PROD. & UTIL. FAC. 50-346

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
THE TOLEDO EDISON COMPANY	)	Docket No. 50-346
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY	)	
	)	
(Davis-Besse Nuclear Power Station)	)	

AEC REGULATORY STAFF'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW (IN THE FORM OF A PROPOSED INITIAL DECISION)

Preliminary Statement

1. This proceeding involves the application of The Toledo Edison Company and The Cleveland Electric Illuminating Company (applicants), dated August 1, 1969, and subsequent amendments (hereinafter collectively referred to as the application) properly filed with the Atomic Energy Commission (Commission) under the provisions of section 104 b. of the Atomic Energy Act of 1954, as amended (Act), [1/] for a construction permit to construct a pressurized water reactor, designed to operate initially at 2633 megawatts (thermal), to be located at the applicants' Davis-Besse Nuclear Power Station (facility) on the south shore of Lake Erie in Ottawa County, Ohio, approximately 20 miles east of Toledo, Ohio.

1/ Pursuant to P.L. 91-560 enacted on December 19, 1970, the construction permit will be issued under section 103 of the Act rather than section 104 b.

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2. The application was reviewed by the regulatory staff of the Commission and the Advisory Committee on Reactor Safeguards (ACRS), both of which concluded that there is reasonable assurance that the proposed facility can be constructed and operated at the proposed site without undue risk to the health and safety of the public.[2/]

3. In accordance with the requirements of the Act and the notice of hearing published on November 4, 1970,[3/] a prehearing conference was held on November 23, 1970, in Port Clinton, Ohio, and a public hearing was held before this atomic safety and licensing board (board) in Port Clinton, Ohio, on December 8-10, 1970, January 5-7 and 25-29, 1971, and February 8-12, 1971.

4. The parties to this proceeding are the applicants, the regulatory staff and intervenors Glenn Lau, a local resident, the Coalition for Safe Nuclear Power (Coalition) and joint intervenors Living In A Finer Environment (LIFE) and William E. Reany (hereinafter referred to jointly as LIFE).[4/] A petition for leave to intervene filed by Richard E. Webb was denied by the board. The intervenors admitted as parties to this

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2/ Staff Safety Evaluation (SSE) pp. 86-87 and Appendix B, Tr. 494.

3/ 35 F.R. 16999.

4/ Dr. Irwin I. Oster withdrew as an intervenor in this proceeding on February 8, 1971, Tr. pp. 1608-1615.

proceeding opposed the application. Accordingly, this is a contested proceeding within the meaning of 10 CFR §2.4(n) of the Commission's "Rules of Practice."

5. Pursuant to 10 CFR §2.715 of the Commission's "Rules of Practice," limited appearances were made during the hearing by a representative of the Ohio Department of Health and a number of persons and groups to register their support or opposition to the issuance of a construction permit.

Findings of Fact

6. The application and the record of the proceeding include a description of the site and the basis of its suitability; a detailed description of the proposed facility, including a description and analysis of those reactor systems and features which are essential to safety; an analysis of the safety features provided for in the facility design; and an evaluation of various postulated accidents and hazards involved in the operation of such a facility and the engineered safety features provided to limit their effect. Also included in the application and the record of the proceeding is evidence as to the financial and the technical qualifications of the applicants, including those of their contractors to design and construct the facility, the applicants' quality assurance program, and the proposed facility's bearing upon the common defense and security. The regulatory staff's Safety Evaluation sets forth the considerations given

to the important safety features of the proposed facility and the significance assigned to those systems and features important to the prevention or mitigation of accidents and to the health and safety of the public.[5/]

7. The applicants are both public utility companies. They will share ownership of the facility as tenants in common with Toledo Edison holding a 52.5 percent share and Cleveland Electric a 47.5 percent share. The applicants are both soundly financed, have adequate financial resources and high levels of earnings. The financing of their respective shares of the facility construction costs will be accomplished from internal sources, the sale of debt securities and the issuance of capital stock.[6/]

8. Toledo Edison will be responsible for the design, construction, operation and maintenance of the facility. Toledo Edison, in addition to being experienced in the design, construction, and operation of fossil fueled generating stations, has participated in the Enrico Fermi Atomic Power Plant, a fast breeder reactor, and has key personnel who have had experience with that facility. The nuclear steam supply system is to be

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5/ SSE, Tr. p. 494.

6/ Tr. p. 478 and SSE pp. 84-85, Tr. p. 494.

designed and supplied by the Babcock & Wilcox Company, an experienced nuclear reactor supplier. The Bechtel Company will perform the architect-engineering services and the Bechtel Corporation will provide construction management services. Bechtel has been actively engaged in the design and construction of nuclear plants and is currently engaged in the design and construction of 23 BWR and PWR nuclear power plants. 7/

9. The 900 acre facility site is located in Ottawa County, Ohio, on the south shore of Lake Erie. The planned exclusion area provides a minimum distance of 2400 feet between the reactor and the nearest site boundary. The low population zone distance is two miles with population variances, depending on the season of the year, of 637 residents to 1564 residents. The nearest population centers having a population in excess of 25,000 are Toledo, Ohio, and Sandusky, Ohio. 8/

10. The facility design takes into account site geology, meteorology, hydrology, ground water conditions and the possibility of tornados, floods and earthquakes. 9/ The design of the facility's major systems

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7/ SSE pp. 68-72, Tr. p. 494; Tr. pp. 1134-1135; Applicants' Summary, pp. 33-35.

8/ SSE pp. 5-6, Tr. p. 494; Applicants' Summary, pp. 4-6.

9/ SSE pp. 6-9, Tr. p. 494; Applicants' Summary, pp. 6-10.

and components, which bear significantly on the acceptability of the facility at the proposed site under the site criteria guidelines identified in 10 CFR Part 100 of the Commission's regulations, have been analyzed and evaluated by the applicants and the regulatory staff at a core power level of 2772 megawatts (thermal), the ultimate core power level expected for the facility.[10/]

11. The proposed facility incorporates numerous systems, components, and features for the protection of the facility personnel and the public which are similar in design to those contained in nuclear plants which have been previously approved for construction by the Commission.[11/] An important safety feature is the containment, consisting of a free standing steel containment vessel and a reinforced concrete shield building, which completely encloses the reactor and the major components of the primary coolant system. The containment structure has the capacity to withstand all internal and external loading conditions which could occur during the life of the facility.[12/]

12. In addition to the containment structure, the facility contains a number of engineered safety features designed to limit the consequences

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10/ SSE pp. 1-2, Tr. p. 494.

11/ SSE p. 14, Tr. p. 494.

12/ SSE pp. 23-35, Tr. p. 494.

of a loss of coolant accident. The principal engineered safety features are: (1) the emergency core cooling system, which would prevent excessive heating of the fuel cladding and keep the core intact by delivering borated cooling water to the reactor core; and (2) the containment spray and cooling systems which will be used to reduce containment pressure and remove decay heat from the containment by the use of spray headers and fan cooling units located in the upper containment.[13/]

13. The applicants and the regulatory staff recognize that in order to develop the final design of the facility further information and data will be needed. In addition to this information and data required for facility operation which will be developed by research and development projects in the course of the final design work for the facility, other research and development programs in progress are expected to provide added confirmation that the facility designs are conservative. The major areas of research and development include programs concerning core stability evaluation, fuel rod cladding, control rod drive testing, once-through steam generator testing, self-powered detector testing, core thermal and hydraulic design, and blowdown forces on core internals. The objectives of these programs have been defined and the schedules for

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13/ SSE pp. 35-44, Tr. p. 494.

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developing this technical information are compatible with the facility schedule.[14/]

14. The activities to be conducted under the construction permit will be within the jurisdiction of the United States, and all of the directors and principal officers of the applicants are United States citizens. The applicants are not owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government. The activities to be conducted do not involve any restricted data, but the applicants have agreed to safeguard any such data which might become involved in accordance with 10 CFR §50.33(j) of the Commission's regulations. Special nuclear material for use as fuel in the proposed facility will be subject to Commission regulations and will be obtained from sources of supply such that there will be no diversion of this material from military purposes.[15/]

15. Paragraphs 15-19 of the Applicants' Proposed Findings of Fact and Conclusions of Law are adopted by the AEC regulatory staff and incorporated herein by reference.

16. Paragraph 23 of the Applicants' Proposed Findings of Fact and Conclusions of Law are adopted by the AEC regulatory staff and incorporated herein by reference.

14/ SSE pp. 75-81, 86, Tr. p. 494; Applicants' Summary, pp. 29-32, 37.

15/ SSE pp. 83-84, Tr. p. 494; Applicants' Summary, p. 36.

17. Paragraphs 30-36 and 38 of the Applicants' Proposed Findings of Fact and Conclusions of Law are adopted by the AEC regulatory staff and incorporated herein by reference. With the following exceptions, the AEC regulatory staff adopts and incorporates herein paragraph 37 of the Applicants' Proposed Findings of Fact and Conclusions of Law:

a) Substitute the following subparagraph (d) in lieu of the Applicants' subparagraph (d):

"(d) NCRP Report No. 39, dated January 15, 1971, based on a reevaluation and a comprehensive survey of the latest work done in the area of radiation effects, recommended retention of the general standards for population dose limits and the whole body dose for individuals in the public and recommended only adjustments in the dose limits to certain organs of individuals in the public and workers employed in the radiation industry. 67/ The board presumes that these very recent recommendations currently are under review by the AEC and the recently established Environmental Protection Agency."

b) Substitute the following subparagraph (f) in lieu of the Applicants' subparagraph (f):

"(f) While NCRP Report No. 39 dated January 15, 1971, recommended a reduction of the permissible dose to fertile women employed in the radiation industry to assure that the maximum dose equivalent to the fetus from occupational exposure to the expectant mother does not exceed 500 millirem, that Report recommended retention of the genetic population dose limit. The average population dose limit recommendation considers genetic effects. 70/ "

c) Delete subparagraph (l).

d) Substitute the following subparagraphs (n), (o), and (p) in lieu of the Applicants' subparagraphs (n), (o), and (p):

"(n) It is highly improbable to expose a significant portion of the general population in the vicinity of a nuclear power plant to more than a very small fraction of the 170 millirem per year radiation protection guide if the 500 millirem per year guide for individuals is

met. The Tamplin thesis rests largely on the assumption that a significant portion of the total population can be exposed to an average dose of 170 millirems per year. 80/

(o) Section 20.106(e) of the current standards in Part 20 allows the AEC, and indeed is used by the AEC, to anticipate the possibility of concentrations in the food chain of radioisotopes which may be released from nuclear facilities. 81/

(p) AEC regulations provide that all AEC licensees should make every reasonable effort to maintain radiation exposures and releases of radioactive materials in effluents to unrestricted areas as far below the Part 20 limits as practicable. 82/ "

18. The application and the proceeding thereon comply with the requirements of the Act and the Commission's regulations. There are no unresolved safety questions pertinent to the issuance of the construction permit.

Conclusion

19. The board has given careful consideration to all of the documentary and oral evidence produced by the parties and to the report of the Advisory Committee on Reactor Safeguards in this proceeding. Based on our review of the entire record in this proceeding and the foregoing findings of fact, we make affirmative findings on issue numbers 1-3 and a negative finding on issue 4 specified in the notice of hearing in this proceeding published in the Federal Register on November 4, 1970.

Order

20. Pursuant to the Act and the Commission's regulations, IT IS ORDERED that the Director of Regulation is authorized to issue a construction permit to The Toledo Edison Company and The Cleveland Electric Illuminating Company substantially in the form of the proposed construction permit introduced as regulatory staff Exhibit 2. IT IS FURTHER ORDERED, in accordance with 10 CFR §§2.760, 2.762, 2.764, 2.785, and 2.786 of the Commission's "Rules of Practice" that this Initial Decision shall be effective immediately and upon issuance shall constitute the final decision of the Commission following review thereof pursuant to the above cited rules. Exceptions to this decision and a supporting brief may be filed by any party within twenty (20) days of service of this Initial Decision

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and briefs may be filed by any other party in support of or in opposition to such exceptions within ten (10) days after service of such exceptions.

ATOMIC SAFETY AND LICENSING BOARD

Walter T. Skallerup, Jr., Chairman

Dr. Walter H. Jordan

Dr. Charles E. Winters