

DUKE POWER COMPANY  
OCONEE NUCLEAR STATION

Report Number: AO-269,74-2  
Report Date: February 22, 1974  
Occurrence Date: February 7, 1974  
Facility: Oconee Unit 1  
Identification of Occurrence: Isolation of the Keowee Underground Feeder  
Condition Prior to Occurrence: Steady-State Operation at 100 Percent Power

Description of Occurrence:

On February 7, 1974, Oconee Unit 1 was operating at 100 percent full power and Oconee Unit 2 was at cold shutdown for maintenance. Both Keowee hydro units were operable, with Keowee Unit 2 operating at approximately 70 MW(e) at the time of the occurrence. Keowee Unit 2 was connected to the 13.8 KV underground feeder, one of several sources of emergency power to Oconee.

At approximately 1546, Relay Department personnel were checking grounds on Oconee Unit 2 when they noted the appearance of a new ground on the system.

The following sequence of events took place in the Oconee control room:

1546 The following alarms were received:

1. Keowee Generator #2 Overspeed
2. Keowee Generator Statalarm Panel Alarm
3. Keowee Unit 2 Emergency Lockout

1547 All alarms cleared when acknowledged by the control room operator.

1555 Control room operator closed in Keowee Unit 1 to the underground feeder.

At 1622, the Emergency Lockout on Keowee Unit 2 was reset at Keowee by a Keowee operator.

Regulatory Operations, Region II, was verbally notified of the occurrence on February 8, 1974.

Designation of Apparent Cause of Occurrence:

Oconee Technical Specification 3.7 requires that one operable Keowee unit be available to supply power through the underground feeder except for test or maintenance (not to exceed 24 hours) provided the operable Keowee hydro unit

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is connected to the underground feeder. The occurrence resulted when a ground on Oconee Unit 2 set up a transient in the grounding system, tripping the field breakers on the Keowee Unit 2 generator. Since the "Keowee Unit 2 Emergency Lockout" annunciator cleared when acknowledged, Keowee Unit 1 was not closed into the underground feeder until it was determined that Keowee Unit 2 was still locked out.

Analysis of Occurrence:

Single failure analysis for the Keowee Hydro Station is presented in Table 8-6 of the Oconee FSAR. A single failure analysis for the Oconee emergency electrical power systems is provided in Table 8-7. The occurrence resulted in the loss of availability of one of several power sources for approximately nine minutes. Because of system redundancy and the short period of unavailability, it is concluded the occurrence did not adversely affect the safe operation of the unit or the health and safety of the public.

Corrective Action:

To prevent similar occurrences, the Design Engineering Department reviewed the grounding system at Oconee and made modifications to the grounding of certain cables to prevent transients from affecting other systems.

The Oconee control room annunciator "Keowee Unit 2 Emergency Lockout" will be checked for operability by appropriate testing.