

AUGUST 19 1981

DISTRIBUTION:  
Docket File  
NRC PDR  
L PDR  
TERA  
NSIC  
ORB#4 Rdg

DEisenhut  
JStolz  
PIngram  
ORB#4 PM  
WRoss  
OELD  
AEOD  
IE-3  
ACRS-10  
Gray File  
HOrnstein  
FBlackwood

Docket No. 50-312

Mr. J. J. Mattimoe  
Assistant General Manager and  
Chief Engineer  
Sacramento Municipal Utility District  
6201 S Street  
P. O. Box 15830  
Sacramento, California 95813



Dear Mr. Mattimoe:

SUBJECT: TURBINE DISC CRACKING

By letter dated February 25, 1980 we informed all licensee/users of Westinghouse low-pressure turbines that stress corrosion cracks were being found in the keyway and bore areas of low-pressure discs. Because these cracks were considered to increase the probability of disc failure we requested that you perform ultrasonic inspections on your low-pressure discs and justify that your plant could continue to operate safely.

All Westinghouse low-pressure turbines at operating nuclear power plants have now been inspected, at least once, for keyway and bore cracks. Indication of one or both types of these cracks has been found at 20 plants. Although all factors related to cracking have not been positively established, operating experience indicates that crack initiation and growth are related to disc temperature and material characteristics. Westinghouse is continuing to evaluate the effect of other manufacturing and operational variables.

Until a satisfactory solution can be found we believe that it would be prudent for you to continue inspecting your low-pressure turbine discs on a schedule designed to minimize the probability that a crack will form and grow to a depth that would cause a disc to rupture. Westinghouse has developed a method to determine safe inspection and re-inspection frequencies and has submitted this information in Memorandum MSTG-1-2, June 1981 (Proprietary) for review by the NRC staff.

Our appraisal of the Westinghouse approach is presented in the enclosed Safety Evaluation. We conclude that inspection schedules based on the recommendations in the Westinghouse Memorandum will provide an acceptably high degree of assurance that discs will be inspected before cracks can grow to a size that could cause disc failure at speeds up to design speed. In our Safety Evaluation we list four criteria for an acceptable inspection schedule. I request that you commit to use these criteria for future disc inspections. We believe that such a commitment will reduce the probability for a safety problem to such a degree that the NRC staff would no longer need to monitor your turbine inspections except through the normal activities of our Office of Inspection and Enforcement. Your commitment would

also eliminate the need for you to report these inspection results to the staff or to transmit the computerized disc data sheets that are prepared by Westinghouse.

OFFICE  
SURNAME  
DATE  
8109020083 810819  
NRC FC PDR ADOCK 05000312  
G PDR

OFFICIAL RECORD COPY

USGPO: 1981-335-960

Mr. J. J. Mattimoe

-2-

Your response to this request should be submitted within 30 days of receipt of this letter.

I also take this opportunity to advise you that on June 11, 1981 Westinghouse transmitted two proprietary reports related to turbine missiles for NRC staff review and evaluation. We have been advised by Westinghouse that the methodology described in these reports was used to provide its customers with estimates of the probability of disc rupture from stress corrosion cracking and with analyses of potential missile energies. We shall provide Westinghouse with our evaluation of this methodology as soon as our resources permit.

Sincerely,

\*ORIGINAL SIGNED BY

JOHN F. STOLTZ\*

John F. Stolz, Chief  
Operating Reactors Branch #4  
Division of Licensing

Enclosure:  
Safety Evaluation

cc w/enclosure:  
See next page

OFFICE	ORB#4:DL	ORB#1:DL	C-ORB#4:DL				
SURNAME	MPadovan	WRoss	JStolz				
DATE	8/19/81:cb	8/18/81	8/19/81				