DUKE POWER COMPANY
OCONEE UNIT 3

2-18-75

Report No.: AO-287/75-1

Report Date: February 18, 1975

Occurrence Date: February 4, 1975

Facility: Oconee Unit 3, Seneca, South Carolina

Identification of Occurrence: Reactor coolant temperature indication low

Conditions Prior to Occurrence: Unit in power operation

Description of Occurrence:

On February 3, 1975 the Oconee Unit 3 Reactor Protective System (RPS) Channel C reactor coolant (RC) temperature was observed to be indicating 5°F low. Inspection of the electronics cabinets showed that the equipment was functioning properly. On February 4, 1975, it was determined that the resistance temperature detector (RTD) cable from the reactor building to the RPS cabinet had a low resistance to ground. At 1440, entry was made into the penetration room, and it was found that the penetrations were wet as a result of condensation of steam from a leaking feedwater valve. The station Manager, Instrument and Control Engineer, and unit operations coordinator reviewed the status and a unit shutdown was scheduled.

At 1819 the Channel D RC temperature indication was also noted to be indicating 5°F low. At 1912, RPS Channel C was manually tripped so that a trip of either of the two remaining operable channels would result in a reactor trip. A reactor shutdown commenced at 2100 and was completed at 0100 February 5, 1975.

Designation of Apparent Cause of Occurrence:

The apparent cause of this occurrence was steam leaking from a feedwater valve in the penetration room condensing on the RTD penetration resulting in low resistances to ground. The low resistance to ground of the cable caused the effective resistance of the RTD to be low and hence the resulting temperature indication was low.

Analysis of Occurrence:

The RTD's affected in this incident were those which provide inputs for the high temperature and the pressure/temperature trip functions of RPS Channels C and D. The limit for core protection safety stated in Technical Specifications at 2155 psi is 617°F (Figure 2.1-1C). The RPS pressure/temperature trip setpoint at 2155 psi is 609°F. Thus, even with a 5°F error in temperature measurement, RPS Channels C and D would have produced a

8001080 829

pressure/temperature trip before exceeding the core protection safety limit.

Upon discovery of the second channel RTD being inoperable, Channel C was tripped so that a trip of either of the two remaining operable channels would have resulted in a reactor trip. Although Technical Specification 3.5.1 permits continued operation with two operable and one tripped channel of RPS, the reactor was brought to hot shutdown condition. It is concluded that the health and safety of the public was not affected by this incident.

Corrective Action:

The reactor was shut down and the penetration room purged until the penetrations were dry. The RTD cables were checked and found to have satisfactory resistances to ground. The RTD resistance was compared with calibration date and found in agreement. The unit was returned to power and the RTD's were within 0.1°F agreement.