

DUKE POWER COMPANY
OCONEE UNIT 3

Report No.: RO-287/77-9

Report Date: August 5, 1977

Occurrence Date: July 7, 1977

Facility: Oconee Unit 3, Seneca, South Carolina

Identification of Occurrence: High chloride concentration in reactor coolant system

Conditions Prior to Occurrence: Unit at 100 percent full power

Description of Occurrence:

On July 6, 1977 at 1000, a routine chemical sample indicated a chloride concentration of 0.22 ppm in the Oconee 3 reactor coolant system. Pursuant to Technical Specification 3.1.5.2, corrective action was initiated within 8 hours to reduce the concentration by placing the "A" deborating demineralizer in service. However, due to this demineralizer having a high boron concentration, only intermittent operation of the demineralizer was possible. The maximum chloride concentration reached was 0.26 ppm. At 0930, July 7, 1977, a reactor shutdown was initiated in accordance with the requirements of Technical Specification 3.1.5.4. At this time, the chloride concentration in the reactor coolant system was 0.17 ppm and decreasing. At 1350, the concentration was 0.14 and the reactor shutdown was terminated.

Designation of Apparent Cause of Occurrence:

The apparent cause of this occurrence was the general degradation of the two purification demineralizers due to extended use. Sluicing of these demineralizers was not possible due to excessive inventories of liquid waste from recent Oconee outages.

Analysis of Occurrence:

The Oconee Technical Specification limits on chloride concentration in the reactor coolant system are conservative margins which assure that stress corrosion attack does not occur. A 24-hour time period for action to correct the high concentration is allowed by Oconee Technical Specification 3.1.5.4, then a hot shutdown is required. All technical specification requirements were followed during this incident resulting in reactor coolant system protection and operating flexibility. The combination of time, temperature and pressure and chloride concentration have been evaluated and it is concluded that sufficient protection from stress corrosion attack existed during this incident. It is concluded that the health and safety of the public were not affected by this incident.

Corrective Action:

Both purification demineralizers have been replaced with fresh resins. This should prevent recurrence of this incident in the future.

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