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 Region 2, Atlanta, Office of the Director

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SUBJECT: LER 80-009/03L-0: on 800412, while repairing reflash units, fire detection instrumentation was rendered inoperable. Possibly caused by rapid energization & de-energization of power transformer.

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DUKE POWER COMPANY
OCONEE UNIT 1

Report Number: RO-269/80-9

Report Date: May 8, 1980

Occurrence Date: April 12, 1980

Facility: Oconee 1, Seneca, South Carolina

Identification of Occurrence: Fire Detection System Inoperable

Conditions Prior to Occurrence: 100% Full Power

Description of Occurrence:

On April 9, 1980, the Reactor Building (RB) smoke detectors for Oconee 2, which was in a refueling shutdown, were removed from service in order to allow repairs and scheduled modifications to be completed. An hourly fire watch for affected areas was established. At 1600 on April 11, an attempt to return the smoke detectors to service was unsuccessful, and it was decided to continue the fire watch and complete repairs the following day. The trouble alarm was left on, but its audible alarm was silenced. At 2330 on April 11 a fire alarm for the Oconee 1 feedwater pump area was received. When operations personnel reset the fire alarm, the trouble alarm was observed to be on. The Oconee 1 personnel were not aware that the Oconee 2 smoke detectors were out of service, and the fire watch was documented only by Oconee 2 personnel. An attempt was made to reset the trouble alarm, but was unsuccessful. An investigation revealed that the neutral wire for the reflash units was not securely connected. When an attempt was made to repair the wire, the power supply unit burned up, rendering the Oconee 1 fire detection system inoperable. A fire watch was established in all affected areas, pursuant to Oconee Nuclear Station Technical Specification 3.17.1. On April 15, the power supply unit was replaced, and proper operation of the system was verified, except for the portions in the Oconee 1 and 2 Reactor Buildings. The Oconee 1 RB string was successfully tested on April 16, and the Oconee 2 system was returned to service on April 21, at which time all fire watches were terminated.

Apparent Cause of Occurrence:

The fire detection system was rendered inoperable when its power supply was burned up. Apparently, this occurred due to voltage spikes caused by rapid energization and deenergization of the power supply's power transformer while the neutral wire was being disconnected.

Analysis of Occurrence:

The Oconee 1 fire detection instrumentation was out of service from April 12 to April 15, 1980. During this period, an hourly fire watch for affected areas was maintained, as required by Technical Specification 3.17.1. However, this incident constituted operation in a degraded mode permitted by a limiting

condition for operation, and must therefore be reported pursuant to Technical Specification 6.6.2.1.b(2), although it was of no significance with respect to safe operation, and the health and safety of the public were not affected.

Corrective Action

The power supply unit was replaced, and the instrumentation was returned to service. In order to assure that a similar failure of the power supply will not occur, warning tags alerting personnel making repairs to deenergize the power feeder breaker prior to removing any power wiring were placed in each of the fire detection system cabinets. In addition, since the trouble alarm is located on the Ocone 1 side of the fire detection panel, steps will be taken to assure that any work on the fire detection system is documented by Ocone 1 personnel.

