

DUKE POWER COMPANY

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July 26, 1985

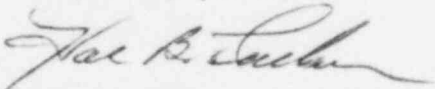
Dr. J. Nelson Grace, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

Re: Catawba Nuclear Station, Unit 2  
Docket No. 50-414  
Significant Deficiency No. 414/85-10

Dear Dr. Grace:

Pursuant to 10 CFR 50.55(e), please find attached Significant Deficiency Report No. 414/85-10.

Very truly yours,



Hal B. Tucker

LTP/hrp

Attachment

cc: Director  
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U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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Duke Power Company  
Catawba Nuclear Station

Report Number: SD 414/85-10

Report Date: July 26, 1985

Facility: Catawba Nuclear Station Unit 2

Identification of Deficiency:

Hydrogen Skimmer Fan HSF-2A motor failed May 30, 1985 generating Nonconformance Report No. 19720. The second fan motor, HSF-2B, failed June 24, 1985 generating Nonconformance Report No. 19781. The fan failures occurred after approximately 2½ hours of operation. The potential for a defect in a basic component was identified June 25, 1985.

Initial Report:

On June 26, 1985, Mr. C. W. Burger, NRC Region II, Atlanta, Georgia, was notified by telephone of the deficiency by L. M. Coggins, T. L. Utterback, R. R. Weidler and C. A. Driggers of Duke Power Company, Charlotte, NC 28242.

Component and/or Supplier:

The Hydrogen Skimmer Fans were supplied to Duke Power Company by Joy Manufacturing Company, New Philadelphia, Ohio. The fan assembly was designed and fabricated by Zurn, Kalamazoo, Michigan and the motor is a Reliance Electric, Cleveland, Ohio product.

Description of Deficiency:

Both incidents involved motor bearing failure. Fan HSF-2A shaft end or rear bearing failed. Fan HSF-2B opposite end or front bearing failed. There is evidence of bearing operation at high temperature in both cases. Both bearing failures resulted in fan wheel and housing damage. Both motors experienced severe shock loads resulting in bent shafts and snapped mounting feet.

Analysis of Safety Implications:

Loss of fan function would prevent post-accident hydrogen from being scavenged in dead-ended lower containment compartments (reference FSAR paragraph 9.4.10).

Prior to failure, Unit 2 equipment received a motor performance test at Reliance Electric, a fan performance test at Joy Manufacturing Company and was monitored by Duke Power Company during startup. There was no evidence from these tests that would have led to predicting the failures.

Similar equipment is used in the Unit 1 upper containment. Technical Specification quarterly periodic test duration (15 minutes) does not allow this fan-motor to stabilize at operating temperature. Therefore, a problem would not likely show up unless run time is extended.

Corrective Action:

In order to evaluate the failures experienced, Joy and Reliance technical representatives directed disassembly of the second fan-motor on site June 27 and 28, 1985. Preliminary indication suggests two possible causes of failure being damaged bearing shields causing the balls to "skid" or a lubrication problem causing heat generation and premature failure. Both motors have been shipped to Reliance for further evaluation.

Unit 1 equipment was retested by June 29, 1985 to Duke/Vendor's satisfaction establishing operability. Unit 1 equipment was run for an extended period of time fully instrumented for bearing temperature, vibration, electrical characteristics, etc. Unit 2 equipment will be tested in a similar manner when repaired.

A follow up report will be submitted by November 1, 1985.