UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

IN THE MATTER OF

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
(Indian Point Station Unit No. 2)

Docket No. 50-247

(formal)

9-15-66

PROPOSED FINDINGS OF FACT AND
CONCLUSIONS OF LAW SUBMITTED
BY APPLICANT

Pursuant to Section 2.754 of the Atomic Energy Commission's (the Commission) Rules of Practice and the agreements reached by the parties with the Atomic Safety and Licensing Board (the Board), Consolidated Edison Company of New York, Inc. (Consolidated Edison), Applicant herein, hereby submits its Proposed Findings and Conclusions in the form of a suggested Initial Decision.

Consolidated Edison Company of New York, Inc. filed an Application for Licenses in accordance with Section 104b. of the Atomic Energy Act, as amended, on December 6, 1965, with five amendments thereto dated March 29, 1966, May 24, 1966, June 17, 1966, July 21, 1966 and July 25, 1966, seeking, among other things, a construction permit to build a pressurized water reactor designed to operate at 2,758 MWt to be located at Consolidated Edison's Indian Point site on the Hudson River in the Village of Buchanan, Westchester County, New York. The Application, as amended, proposes that the facility will be constructed for Consolidated Edison in

accordance with a turn-key contract executed with Westinghouse Electric Corporation and with the assistance of designated architect-engineers and a construction contractor.

Consistent with the requirements of Section 29 of the Atomic Energy Act, as amended, and the procedures of the Commission, the Application and its five amendments have been reviewed by both the Advisory Committee on Reactor Safeguards (ACRS) and the Regulatory Staff of the Commission (Staff). Both have concluded that there is reasonable assurance that the proposed facility can be constructed and operated without undue risk to the health and safety of the public.

The Atomic Energy Commission, in accordance with the requirements of the Act issued a notice providing for a hearing before an Atomic Safety and Licensing Board in the Village of Buchanan, New York.[1/] The State of New York, through its Office of Atomic and Space Development, intervened and participated in the proceeding. In addition there were several limited appearances some of whom appeared in

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1/ General public notice was given of the proceeding, which included publication in the Federal Register on July 30, 1966 (31 Fed. Reg. 10331). Prior to the convening of the hearing a public prehearing conference was held in Buchanan on August 17, 1966 to consider procedural matters regarding the presentation of the evidence, schedules for witnesses and other items contemplated by the Rules of Practice of the Commission. At the aforesaid prehearing conference the date for the hearing was rescheduled for September 14, 1966 and due notice of this postponement was issued. Another prehearing conference was held in Buchanan on September 13, 1966.

behalf of the project and others who appeared in opposition to the project. An untimely petition to intervene in these proceedings, served upon the parties and the Board during the second day of the hearings, was denied by the Board.

Con Edison's 250 acre site is on the east side of the Hudson River in the Village of Buchanan, Westchester County, New York. It is about 24 miles north of New York City. This second unit will be built adjacent to Consolidated Edison's existing nuclear generating station, known as Unit No. 1. There are approximately 53,000 people who live within 5 miles of the site; within a 10 mile radius there are about 155,000 people. In 1980 it is estimated that the population within this 10 mile radius will total about 325,000. As discussed later in this decision additional engineered safeguards have been provided for this facility in order to assure the protection to the population from any undue exposure to radiation. The area surrounding Indian Point is generally residential. Bedrock at the site will provide the foundation for the facility and its capacity for load far exceeds any load that this plant will superimpose upon the bedrock. All ground water flow is toward the river and the site will not be subject to flooding. The site is located in a seismologically quiet area which has been characterized as one of the safest known seismological areas. The peak tidal flow of the Hudson past Indian Point is 80 million gallons per minute and thus there will be excellent mixing and dilution of any liquid discharges from the facility. The evaluations made of the meteorology at the site show that its meteorology provides adequate diffusion and distribution

for the gases released from the facility.

Applicant is a large privately owned utility which supplies electric service to 2,900,000 people in the city of New York and in most of Westchester County. It also supplies natural gas to about 1,300,000 customers and has facilities for providing 3,810,000 pounds of steam per hour which it sells to about 2,500 customers. Consolidated Edison's electric requirements are supplied by 12 generating stations which have a net generating capacity of approximately 7,600,000 kilowatts. It has exchange power arrangements with certain other utilities in New York State.

For several years Applicant has been actively engaged with several other companies in the nuclear development field. It also owns and operates a pressurized water reactor at Indian Point, which nuclear facility has operated successfully for more than four years.

Applicant has assets in excess of three billion dollars. It plans to finance the cost of construction of this proposed nuclear plant in the same manner as it financed the construction of its conventional plants and its first nuclear facility, namely in the ordinary course of business through the internal generation of funds and the issuance of stocks and bonds.

The proposed pressurized water reactor facility is of the same general type as a number of others which are now in operation or under construction. The reactor will be fueled with uranium dioxide sintered pellets, sealed in

zircaloy tubes. The actual core will be approximately 12 feet in diameter and 12 feet long. It will be confined in a pressurized vessel designed to withstand a pressure of approximately 2,500 psig. Cooling water will be circulated through the core and four steam generators by four 90,000 gpm primary coolant pumps. Containment of the reactor vessel, steam generators, primary coolant pumps and other primary system equipment will be located in a containment building consisting of a reinforced concrete vessel whose base will be 9 feet thick and whose side walls will be 4 feet 6 inches thick and whose dome will be 3 feet 6 inches thick. Attached to this concrete containment vessel will be a steel liner. The containment vessel will be designed to retain radioactive fission products which might be released as a consequence of any accident. In addition to the containment vessel just described the plant will also have other engineered safeguards aimed at minimizing the consequences of an accident in the unlikely event one should occur. There are five types of these minimizing engineered safeguards. They are: (1) a safety injection system which injects borated water directly into the hot and cold sides of each reactor coolant loop, which limits damage to the reactor core and also limits the amount of energy released from the reactor after an accident involving loss of coolant; (2) a spray and heat removal system for reducing pressure inside the containment vessel; (3) air recirculation filters to provide for rapid removal of iodine from the

atmosphere within the containment vessel if fission products are released from the reactor; (4) air recirculation coolers which reduce the pressure within containment after an accident involving the loss of coolant; and (5) a reactor pit crucible to provide back-up protection in the incredible event the core should melt through the reactor vessel.

In addition to the above-mentioned safeguards the design also provides for a containment penetration and weld channel pressurization system as further assurance for preventing any leakage of fission products from the containment vessel. Similarly there is also an isolation valve seal water system which is designed to function after a loss of coolant accident in order to establish a water seal on isolation valves in pipes which could be open to the containment following such an accident.

In most respects the Indian Point Unit No. 2 facility is similar to other reactor facilities licensed by the Atomic Energy Commission. However, there are some differences such as: (1) A higher thermal power rating of 2758 megawatts; (2) a core having diameter of 12 feet; (3) maximum specific power in kilowatts per foot of 18.5 with an average coolant velocity of 16.1 ft/sec along the fuel tubes.

Consolidated Edison has asserted that in the evaluation of the final design of the project further information will be obtained. Data will be acquired, either through research and development or through the collection

of technical information for the following items:

1. Charcoal filters for the removal of iodine in event of an accident.
2. Core stability and the consequences of a rod ejection accident.
3. Reactor coolant leakage through the seals of the primary coolant pumps.
4. An emergency core cooling system including a back-up to this system known as a reactor pit crucible.

The progress of these and other matters will be carefully reviewed by the Staff during the evolution of the design of this plant.

At the conclusion of the hearing, Consolidated Edison filed with the Board, in accordance with Section 2.764(a) of the Commission's Rules of Practice, a motion for expedited effectiveness of the initial decision. Neither the Staff nor the New York State Office of Atomic and Space Development objected to the motion.

The Applicant and the Staff proposed separate findings of fact and conclusions of law, which have been substantially accepted, as herein shown, and in no material respects rejected. For these reasons, separate rulings are not made on the proposals submitted.

Upon the basis of the consideration of the entire record in this proceeding, and in the light of the findings and discussions hereinabove set out, the Atomic Safety and

Licensing Board has concluded that:

1. The Applicant has not supplied initially all of the technical information required to complete the application and support the issuance of a construction permit which approves all proposed design features, however,

2. In accordance with the provisions of 10 CFR §50.35(a),

   (1) The Applicant has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components on which further technical information is required;

   (2) The omitted technical information will be supplied;

   (3) The Applicant has proposed, and there will be conducted, a research and development program reasonably designed to resolve the safety questions, if any, with respect to those features or components which require research and development; and

   (4) On the basis of the foregoing, there is reasonable assurance that (i) such

safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility and (ii) taking into consideration the site criteria contained in Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public;

3. The Applicant is technically qualified to design and construct the proposed facility;
4. The Applicant is financially qualified to design and construct the proposed facility;
5. The issuance of a permit for the construction of the facility will not be inimical to the common defense and security or to the health and safety of the public.

WHEREFORE, in accordance with Section 104b. of the Atomic Energy Act, as amended, and the Rules and Regulations of the Commission,

IT IS ORDERED THAT, subject to review by the Commission upon its own motion or upon petition for review in accordance with the "Rules of Practice" 10 CFR Part 2, Consolidated Edison Company of New York, Inc. is authorized to construct the facility in accordance with the application and with the evidence and representations entered in the

record at the hearing; and the Director of the Division of Reactor Licensing is directed to issue a provisional construction permit pursuant to Section 104b. of the Act substantially in the form of Attachment A hereto.

IT IS FURTHER ORDERED THAT, in accordance with Section 2.764, this Initial Decision shall become effective on _____, and, in the absence of any further order from the Commission, shall constitute the final decision of the Commission on _____, subject to the filing of a petition for review and to any order by the Commission upon such petition or upon its own motion.

Respectfully submitted,

/s/ Arvin E. Upton

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