

Coltec Industries



Fairbanks Morse
Engine Division
701 Lawton Avenue
Beloit, Wisconsin 53511-5492
Telephone: 608/364-4411
Telecopier: 608/364-0382

Document Control Desk
United States Nuclear Regulatory Commission
Washington D.C. 20555

21 January, 1994

Subject: Air Start Distributor Cam - 10 CFR Part 21 revised notification.

To whom it may concern:

Fairbanks Morse was notified by Virginia Power - North Carolina Power via a copy of their failure analysis report NESML-Q-058 that the subject component had failed. A cracked cam was found during a normal maintenance activity.

The cams were manufactured by Fairbanks Morse as part of the original engine orders. They bear the FM part number of 16104412. The nature of the defect is cracking due to stress risers resulting from arc marking of the cam. Growth of the crack is by intergranular stress corrosion until a critical size is met. When the critical size is met, high hoop stress loading occurs and cracking results to relieve the stress. The discovery date was 4/19/93, and the evaluation completion date was 1/7/94.

Some cams had been manufactured using the arc marking technique. This marking, coupled with a higher bolt torque due to shaft taper resulted in the high hoop stress. The method of marking was changed in the past to scribing the data on the cam. It was recently uncovered that many cams have had the scribe line enhanced with a cold chisel. This is also an unacceptable condition. Units shipped before 1994 are suspect. A Substantial Safety Hazard exists, as cracking could result in a shift in the air start distributor timing, thus causing a failure to start.

Fairbanks Morse strongly suggests that the sites referenced in Appendix I inspect the air start distributor cam as soon as practical. The inspection should be at your next scheduled preventative maintenance outage. There is no evidence that cam failure is imminent. If the cam is properly marked by scribing, and no timing slip has occurred, no further replacement work need be done. If the cam is arc marked, or cold chiseled, the owners should penetrant test the cam and regardless of it's condition obtain a new cam. All cams should be lapped to the shaft to obtain at least a 70% contact pattern. The nut should on reassembly be torqued to 50 - 60 foot pounds. This will allow for adequate clamping forces to hold the cam secure to the shaft.

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PDR ADCK 05000245
S PDR

Distribution:

Appendix I
C. Stevenson
D. Martin

Sincerely,

Michael S. Horinka
Manager Quality Assurance
and Field Quality

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APPENDIX I

PART 21 CONTACTS BY CUSTOMER

CUSTOMER	Alabama Power Company
CONTACT NAME	Southern Nuclear Operating Company
ADDRESS	PO BOX 1295
CITY, STATE, ZIP CODE	Birmingham, Alabama 35201
C/O	Purchasing Manager
	Nuclear Administration
CUSTOMER	Arkansas Nuclear One
CONTACT NAME	Entergy Operations
ADDRESS	Arkansas Nuclear One
	Rt. 3, BOX 137G, South Junction of Highways
	U.S. 64 West and Arkansas 333 South
CITY, STATE, ZIP CODE	Russelville, AR 72801
C/O	Manager Industry Events Review
CUSTOMER	Baltimore Gas & Electric
CONTACT NAME	Supervisor, Vendor Audits
ADDRESS	Calvert Cliffs Nuclear Power Plant
	1650 Calvert Cliffs Parkway
CITY, STATE, ZIP CODE	Lusby, MD 20657
C/O	
CUSTOMER	Carolina Power & Light Company
CONTACT NAME	Manager - Nuclear Licensing
ADDRESS	BOX 1551
CITY, STATE, ZIP CODE	Raleigh, North Carolina 27602
C/O	

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CUSTOMER	Detroit Edison
CONTACT NAME	
ADDRESS	6400 North Dixie Highway
CITY, STATE, ZIP CODE	Newport, MI 48166
C/O	Nuclear Engineering (ETS)
CUSTOMER	Georgia Power Company
CONTACT NAME	David M. Varner
ADDRESS	Southern Nuclear Operating Company P.O. Box 1295
CITY, STATE, ZIP CODE	Birmingham, AL 35201
C/O	Manager - Nuclear Procurement
CUSTOMER	Iowa Electric Light & Power Company
CONTACT NAME	Materials Management Record Control
ADDRESS	Duane Arnold Energy Center 3277 DAEC Road
CITY, STATE, ZIP CODE	Palo, Iowa 52324
C/O	Inventory/Account Processor
CUSTOMER	Northeast Utilities
CONTACT NAME	Mr. Thomas J. Dente
ADDRESS	NUSCO - Vendor Information Coordinator Mail Stop W-219 P.O. BOX 270
CITY, STATE, ZIP CODE	Hartford, CT 06141-0270
C/O	Manager Nuclear Operation Services

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CUSTOMER	Northern States Power Company
CONTACT NAME	
ADDRESS	Power Supply Quality Assurance 414 Nickollet Mall Renaissance Square 10
CITY, STATE, ZIP CODE	Minneapolis, MN 55401
C/O	Superintendent Supplier Quality Assurance
CUSTOMER	Philadelphia Electric Co.
CONTACT NAME	
ADDRESS	Correspondence Control Desk P.O. BOX 195
CITY, STATE, ZIP CODE	Wayne, PA 19087
C/O	Manager - Licensing Section
CUSTOMER	Florida Power Corporation
CONTACT NAME	Mr. George Oberndorfer
ADDRESS	Crystal River Energy Complex 15760 West Power Line Road
CITY, STATE, ZIP CODE	Crystal River, FL 34428-6708
C/O	Nuclear Procurement QA
CUSTOMER	Virginia Power
CONTACT NAME	
ADDRESS	Innsbrook Technical Center 5000 Dominion Boulevard
CITY, STATE, ZIP CODE	Glen Allen, VA 23060
C/O	Manager Nuclear Licensing and Programs

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CUSTOMER	Vermont Yankee Nuclear Power Corporation
CONTACT NAME	
ADDRESS	P.O. BOX 157
CITY, STATE, ZIP CODE	Vernon, VT 05354
C/O	Operating Experience Coordinator
CUSTOMER	GPU Nuclear Corporation
CONTACT NAME	
ADDRESS	Three Mile Island Unit 1
	P.O. BOX 480
CITY, STATE, ZIP CODE	Middletown, PA 17057
C/O	Procurement QA Manager