

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS**  
**UNITED STATES ATOMIC ENERGY COMMISSION**  
WASHINGTON, D.C. 20545

April 15, 1974

Honorable Dixy Lee Ray  
Chairman  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

Subject: REPORT ON NORTH ANNA POWER STATION, UNITS 1, 2, 3 AND 4

Dear Dr. Ray:

At its 168th meeting, April 11-13, 1974, the Advisory Committee on Reactor Safeguards completed its review of safety matters related to the previous discovery of fault zones under or adjacent to the foundation locations of North Anna Power Station, Units 1, 2, 3, and 4 in Louisa County, Virginia. Members of the ACRS or its consultants visited the site on five occasions between September 29, 1973 and February 6, 1974. The matter was considered further at a Subcommittee meeting on March 6, 1974 and at a meeting of the full Committee, March 7-9, 1974. During its review, the Committee had the benefit of discussions with representatives and consultants of the Virginia Electric and Power Company and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed.

The Committee previously reported to the Commission on the construction permit applications for North Anna Units 1 and 2, on August 20, 1970 and on North Anna Units 3 and 4, on March 13, 1973.

On May 17, 1973 the Applicant notified the Regulatory Staff of the existence of a chlorite seam in the containment excavations for Units 3 and 4. Subsequent investigation has led to the conclusion that several minor fault zones are in the immediate vicinity and that the excavation for each of the four units is transected by one or more faults.

Extensive study of the matter has led to general agreement by the Regulatory Staff and its consultants, by the Applicant's consultants, and by consultants to the Committee that all the faults under consideration are very old (perhaps hundreds of millions of years) and that in the four fault zones which transect the excavations there is direct geologic evidence that no significant displacement has occurred in more than 500,000 years. These are therefore not capable faults as defined by Appendix A of 10 CFR Part 100.

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Studies of the possibility of Lake Anna inducing seismic activity and displacement along the faults in question lead to the conclusion that such a consequence is highly unlikely. The program of monitoring microearthquakes in the immediate vicinity of the site should provide further substantiation of this conclusion or alert the Applicant to the possible onset of changed conditions.

Adequate provisions with regard to foundation stability are included in the Applicant's design approach.

The Advisory Committee on Reactor Safeguards concludes that provisions to accommodate surface displacement of faults need not be made in the design of the North Anna Power Station, Units 1, 2, 3, and 4.

Sincerely yours,

A handwritten signature in cursive script that reads "W. R. Stratton".

W. R. Stratton  
Chairman

References: Listed on Page 3

List of References:

1. Amendments 17-20 to the Preliminary Safety Analysis Report of the Virginia Electric and Power Company Application for License to Construct Units 3 and 4 of the North Anna Power Station
2. Letter dated February 25, 1974 from Virginia Electric and Power Company to Directorate of Licensing, U. S. AEC
3. Letters from the North Anna Environmental Coalition dated: October 22, 1973; January 2, 1974; February 25, 1974; and April 9, 1974
4. Questions presented April 11, 1974, from the North Anna Environmental Coalition with attached chronology
5. Press releases (2) dated April 11, 1974, from the North Anna Environmental Coalition with attachments
6. Supplement No. 3, dated February 28, 1974, to the Safety Evaluation by the Directorate of Licensing, U. S. AEC in the Matter of Virginia Electric and Power Company North Anna Power Station, Units 3 and 4
7. U. S. Geological Survey Reports dated: October 4, 1973; December 4, 1973; February 28, 1974; March 19, 1974; and, April 10, 1974
8. Testimony prepared for presentation before the Atomic Safety and Licensing Board in the Matter of Virginia Electric and Power Company (North Anna Power Station, Units 1, 2, 3, and 4) from:

Bernard Archer  
Dr. Carlos G. Bell, Jr.  
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