

**Coltec Industries**



**Fairbanks Morse  
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March 8, 1999

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

File No. 99-002

Subject: ALCO Air and Exhaust Valve Cam Rollers

On February 9, 1999, Coltec Industries, Fairbanks Morse Engine Division (FMED), became aware of a potential safety hazard associated with the air and exhaust valve cam rollers Catalog number 2241342 for FM-ALCO 251 engines. FMED had supplied the suspect rollers in six fuel pump support kits Catalog number 2500605 to Consolidated Edison - Indian Point 2 nuclear power station on November 14, 1997. Based on a review of FMED records, Consolidated Edison is the only nuclear utility that is impacted.

Engineering and Quality Assurance determined the cause to be improper heat treatment of the cam rollers, which results in premature wear of the roller and possible damage to the camshaft lobe, roller pin, and push rod. FM-ALCO specifications require the rollers to be carburized, to ensure adequate case depth hardness and surface hardness. However, the suspect rollers were induction hardened, which resulted in inadequate case depth hardness and surface hardness. FMED Receiving Supervisor failed to note the improper heat treatment process upon review of the certifications from the supplier of the cam rollers. In addition, the commercial grade dedication process for the cam rollers used non-conservative tolerances for the surface hardness of the rollers.

FMED has taken corrective action to prevent recurrence by retraining the Receiving Supervisor and the engineering personnel who develop the dedication processes. In addition, the tolerance used during the dedication process for the cam rollers has been changed. Other tolerances will be reviewed as parts are dedicated.

It should be noted that FMED has not been notified, nor is aware of any air and exhaust valve cam roller failures that have occurred at any nuclear facilities. The failures that have occurred have been in commercial applications after approximately 200 hours of operation.

Sincerely,

James C. Golding  
Senior Quality Assurance Engineer

Cc:

Terry Gill  
Mary Armfield  
Ted Stevenson  
Greg Gutoski  
Mario Lavin

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Engineering and Quality Assurance determined the cause to be improper heat treatment of the cam rollers, which results in premature wear of the roller and possible damage to the camshaft lobe, roller pin, and push rod. FM-ALCO specifications require the rollers to be carburized, to ensure adequate case depth hardness and surface hardness. However, the suspect rollers were induction hardened, which resulted in inadequate case depth hardness and surface hardness. FMED Receiving Supervisor failed to note the improper heat treatment process upon review of the certifications from the supplier of the cam rollers. In addition, the commercial grade dedication process for the cam rollers used non-conservative tolerances for the surface hardness of the rollers.

FMED has taken corrective action to prevent recurrence by retraining the Receiving Supervisor and the engineering personnel who develop the dedication processes. In addition, the tolerance used during the dedication process for the cam rollers has been changed. Other tolerances will be reviewed as parts are dedicated.

It should be noted that FMED has not be notified, nor is aware of any air and exhaust valve cam roller failures that have occurred at any nuclear facilities. The failures that have occurred have been in commercial applications after approximately 200 hours of operation.

Sincerely,

James C. Golding  
Senior Quality Assurance Engineer

Cc:

Terry Gill  
Mary Armfield  
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General Information or Other (PAR)

Event # 35448

<b>Rep Org:</b> FAIRBANKS MORSE ENGINE DIVISION	<b>Notification Date / Time:</b> 03/08/1999 15:29 (EST)
<b>Supplier:</b> FAIRBANKS MORSE ENGINE DIVISION	<b>Event Date / Time:</b> 03/08/1999 14:20 (CST)
	<b>Last Modification:</b> 03/08/1999
<b>Region:</b> 3	<b>Docket #:</b>
<b>City:</b> BELOIT	<b>Agreement State:</b> No
<b>County:</b>	<b>License #:</b>
<b>State:</b> WI	
<b>NRC Notified by:</b>	<b>Notifications:</b> RONALD GARDNER R3
<b>HQ Ops Officer:</b> FANGIE JONES	VERN HODGE (FAX) NRR
<b>Emergency Class:</b> NON EMERGENCY	
<b>10 CFR Section:</b>	
21.21	UNSPECIFIED PARAGRAPH

10 CFR PART 21 REPORT REGARDING IMPROPER HEAT TREATMENT TO CAM ROLLERS

On February 9, 1999, Coltec Industries, Fairbanks Morse Engine Division (FMED), became aware of a potential safety hazard associated with the air and exhaust valve cam rollers for FM-ALCO 251 engines. Final analysis was completed on March 8, 1999 by Engineering and Quality Assurance. They determined the cause to be improper heat treatment of the cam rollers, which results in premature wear of the roller and possible damage to the camshaft lobe, roller pin, and push rod. The suspect rollers were induction hardened, which resulted in inadequate case depth hardness and surface hardness.

FMED had supplied the suspect rollers to Consolidated Edison Indian Point 2 nuclear power station on November 14, 1997. Based on a review of FMED records, Consolidated Edison is the only nuclear utility that is impacted.

FMED has taken corrective action-to prevent reoccurrence. In addition, the tolerance used during the dedication process for the cam rollers has been changed. Other tolerances will be reviewed as parts are dedicated.

It should be noted that FMED has not been notified, nor is it aware of any air and exhaust valve cam roller failures that have occurred at any nuclear facilities. The failures that have occurred have been in commercial applications after approximately 200 hours of operation.

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