

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

SERVED

FEB 24 1981

Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. John H. Buck
Dr. Lawrence R. Quarles



In the Matter of)
)
)
 VIRGINIA ELECTRIC AND POWER COMPANY)
)
)
 (North Anna Nuclear Power Station,)
 Units 1 and 2))

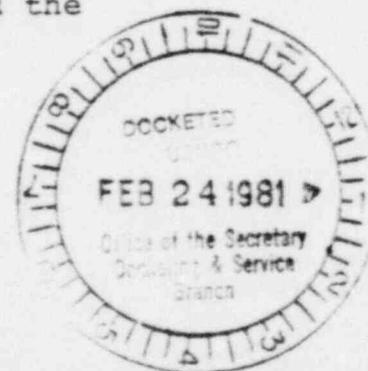
Docket Nos. 50-338 OL
50-339 OL

MEMORANDUM AND ORDER

February 23, 1981

This operating license proceeding involving Units 1 and 2 of the North Anna facility remains before us on the turbine missile issue. Last April, in ALAB-589, 11 NRC 539, 541 (1980), we concluded, inter alia, that the then recent developments relating to the turbine missile problem^{1/} did not require the halting of Unit 1 operation. (Unit 2 was not as yet on line at that time.) In this connection, we noted that Unit 1 was scheduled for a routine refueling shutdown in early December 1980, during which the

1/ As explained in ALAB-589, cracking of turbine disks had been uncovered at a number of facilities employing equipment made by the same manufacturer that supplied the North Anna turbines. 11 NRC at 540.



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turbines would undergo an inspection capable of detecting any substantial cracking which might have occurred. Id. at 540-41.^{2/}

On November 6, counsel for the applicant advised us that the Unit 1 shutdown was being postponed for one month, to January 1, 1981. In an unpublished order entered on November 18, we determined that the additional period of operation prior to shutdown and turbine inspection did not pose an undue risk to the public health and safety. The applicant was explicitly informed, however, that Unit 1 operation was not to resume until after we had received the results of the inspection and had had an opportunity to evaluate them.

Unit 1 was shutdown a few days before January 1. The ensuing ultrasonic inspection revealed two relatively small disk cracks in one of the low-pressure turbine rotors. Confronted with this disclosure, the applicant decided to replace the affected rotor in its entirety with a rotor from the now-disabled Unit 2 of the Three Mile Island nuclear facility. An ultrasonic inspection of the latter indicated that it was free of any defects.

We have examined the reports submitted with regard to the inspection of both the North Anna Unit 1 turbine rotors and the

^{2/} For reasons stated in ALAB-589, 11 NRC at 540, we found there to be reasonable assurance that any cracks that might develop would not have had time to approach critical size by December.

TMI-2 replacement rotor. In addition, in the company of counsel and other representatives of the two parties to the adjudication of the turbine missile issue (the applicant and the NRC staff), we visited the North Anna Unit 1 turbine building on February 19.^{3/} This visit was followed by an informal discussion on-site with those individuals, in which representatives of the turbine manufacturer also participated.

On the basis of the documentary submissions to us and the additional information acquired during the site visit, we hereby give our approval to the resumption of Unit 1 operation at such time as the NRC staff is satisfied that the replacement rotor has been properly installed.^{4/} What remains for later consideration is the timing of the next turbine inspection. On that score, we were told during the on-site discussion last week that the staff is reconsidering its analytical model pertaining to crack growth in light of the recent cracking experience at the Farley facility. It is our understanding that the results of

^{3/} The affected North Anna rotor was available for physical examination at that time. The replacement rotor had not as yet reached the North Anna site because of an unanticipated delay in transit. We have been informally advised that it arrived the next day.

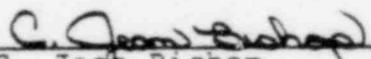
^{4/} There may, of course, be other staff-imposed conditions precedent to the restart of Unit 1. Our present concern is limited to the turbine missile issue.

that reconsideration (as applied to North Anna Unit 1) will be supplied to us and to the applicant and its turbine vendor in the very near future. When received, we will determine the appropriate next step on the reinspection question.

Also still open, of course, is the ultimate disposition of the turbine missile issue in this proceeding. This matter likewise was taken up in the on-site discussion. As we observed, it may be possible to resolve the issue on the strength of a demonstration that the protective turbine covering would contain turbine missiles generated by a crack-induced blade failure (with the consequence that the risk of such a missile striking a safety structure or component is acceptably low). We await the receipt of the results of further studies currently being conducted by the turbine manufacturer on that subject.

It is so ORDERED.

FOR THE APPEAL BOARD


C. Jean Bishop
Secretary to the
Appeal Board

Dr. Quarles participated in the consideration and disposition of this matter but did not review the final version of this order.