

50-287

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FILE NUMBER
INCIDENT REPORT

TO:

Mr. Norman C. Moseley

FROM:

Duke Power Company
Charlotte, North Carolina
William O. Parker, Jr.

DATE OF DOCUMENT

4/6/77

DATE RECEIVED

4/21/77

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PROP

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1 SIGNED

DESCRIPTION

Ltr. trans the following:

PLANT NAME:

Oconee Unit No. 3

RJL

(1-P)

ENCLOSURE

Licensee Event Report (RO 50-287/77-3) on
2/24/77 concerning high chloride concentration
in Reactor Coolant System....

(2-P)

ACKNOWLEDGED
DO NOT REMOVENOTE: IF PERSONNEL EXPOSURE IS INVOLVED
SEND DIRECTLY TO KREGER/J. COLLINS

FOR ACTION/INFORMATION

BRANCH CHIEF:

SCHWENCER

W/3 CYS FOR ACTION

LIC. ASST.:

SHEPPARD

W/ 2 CYS

ACRS 16 CYS HOLDING/SENT AS CAT. B

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EISENHUT

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VOLLMER/BUNCH

KREGER/J. COLLINS

EXTERNAL DISTRIBUTION

LPDR: WABHALLA S.C.

TIC:

NSIC:

CONTROL NUMBER

771150137

DUKE POWER COMPANY

POWER BUILDING

422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

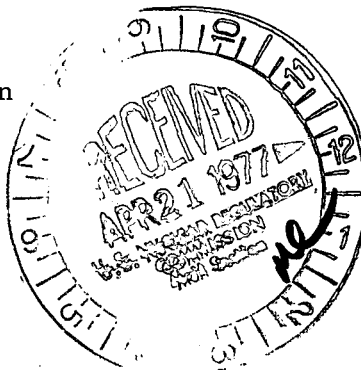
WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

April 6, 1977

TELEPHONE: AREA 704
373-4083

Mr. Norman C. Moseley, Director
U. S. Nuclear Regulatory Commission
Suite 818
230 Peachtree Street, Northwest
Atlanta, Georgia 30303

Re: Oconee Unit 3
Docket No. 50-287



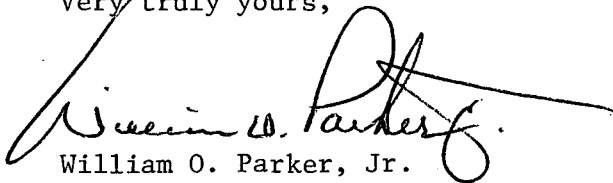
Regulatory

File Cy.

Dear Mr. Moseley:

Pursuant to Sections 6.2 and 6.6.2 of the Oconee Nuclear Station Technical Specifications, please find attached Reportable Occurrence Report R0-287/77-3.

Very truly yours,


William O. Parker, Jr.

LJB:ge
Attachment

cc: Director, Office of Management Information
and Program Control

771150137

DUKE POWER COMPANY
OCONEE UNIT 3

Report No.: RO-287/77-3

Report Date: April 6, 1977

Occurrence Date: February 24, 1977

Facility: Oconee Unit 3, Seneca, South Carolina

Identification of Occurrence: High chloride concentration in Reactor Coolant System

Conditions Prior to Occurrence: Unit at 70 percent full power

Description of Occurrence:

On February 24, 1977, due to high chloride concentration in the Reactor Coolant System (RCS), Oconee Unit 3 was brought to hot shutdown pursuant to Oconee Technical Specification 3.1.5.4. The chloride concentration was reduced below 0.15 ppm pursuant to Oconee Technical Specification 3.1.5.2 within approximately 26 hours and normal operation was resumed within 38 hours. The following is a description of the events leading to this condition.

On February 8, 1977, it was noted that the chloride concentration of the Concentrated Boric Acid Storage Tank (CBAST) was higher than normal. When this condition exists the makeup from the CBAST to the RCS is to be controlled by the provision stated in the intrastation letter of July 25, 1974.

On February 14, 1977, Unit 3 was brought to cold shutdown for steam generator tube repairs by adding 6050 gallons of 0.90 ppm chloride CBAST borated water. During the RCS refill on February 21, 1977, 1152 additional gallons of water from the CBAST were added. A chloride concentration of 0.80 ppm chloride in the RCS was noted after refill. Although the chloride concentration in the CBAST was higher than normal, the 7202 gallons of borated water with chloride concentration of 0.90 ppm was not sufficient by itself to account for the total RCS chloride concentration increase. The chloride concentration was reduced by the purification demineralizers and reached 0.30 ppm and was decreasing as heatup began on February 22, 1977. On February 23, however, the chloride concentration increased to 0.66 ppm.

Prior to heatup on February 21, 1977, hydrazine had been injected into the Reactor Coolant System for oxygen scavenging. The addition was made through the lithium hydroxide pump because the hydrazine pump had failed. This resulted in a small quantity of lithium hydroxide also being injected. Although the majority of the hydrazine was eliminated from the RCS through reaction with oxygen, a small amount could have remained in the system and, as the temperature reached 300°F, the hydrazine would have decomposed to ammonia which along with the lithium hydroxide acts to leach chlorides from the demineralizer resins and therefore could have made a minor contribution to the high chloride concentration.

Chloride cleanup continued but on February 24, 1977, a unit shutdown was initiated pursuant to Oconee Technical Specification 3.1.5.4. On February 25, 1977, the chloride concentration fell below the limits of Technical Specification 3.1.5.4 and a reactor startup was initiated. At 15 percent

full power, high chloride concentration (0.28 ppm) was again noted and the unit was brought to cold shutdown. A bleed and feed operation utilizing makeup from a bleed holdup tank helped reduce the chloride concentration to within the prescribed limits and on February 26, 1977, the unit was restarted.

Apparent Cause of Occurrence:

This incident was caused by a combination of problems. The demineralizer resins were saturated and therefore were not removing chlorides efficiently and also, chlorides were leached from the resins by ammonia and lithium hydroxide.

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 in the reactor coolant system. A twenty-four 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 RCS protection and operating flexibility. The health and safety of the public were not affected by this incident.

Corrective Action:

The intrastation letter of July 25, 1974 has been revised and incorporated into the chemistry procedures, and the operating procedure for soluble poison concentration control has been revised to alert operating personnel to incidents of this type.

A sampling and test program for accelerated examination of chemistry parameters when the RCS chemistry is not in compliance with technical specification limits will be implemented by May 1, 1977.

A procedure revision will be implemented by May 1, 1977 which precludes the use of the lithium hydroxide pump for introducing hydrazine to the reactor coolant system.

APR 8 10 40 AM '77
REGULATORY OPERATIONS
SECTION II
ATLANTA, GA.