

October 14, 1969

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of
JERSEY CENTRAL POWER & LIGHT COMPANY
and
METROPOLITAN EDISON COMPANY
(Three Mile Island Nuclear
Station, Unit 2)

Docket No. 50-320

APPLICANTS' 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 Jersey Central Power & Light Company and Metropolitan Edison Company (Applicants) and ten amendments thereto (hereinafter collectively referred to as the application) properly filed under the provisions of Section 104b of the Atomic Energy Act of 1954, as amended, (Act) for a provisional construction permit to construct a pressurized water reactor designed for initial operation at core power levels up to 2452 megawatts (thermal).^{1/} The facility will

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1/ The application was submitted April 22, 1968, by Jersey Central Power & Light Company for authorization of a nuclear reactor at its Oyster Creek site in Ocean County, New Jersey. Metropolitan Edison Company joined as a co-applicant with the submittal of Amendment No. 6 to the application which designated a new location for the reactor at Metropolitan Edison Company's Three Mile Island Nuclear Station in Dauphin County, Pennsylvania.

be designated as Three Mile Island Nuclear Station Unit 2 and will be located on the site at Three Mile Island adjacent to Unit 1, a nuclear electric generating plant which is presently under construction by Metropolitan Edison Company (Initial Decision of Atomic Safety and Licensing Board, AEC Docket No. 50-289, May 16, 1968).

2. The application has been reviewed by the regulatory staff (staff) of the Atomic Energy Commission (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 Commission's regulations, and pursuant to the Notice of Hearing published in the Federal Register on August 27, 1969, at 34 F.R. 13708, a public hearing was held before this Atomic Safety and Licensing Board (Board) on October 6, 1969, in Middletown, Pennsylvania, to consider whether a provisional construction permit should be issued to the Applicants.

Parties and Appearances

4. The parties to the proceeding were the Applicants and the staff. No petitions for leave to intervene were filed. Pur-

^{2/} Safety Evaluation by the Division of Reactor Licensing, U. S. Atomic Energy Commission, September 5, 1969 (Staff Safety Evaluation), pp. 75-76; letter dated July 17, 1969, from Stephen H. Hanauer, Chairman, ACRS, to Glenn T. Seaborg, Chairman, Atomic Energy Commission.

suant to section 2.715(a) of the Commission's Rules of Practice, a limited appearance was made by an area resident who presented several questions relating to the protection of the facility from aircraft using the nearby Olmsted State Airport. Evidence was introduced by the parties which supports the conclusion that the proximity of the airport does not present undue risk to the health and safety of the public.^{3/} A representative of the Pennsylvania Department of Health participated in the proceedings pursuant to the provisions of section 2.715(c) of the Commission's Rules of Practice.^{4/}

5. This is not a contested proceeding as defined in section 2.4(n) of the Commission's Rules of Practice. In an uncontested proceeding, the Board is instructed by the Rules and in the Notice of Hearing to consider the issues of whether the application and the record of the proceeding contain sufficient information, and the review by the staff has been adequate, to support the findings proposed to be made and the provisional construction permit proposed to be issued by the Director of Regulation. The findings and the permit proposed by the Director of Regulation were published in and with the Notice of Hearing.

Financial and Technical Qualifications

6. Jersey Central Power & Light Company and Metropolitan

^{3/} Transcript of Hearing, pp. 70-72, 74-75, 102-103, 105-109, 157-180, 182, 201-204; Applicants' Summary Description of Application for Reactor Construction Permit and Operating License, September 3, 1969 (Applicants' Summary Description), pp. 7-9; Staff Safety Evaluation, p. 8.

^{4/} Transcript of Hearing, pp. 73-74, 180-182.

Edison Company will share the financing and ownership of Three Mile Island Nuclear Station Unit 2 in the ratios of 25 percent and 75 percent, respectively. Each of the Applicants is an operating utility engaged in the generation, transmission and sale of electric power. The Applicants are two of four wholly-owned subsidiaries of General Public Utilities Corporation (GPU), a Pennsylvania corporation registered under the Public Utility Holding Company Act of 1935. Each of the Applicants is financially sound and plans to finance its share of the costs of construction of the proposed facility as part of its overall construction program. Construction requirements will be provided by internal sources and capital contributions from GPU and from the sale of debt securities in such a manner as to maintain a sound and conservative capital structure.^{5/}

7. Metropolitan Edison Company is responsible for engineering, design, construction, operation and maintenance of Three Mile Island Nuclear Station Unit 2. Metropolitan Edison Company has 85 years' experience in the design, construction, and operation of electric generating stations, and is presently constructing Three Mile Island Nuclear Station Unit No. 1. The GPU Nuclear Power Activities Group has been organized to mobilize the capabilities and nuclear experience of the GPU system, which includes the operating power reactors at Saxton and Oyster Creek, and will provide technical assistance and guidance to the Three Mile Island Project Director. The nuclear

^{5/} Testimony of John S. Burchell, Financial Qualifications of Jersey Central Power & Light Company; Testimony of Raymond E. Werts, Financial Qualifications of Metropolitan Edison Company; Testimony of Charles A. Lovejoy, Office of the Controller, AEC; and Supplement to the Testimony of Charles A. Lovejoy.

steam supply system is being designed and fabricated by the Babcock & Wilcox Company. Burns and Roe, Inc., has been engaged as the project architect-engineer except in the areas of cooling tower design and interfaces between Unit 1 and Unit 2 for which Gilbert Associates, Inc., has been engaged. United Engineers and Constructors, Inc., is the construction manager for both Unit 1 and Unit 2.^{6/} The record supports the staff's conclusion that "the applicants are technically qualified to design and build the Three Mile Island Nuclear Station Unit 2".^{7/}

Plant

8. Three Mile Island Nuclear Station Unit 2 will be constructed adjacent to Unit 1 on Three Mile Island in the Susquehanna River, about 10 miles southeast of Harrisburg, Pennsylvania.^{8/} The reactor will operate initially at core power levels up to 2452 Mwt and is designed for an expected ultimate capacity of 2772 Mwt. This higher power level has been used as the design basis for the containment and the engineered safety features. The higher level has also been used by the staff and the Applicant in the accident analyses and in the valuation of all major structures, systems, and components which bear significantly on the acceptability of the site, thereby establishing the suitability of the site under the guidelines identified in 10 CFR Part 100 of the Commission's regulations.^{9/}

^{6/} Applicants' Summary Description, pp. 31-35; Staff Safety Evaluation, pp. 62-64; Transcript of Hearing, pp. 81, 82.

^{7/} Staff Safety Evaluation, p. 63.

^{8/} Applicants' Summary Description, pp. 3-10; Staff Safety Evaluation, pp. 4-8.

^{9/} Applicants' Summary Description, p.2; Staff Safety Evaluation, pp. 1-2.

9. The Unit 2 nuclear steam supply system, the reactor building, and the engineered safety features--emergency core cooling systems, reactor building cooling systems, and fission product control systems--are similar in design to Unit 1.^{10/} The nuclear steam supply system design is essentially the same as a number of other Babcock & Wilcox facilities which the Commission has approved for construction.^{11/}

Environmental Monitoring

10. The Applicants have underway an environmental radiation monitoring program. This program has been developed in cooperation with the Pennsylvania Department of Health which will perform independent analyses of water samples. The record shows that the Applicants will continue to cooperate with interested governmental agencies in the performance of the monitoring program.^{12/} The record also shows that the installation of the proposed plant and a number of other such plants could be accommodated in the same general area and along the Susquehanna River without causing concentrations from effluents to exceed more than a small fraction of the maximum permissible concentrations set forth in AEC regulations.^{13/}

^{10/} Applicants' Summary Description, pp. 16-17; Staff Safety Evaluation, pp. 2, 46-52; ACRS letter, July 17, 1969; Transcript of Hearing, p. 81.

^{11/} Applicants' Summary Description, pp. 2, 10-11; Staff Safety Evaluation, pp. 2, 8-9, 10-11; Transcript of Hearing, p. 81.

^{12/} Applicants' Summary Description, pp. 9-10; Supplement to Applicants' Summary Description of Application for Reactor Construction Permit and Operating License, October 1, 1969 (Applicants' Supplement), pp. 5, 8-9, 15; Staff Safety Evaluation, pp. 7-8; Transcript of Hearing, pp. 83, 139, 185-188, 190, 198.

^{13/} Applicants' Supplement, pp. 5-7; Transcript of Hearing, pp. 139-148, 151-153, 184, 190-194.

Research and Development

11. The Applicants have identified areas in which design studies and research and development programs are being conducted to finalize design details or confirm the safety analysis. The principal areas of study relate to the once-through steam generator, the control rod drive system, in-core neutron detectors, core thermal and hydraulic design, internal vent valves, effects of fuel clad failure, xenon oscillations, chemical spray system additive, and control of hydrogen concentration. The programs are reasonably designed to accomplish their objectives and provide the required information prior to completion of construction of the facility.^{14/}

Quality Assurance

12. Metropolitan Edison Company has established a comprehensive quality assurance program which is consistent with the intent of, and which has been evaluated by the staff in accordance with, the AEC's "Quality Assurance Criteria for Nuclear Power Plants" which was published in the April 17, 1969, Federal Register as a proposed Appendix B to 10 CFR Part 50. Metropolitan Edison Company has established a quality assurance organization to assure that the facility will be fabricated and constructed in accordance with applicable codes and specifications. The GPU Manager of Quality Assurance and MPR Associates, Inc., will assist Metropolitan Edison Company in providing overall direction, guidance, and surveillance

^{14/} Applicants' Summary Description, pp. 26-31, 36-37; Applicants' Supplement, p. 1; Staff Safety Evaluation, pp. 60-61, 50-52, 54-55, 57-59, 72-74; Transcript of Hearing, pp. 134-136.

over the quality assurance programs of reactor supplier, the architect-engineer, the construction manager, and their subcontractors.^{15/}

Common Defense and Security

13. The activities to be conducted under the provisional construction permit will be within the jurisdiction of the United States, and all of the directors and principal officers of each Applicant 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 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 available for civilian purposes so that there will be no diversion of such material from military purposes.^{16/}

Conclusions

14. The Board has given careful consideration to the documentary and oral evidence introduced by the parties and to the

^{15/} Applicants' Summary Description, pp. 25-26; Applicants' Supplement, pp. 7-8; Staff Safety Evaluation, pp. 65-69.

^{16/} Applicants' Summary Description, pp. 37-38; Staff Safety Evaluation, pp. 74-75.

report of the ACRS in this proceeding. The application and the proceeding thereon comply with the requirements in the Act and the Commission's regulations. There are no unresolved safety questions pertinent to the issuance of the provisional construction permit. Based on a review of the entire record and upon the foregoing findings of fact and discussions, the Board concludes that the application and the record of the proceeding contain sufficient information, and the review by the staff has been adequate, to support the findings proposed to be made and the provisional construction permit proposed to be issued by the Director of Regulation.

Order

15. Pursuant to the Act and the Commission's regulations, IT IS ORDERED that the Director of Regulation is authorized to issue a provisional construction permit to Jersey Central Power & Light Company and Metropolitan Edison Company substantially in the form of Appendix "A" to the Notice of Hearing in this proceeding.

16. IT IS FURTHER ORDERED, in accordance with sections 2.760, 2.762 and 2.764 of the Commission's Rules of Practice that this Initial Decision shall be effective immediately upon issuance and shall constitute the final decision of the Commission forty-five days after the date of issuance, subject to the review thereof and further decision of the Commission upon its own motion or upon exceptions filed pursuant to the cited rules.

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