



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

August 8, 1978

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

SUBJECT: REPORT ON DAVIS-BESSE NUCLEAR POWER STATION, UNITS 2 AND 3

Dear Dr. Hendrie:

During its 220th Meeting, August 3-5, 1978, the Advisory Committee on Reactor Safeguards completed its review of the application of the Toledo Edison Company, the Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company (hereinafter referred to collectively as the Applicant) for a permit to construct the Davis-Besse Nuclear Power Station, Units 2 and 3. A Subcommittee meeting to review this application was held in Washington, D.C. on June 30, 1978. During its review, the Committee had the benefit of discussions with representatives and consultants of the Toledo Edison Company, representing the Applicant, the Babcock & Wilcox Company, the Bechtel Corporation, and the Nuclear Regulatory Commission (NRC) Staff. The Committee also had the benefit of the documents listed.

Units 2 and 3 will be located immediately adjacent to Unit 1 on the southwestern shore of Lake Erie approximately 21 miles east of Toledo, Ohio. The suitability of the site was considered by the Committee in its reviews of the construction permit and operating license applications for Unit 1, as discussed in its reports of August 20, 1970 and January 14, 1977. There have been no adverse changes in the site characteristics since those reviews were made.

The safe shutdown earthquake for Units 2 and 3 will be characterized by a zero-period acceleration of 0.20g applied at the foundation level. The operating basis earthquake will correspond to an acceleration of 0.08g. The Committee finds these values acceptable.

Each nuclear steam supply system will employ a 2772 Mwt Babcock & Wilcox pressurized water reactor similar to that used in Davis-Besse Unit 1 except in two respects: the reactor core for Units 2 and 3 will utilize the

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Mark C 17x17 fuel assemblies, and the reactor protection system will be a hybrid analog-digital system, designated RPS-II. Both of these features have been proposed for other plants, and the NRC Staff expects all questions regarding the Mark C fuel and the RPS-II to be resolved in connection with its operating license review for the Tennessee Valley Authority's Bellefonte Nuclear Plant. The Committee finds this procedure acceptable.

The Applicant has proposed to control the concentration of combustible gas following a postulated loss-of-coolant accident (LOCA) by repressurizing the containment to dilute the gas present and by subsequent release of the mixture to the atmosphere. The NRC Staff has found this unacceptable and requires the Applicant to utilize hydrogen recombiners as the primary means for control of combustible gas following a LOCA. The Committee believes that repressurization of the containment is not desirable and that hydrogen recombiners should be provided in these units.

Because the steam turbine-generators are oriented tangentially to their respective containment buildings, the NRC Staff has requested more detailed analyses of the probability that a turbine missile would strike and damage the primary system piping and equipment inside the containment. The Applicant has agreed to perform such analyses utilizing data from the missile penetration tests now being carried out for the Electric Power Research Institute (EPRI). If these analyses do not yield acceptably low probabilities of damage, structural barriers can be provided. If the results of the EPRI test program are not available prior to construction of the affected structures, the NRC Staff will evaluate the requirements for protection against turbine missiles using current penetration criteria. The Committee finds this position acceptable.

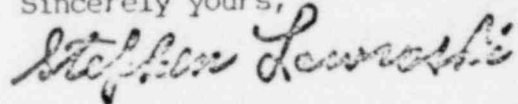
In accordance with a recently adopted position, the NRC Staff is reviewing the capability to bring the reactors to a cold shutdown condition in approximately 36 hours, using only safety-grade equipment, assuming a loss of onsite or offsite power, and assuming a single failure. The Committee believes that this matter should be resolved in a manner satisfactory to the NRC Staff. The Committee wishes to be kept informed.

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

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The Advisory Committee on Reactor Safeguards believes that, if due consideration is given to the items mentioned above, the Davis-Besse Nuclear Power Station, Units 2 and 3 can be constructed with reasonable assurance that they can be operated without undue risk to the health and safety of the public.

Sincerely yours,



Stephen Lawroski  
Chairman

References:

1. Davis-Besse Nuclear Power Station, Units 2 and 3 - Preliminary Safety Analysis Report, Volumes 1-9, Revisions 1 through 20.
2. Report to the ACRS by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission in the matter of Toledo Edison Company, Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company, Davis-Besse Nuclear Power Station, Units 2 and 3, Docket Nos. 50-500 and 50-501, dated June 15, 1978.
3. Safety Evaluation Report by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission in the matter of Toledo Edison Company, Cleveland Electric Illuminating Company, Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company, Davis-Besse Nuclear Power Station, Units 2 and 3, Docket Nos. 50-500 and 50-501, NUREG-0421, dated July 6, 1978.
4. Letter from L. Roe, Toledo Edison Company, to D. Vassallo, NRC, Subject: Response to nine outstanding issues concerning application for a construction permit, dated March 7, 1978.
5. Letter from L. Roe, Toledo Edison Company, to D. Vassallo, NRC, Subject: Response to outstanding issues 9, 13, 16 & 19, dated March 10, 1978.
6. Letter from L. Roe, Toledo Edison Company, to D. Vassallo, NRC, Subject: Outstanding issue 21 concerning combustible gas control inside containment vessels, dated March 22, 1978.
7. Letter from L. Roe, Toledo Edison Company, to R. Baer, NRC, Subject: Outstanding items in Report to the ACRS by NRC Staff, dated June 26, 1978.
8. Letter from L. Roe, Toledo Edison Company, to R. Baer, NRC, Subject: Resolution of outstanding item 1 contained in the Report to ACRS by NRC Staff, dated June 28, 1978.