



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

January 13, 1978

Honorable Joseph M. Hendrie  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: REPORT ON YELLOW CREEK NUCLEAR PLANT, UNITS 1 AND 2

Dear Dr. Hendrie:

During its 213th meeting, January 5-7, 1978, the Advisory Committee on Reactor Safeguards completed its review of the application of the Tennessee Valley Authority (the Applicant) for a permit to construct the Yellow Creek Nuclear Plant, Units 1 and 2. The application was reviewed at a Subcommittee meeting in Corinth, Mississippi on December 16, 1977. A tour of the site was made by Subcommittee members on December 15, 1977. During its review, the Committee had the benefit of discussions with representatives and consultants of the Applicant, Combustion Engineering Incorporated, and the Nuclear Regulatory Commission (NRC) Staff. The Committee also had the benefit of the documents listed.

The Yellow Creek Plant site is located in Tishomingo County, approximately 15 miles east of Corinth, Mississippi. The minimum exclusion area distance is 695 meters; the low population zone radius is three miles. The nearest population center is the Florence-Muscle Shoals-Sheffield-Tuscumbia, Alabama complex (1970 population of about 62,900) which is located approximately 35 miles east of the site.

The application for the Yellow Creek Plant was submitted in accordance with the Commission's standardization policy as described in Appendix 0 to Part 50, "Licensing of Production and Utilization Facilities," and Section 2.110 of Part 2, "Rules of Practice," of Title 10 of the Code of Federal Regulations. For this application, the reference system is the Combustion Engineering Standardized Nuclear Steam Supply System known as Standard Reference System-80. This design has been reviewed by the ACRS and was discussed in its report of September 17, 1975, "Combustion Engineering Standard Safety Analysis Report - CESSAR-80."

The reactor containment scheme for the Yellow Creek plant consists of a spherical steel vessel and a reinforced concrete shield building, generally similar to those for the Cherokee and Perkins plants.

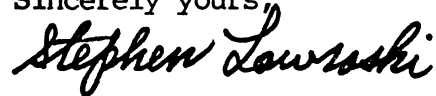
An acceleration of 0.25g for rock-supported structures and 0.30g for soil-supported structures has been specified for the safe shutdown earthquake selected for the Yellow Creek Plant. The applicant has used a probabilistic treatment to choose an operating basis earthquake with which are associated ground level accelerations of 0.08g for rock supported structures and 0.10g for those supported on soil. The Committee considers these values acceptable.

The NRC Staff has identified a number of safety items which will require resolution before issuance of a construction permit. These matters should be resolved in a manner satisfactory to the NRC Staff.

With regard to generic problems cited in the Committee's report, "Status of Generic Items Relating to Light-Water Reactors: Report No. 6," dated November 15, 1977, items considered relevant to the Yellow Creek Plant are: II-1, 2, 3, 4, 5B, 6, 7, 9, 10; IIA-2, 3, 4; IIB-1, 2; IIC-1, 2, 3A, 3B, 4, 5, 6; IID-1, 2; IIE-1. These problems should be dealt with by the Staff and Applicant as solutions are found.

The Advisory Committee on Reactor Safeguards believes that if due consideration is given to the foregoing, the Yellow Creek Nuclear Plant, Units 1 and 2 can be constructed with reasonable assurance that it can be operated without undue risk to the health and safety of the public.

Sincerely yours,



Stephen Lawroski  
Chairman

#### References

1. Yellow Creek Nuclear Plant, Units 1 and 2 Preliminary Safety Analysis Report, Volumes 1 through 6 and Amendments 1 through 10.
2. Safety Evaluation Report related to construction of Yellow Creek Nuclear Plant, Units 1 and 2, NUREG-0347, December 1, 1977, Docket Nos. STN 50-566 and STN 50-567.
3. Letter from J. E. Gilleland, TVA to O. D. Parr, NRR, on safety grade instrumentation to detect the loss of cooling water to the reactor coolant pumps, dated September 14, 1977.
4. Letter from J. E. Gilleland, TVA to D. B. Vassallo, NRR, on revised operating basis earthquake, dated October 14, 1977.
5. Letter from J. E. Gilleland, TVA, to O. D. Parr, NRR, on plant monitoring system, dated November 7, 1977.

6. Letter from J. E. Gilleland, TVA, to D. B. Vassallo, NRR on outstanding issues, dated November 14, 1977.
7. Letter from J. E. Gilleland, TVA, to O. D. Parr, NRR, on outstanding issues, dated November 23, 1977.
8. Letter from G. R. Lanning, Jr., to the Nuclear Regulatory Commission Advisory Committee [sic], on geology and emergency plans, dated December 16, 1977.