

DUKE POWER COMPANY

POWER BUILDING, ATLANTA, GEORGIA

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

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WILLIAM O. PARKER, JR.  
VICE PRESIDENT  
STEAM PRODUCTION

April 29, 1982

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373-4083

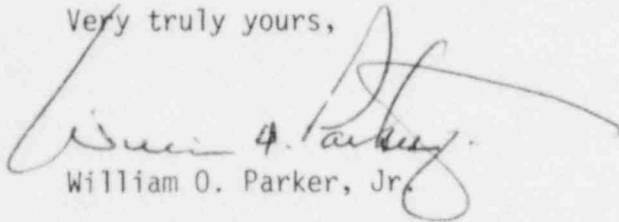
Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, Georgia 30303

Re: Catawba Nuclear Station  
Units 1 and 2  
Docket Nos. 50-413 and 50-414

Dear Mr. O'Reilly:

Pursuant to 10 CFR 50.55e, please find attached a final response to Significant Deficiency Report SD 413-414/81-01.

Very truly yours,



William O. Parker, Jr.

RWO/php  
Attachment

cc: Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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Duke Power Company  
Catawba Nuclear Station

Report Number: SD 413/414/81-01 (Final Report)

Report Date: April 29, 1982

Facility: Catawba Nuclear Station, Units 1 and 2

Identification of Deficiency: Turbocharger thrust bearings may experience rapid and/or premature wear due to lack of pre-lubrication.

Initial Report: On January 5, 1981, Mr. John Raushe of NRC, Region II, Atlanta, Georgia was notified of this deficiency by Mr. J. R. Wells, and Mr. W. J. Foley of Duke Power Company, Charlotte, North Carolina 28242. This notification was in response to John Wilder's (Transamerica Delaval) letter dated December 22, 1980, to Mill Power Supply Company.

Supplier and/or Component: Elliott Company of Jeannette, Pennsylvania manufactured the turbochargers that Transamerica Delaval installed on the Catawba diesels for Units 1 and 2. The diesels are designated 1A, 1B, 2A, and 2B.

Description of Deficiency: The design of the lubricating oil system permits lubricating oil to flow to the turbocharger bearings only when the diesel is running. When the diesel is in the standby mode, (turbocharger at rest), the turbocharger bearing lube oil system is bypassed by the use of a check valve in order to prevent pressurized oil from leaking around the turbocharger bearing seals and onto the hot turbocharger impellers (a possible fire hazard).

Since the diesels are routinely started once a month and run for a short length of time, the potential problem of premature bearing wear must be considered. The bearing lube oil system and the rocker box share a common oil line. Since the bearings are located approximately three (3) feet above the rocker box, the oil in the line to the bearings drains to the level of the oil in the rocker box. Therefore, when the diesels are started, there is an insufficient amount of oil on the bearings to prevent the bearings from smearing and causing excessive and premature bearing wear.

The wear rate for this condition, after 100 hours of operation, was determined by Transamerica Delaval to be equivalent to 15,000 - 20,000 hours of continuous operation. This data was based on an investigation of the turbocharger bearings used at the Southern California Edison, San Onofre Plant.

Analysis of Safety Implication: If the deficiency was not corrected, there would be excessive bearing wear and would eventually result in turbocharger impeller wobble. If corrective action were not taken, the possibility of further bearing and/or turbocharger damage could result. This could lead to a failure and subsequent unavailability of the diesel generator.

Corrective Action: Transamerica Delaval designed the system modification that corrects the generic deficiency described above. The modification involves piping a small amount of oil to a reservoir and causing the oil to drip on the bearings through an orifice (.014" diameter) at a given rate. This modification is expected to greatly reduce the bearing wear rate and is not a potential

fire hazard because of the small oil flow.

Transamerica Delaval furnished the drawings, parts list, and instruction for the above modification which was implemented for the four (4) Casawba diesel generators as of January 1, 1982.

Initially, Delaval was to furnish Duke with a copy of the San Onofre test results to demonstrate the acceptability of their design modification, but the results will not be available in the near future. Therefore, Transamerica Delaval furnished Duke Power - Design Engineering with a copy of the R&D Test Summary regarding the Elliott Turbocharger Standby Lubrication System, and the Test Summary was reviewed and determined to be acceptable in lieu of the San Onofre test results.

Initial Report: Reference the original Deficiency Report No. SD 413-414/81-01 dated January 21, 1981.