

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

JUNE 9, 1976

Honorable Marcus A. Rowden  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, DC 20005

SUBJECT: REPORT ON ZION STATION UNITS 1 AND 2

Dear Mr. Rowden:

During its 194th meeting, June 3-5, 1976, the Advisory Committee on Reactor Safeguards completed its review of the proposal to increase the maximum reactor power of the Zion Station Units 1 and 2 from 2760 MWt (85% of full power) to the rated power of 3250 MWt. The Committee had previously discussed operation of the Zion Station, in its reports of August 17, 1972, May 17, 1973 and December 9, 1974. A Subcommittee meeting on the current proposal was held in Kenosha, Wisconsin on May 27, 1976, subsequent to a visit to the site on May 26, 1976. During its review, the Committee had the benefit of discussions with representatives of Commonwealth Edison Company, Westinghouse Electric Corporation, the Nuclear Regulatory Commission Staff and of the documents listed, as well as comments from members of the public.

In its previous letters relating to the Zion Station, the Committee listed several concerns which, in its opinion, mitigated against the full power operation of these large reactors at a site having a significantly larger than average population density. Three of these concerns, relating to fuel behavior, control of core power distribution, and reliability of diesel generator startup, have been resolved to the satisfaction of the NRC Staff, as reported in its Safety Evaluation Report dated May 20, 1976.

The ACRS believes that with the resolution of these three matters it is acceptable for the Zion Station reactors to be operated at full power. However, the Committee believes that other matters should be dealt with in a timely fashion if the Zion reactors are to continue to be operated at full power over the lifetime of the plant. The ACRS recommends that these matters, as set forth below, be addressed by the Applicant and the NRC Staff during the next year:

- (1) A review of the entire Station for systems interaction that might lead to significant degradation of safety.
- (2) A review of the Station with regard to differences from current criteria, and judgments concerning possible back-fitting requirements.
- (3) The implementation of instrumentation to provide early information concerning the course of a full range of postulated serious accidents, and procedures for interpreting and relating this information to emergency plans.
- (4) Installation of a loose-parts monitoring system as soon as practicable.
- (5) Evaluation and prompt implementation of improvements in fire protection capability, as necessary.
- (6) Timely implementation of modifications required in connection with the resolution of ATWS.
- (7) Continued studies directed to enhancement of the capability and reliability of the Emergency Core Cooling Systems.
- (8) Demonstration of the reliability of the diesel generators to operate with load for extended periods of time.
- (9) Assessment of the safety significance of the large number of reportable events experienced at the station, and prompt implementation of significant improvements in operational quality assurance.
- (10) Prompt implementation of improvements in industrial security as appropriate.

Other generic problems relating to large water reactors are discussed in the Committee's report dated April 16, 1976. As solutions to these problems are found, both the Applicant and the NRC Staff should give a high priority to their prompt implementation at the Zion Station.

The ACRS wishes to review the status of these matters by June of 1977.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above, there is reasonable assurance that the Zion Station Units 1 and 2 can be operated at full power, 3250 MWt, without undue risk to the health and safety of the public. As noted above

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the Committee will again review the operation of the Zion Station in approximately one year.

Sincerely yours,

*Dade W. Moeller*

Dade W. Moeller  
Chairman

REFERENCES

1. Safety Evaluation Report on Zion Station, Units 1 and 2, dated May 20, 1976.
2. Supplement No. 1 to the Startup Test Report Issued November 1974 on Zion Nuclear Power Station, Unit 1, dated April 16, 1976.
3. Letter from E. Jenkins to ACRS concerning full power operation of the Zion Station, dated June 1976.
4. Letter from D. Comey to E.G. Case, concerning reliability of emergency diesel generators at Zion Stations, dated August 28, 1974.