

MAR 7 1989

In Reply Refer To:  
Docket: 50-285

Omaha Public Power District  
ATTN: Kenneth J. Morris, Division Manager  
Nuclear Operations  
1623 Harney Street  
Omaha, Nebraska 68102

Gentlemen:

Thank you for your letter of January 9, 1989, documenting the telephone conversation held on December 21, 1988, between OPPD and NRC Region IV personnel. During this conversation, OPPD's decision to defer plans to overhaul the motors in containment cooling fans VA-3A, -3B, -7C, and -7D was discussed. This decision was contrary to the information provided to our inspector during the review and closeout of Unresolved Item 285/8705-13.

It is our understanding that this deferral was evaluated by OPPD based upon new information provided by Joy Manufacturing, the equipment vendor and a review by your contractor.

Based on this telephone conversation and our review of your letter, we have no further questions at this time on your proposed actions and Unresolved Item 285/8705-13 will remain closed.

Sincerely,

*orig signed by  
Dwight Chamberlain*

L. J. Callan, Director  
Division of Reactor Projects

cc:  
Fort Calhoun Station  
ATTN: W. G. Gates, Manager  
P.O. Box 399  
Fort Calhoun, Nebraska 68023

Harry H. Voigt, Esq.  
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Nebraska Radiation Control Program Director

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3/3/89

C:PSS *AS*  
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D:DRS *LJ*  
JLMilhoan  
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*DRP*  
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3/7/89

*IEOI  
11*

bcc to DMB (IE01)

bcc distrib. by RIV:

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~~CONFIDENTIAL~~

Omaha Public Power District  
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*T. Stetka*

January 9, 1989  
LIC-88-1115

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

References: 1. Docket No. 50-285  
2. Letter from NRC (J. E. Gagliardo) to OPPD (R. L. Andrews) dated May 8, 1987 (Inspection Report 50-285/37-05-13)  
3. Letter from NRC (L. J. Callan) to OPPD (K. J. Morris) dated September 19, 1988 (Inspection Report 50-285/88-25)

Gentlemen:

SUBJECT: Planned Overhaul of Containment Cooling Fans VA-3A, VA-3B, VA-7C, and VA-7D

The purpose of this letter is to inform you of Omaha Public Power District's (OPPD's) decision to alter plans to remove the containment cooling fans at Fort Calhoun Station for overhaul. Recent additional information has resulted in the decision to defer actions.

A telephone conversation was held on December 21, 1988 between OPPD licensing and engineering personnel, Mr. Westerman and Mr. Boardman of Region IV, and Mr. Harrell, Fort Calhoun Station Senior Resident Inspector. OPPD's decision to defer plans to overhaul the fans and the reasons justifying this decision were discussed.

In August 1988, the NRC reviewed the status of Unresolved Item 285/8705-13, Lubrication of Containment Cooling Fan Motors and Limitorque Operators. The review was documented in NRC Inspection Report 50-285/88-25. A concern was expressed that the periodicity of lubrication of containment cooling fan motors would not allow operating hours plus the time required for Post-LOCA fan operation. This concern was fostered by information provided to the NRC Inspector during the inspection. The information reflected OPPD's understanding of the situation at the time. The status update of Unresolved Item 8705-13 concluded with a statement of verbal commitment to return the fan units to the manufacturer for overhaul during the 1988 refueling outage.

The overhaul issue was reevaluated by OPPD engineering and maintenance staff. Primary data used in the reevaluation was new information provided by Joy Manufacturing, the equipment vendor, and a review performed by Sargent & Lundy. Following is a summary of the information used in the decision to defer overhaul of the cooling fan units.

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1. A more recent reevaluation of the bearing life by the Vendor (Joy Manufacturing) through calculations (Report No. X-1207, dated September 21, 1988) has established that the VA-3 motor bearings should last throughout the projected plant operating life. The Minimum Expected Life for the outboard bearing is 2.93 million hours; the Minimum Expected Life for the inboard bearing is 250,000 hours. These times are well in excess of the expected fan operating time. The results of the Joy study have also been reviewed and supported by Sargent & Lundy.

2. OPPD reviewed the lubrication frequency and has implemented a revised lubrication schedule. The schedule was predicated on a relatively clean, cool (less than 100° F) environment. These conditions correspond to the vendor definition of "Standard" environment.

The VA-3 fans operate on a cycled basis between VA-3A and VA-3B. The vendor prescribed lubrication interval is now one year for this combination of environment and operating time. OPPD has established a lubrication interval of nine months for the VA-3 fans.

The VA-7 fans are each operated less than 50 hours annually. OPPD has established a lubrication interval of eighteen months for the VA-7 fans based on the light duty cycle of the equipment.

The revised lubrication schedule was conservatively established so that sufficient time would be available for Post-LOCA operation.

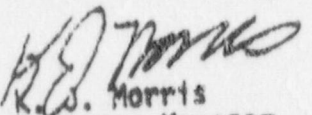
3. With regard to evaluating projected bearing life on the basis of past lubrication practices, B-10 (or L-10) bearing life is a statistical parameter similar to the Weibull distribution and cannot be rigorously correlated to past lubrication amount and interval. Because of the relatively small amount of lubrication required in anti-friction ball bearings, the optimum lubrication amount and frequency for a bearing with a given set of operating and load conditions is probably as much empirical in basis as it is scientific.
4. The decision to overhaul all four units would reintroduce the collective uncertainties associated with the initial "infant mortality" phase of the reliability function. Also, significant risk involving personnel and equipment along with additional radiation exposure would be incurred to gain reliability of questionable value.
5. Baseline vibration data for these motors will be taken and recorded this outage with subsequent readings taken during succeeding outages. Data trending will provide additional basis for evaluating projected motor/bearing life.

OPPD maintains two spare motors onsite for the containment cooling units. Periodic maintenance is performed on these units. Our review of lubrication requirements was extended to cover the spare motors. Past lubrication practices have probably resulted in over-lubrication. Procedures have been obtained from the motor manufacturer (Reliance Electric) for proper disassembly, cleaning, reassembly, and the proper lubrication and environmental considerations for long-term storage of these motors. This work will be accomplished post-outage.

It is our firm belief that the decision to defer plans to overhaul the containment cooling fans is prudent, in keeping with a sound maintenance philosophy, and is in the best interests of the safe and reliable operation of the plant.

If any further information is required, please contact us.

Sincerely,

  
K. W. Morris  
Division Manager  
Nuclear Operations

KJM/sa

c: LeBoeuf, Lamb, Leiby & MacRae  
R. D. Martin, NRC Regional Administrator  
P. D. Milano, NRC Project Manager  
P. H. Harrell, NRC Senior Resident Inspector