was the fourth occurrence of similar events. The first and second occurrences were documented in LER 83-012/03L-0 and the corrective measures were to replace a blown fuse the first time, and to replace a blown fuse and a shorted potential transformer the second time. The third occurrence, documented in LER 83-014/03L-0, caused a thermal overload to trip and subsequent investigations led to the conclusion that the problem was operationally induced and that with the unit returned to service and instrumented, the root problem would be identified. This fourth occurrence was the result of a blown fuse as in the first occurrence, however, with the additional instrumentation that was added to the Motor Generator control circuitry and the correlation of this data to Recirc MG set speed data from the GETARS computer, strong evidence pointed to a failure in the MG set voltage regulator circuitry.

The Maintenance Department started an in-depth investigation/test of the voltage regulator, as conditions allowed in the installed condition. The Unit 2 "A" Reactor Recirculation Pump MG set voltage regulator was obtained. No cause of failure was determined by the time the Unit 2 part was delivered, so the Unit 1 voltage regulator was removed, the Unit 2 voltage regulator installed and checked out, and the "A" Reactor Recirc Pump was put into service and declared operable.

Maintenance continued to bench test the faulty voltage regulator by introducing inputs that closely related to operating conditions and varying parameters. The results of the bench test showed a deficiency in one of the Silicon Controlled Rectifiers (SCR), resulting in a higher current flow in the field circuit. With high current flow in the voltage regulator circuitry several things could and did happen:

1. Fuses on the input side of the circuit could blow. This happened three times.
2. The transformer that is protected by the above fuses could short out, as it is not a high burden instrument. This happened once.
3. The circuit thermal overload could trip. This happened once.

Due to the overlapping information in this report, no revision will be provided for LER 83-012/03L-0.