ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

NOV 14 1973

Honorable Dixy Lee Ray
Chairman
U. S. Atomic Energy Commission
Washington, D. C. 20545

Subject: INTERIM REPORT ON INDIAN POINT NUCLEAR GENERATING STATION UNIT NO. 3

Dear Dr. Ray:

At its 163rd meeting, November 8-10, 1973, the Advisory Committee on Reactor Safeguards completed an interim review of the application of Consolidated Edison Company of New York, Inc., for authorization to operate Indian Point Nuclear Generating Station Unit No. 3. The project has been previously considered at Subcommittee meetings on July 11, 1973, October 10, 1973 and November 7, 1973. A tour of the facility was made by Committee members on November 2, 1973. In this review, the Committee had the benefit of discussions with representatives and consultants of Consolidated Edison, their contractor, and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed. The Committee reported on the application for construction of Indian Point Unit No. 3 on January 15, 1969.

Indian Point Unit No. 3 includes a four-loop Westinghouse nuclear steam supply system with a design power rating of 3025 MW(t). The design is similar to that of Unit No. 2 which has a power rating of 2760 MW(t). The three-unit Indian Point Nuclear Generating Station is located approximately 2-1/2 miles southwest of Peekskill, New York, and 24 miles north of the New York City boundary line.

The Committee's report of January 15, 1969, called attention to various matters including the following: consideration of thermal shock to the pressure vessel in the unlikely event of a loss-of-coolant accident (LOCA); measures to deal with possible hydrogen concentration buildup in the containment following a LOCA; greater independence in the on-site power system; main-coolant-

pump flywheels as a potential source of missiles; protection against potential effects of a fuel-handling accident; and the possible effects of systematic or common mode failures. Most of these items are generic, not unique to Indian Point Unit No. 3.

Acceptable measures have been taken on Indian Point Unit No. 3 with regard to the on-site power system, hydrogen concentration buildup, and postulated fuel-handling accidents. Studies are still underway on the potential for missile generation from gross reactor coolant pump overspeed in the event of certain postulated LOCAs; this matter should be resolved in a manner satisfactory to the Regulatory Staff. It is believed that resolution of the thermal shock matter can await the development of further information from the Heavy Section Steel Technology Program and other studies. With regard to anticipated transients without scram, the Committee recommends that the recently announced Regulatory Staff position be implemented for Indian Point Unit No. 3 in timely fashion.

Because there is limited operating experience with very large, high power density reactors, the ACRS believes that initial operation should be limited to power levels no greater than 2760 MW(t) and that further review by the Committee is appropriate before higher power levels are permitted. The Committee believes that, in the consideration of the operation of Unit No. 3 at higher power levels, several factors are pertinent, including the following: satisfactory experience in Unit No. 3 and other similar reactors; adequate knowledge of fuel performance; extent to which an independent confirmation of LOCA-ECCS analysis has been made by the Regulatory Staff; further resolution of relevant generic matters; and consideration of the possibility of improvements in ECCS effectiveness.

The Committee recognizes that re-evaluation of operating limits may be necessary as a result of possible changes in the acceptance criteria for emergency core cooling systems. The Committee wishes to be kept informed.

The Applicant stated that he will apply and utilize suitable equipment to enable periodic testing of the proper positioning of check valves intended to isolate low pressure systems connected to the primary system. This matter should be resolved in a manner satisfactory to the Regulatory Staff.

Studies are underway with regard to the reliability of the service water distribution to the diesel-generators. This matter should be resolved in a manner satisfactory to the Regulatory Staff.

The original turbine design has been found by the Applicant to have the possibility of overspeed somewhat beyond the manufacturer's design condition if the turbine should trip at or near the design power. The Applicant is preparing design modifications to eliminate this condition, and will propose appropriate power limitations until acceptable modifications have been made. This matter should be resolved in a manner satisfactory to the Regulatory Staff.

The Committee believes that several considerations are appropriate in the further development of the Technical Specifications, as follows: operating heatup and cooldown pressure-temperature curves as conservative as practical with respect to 10 CFR Part 50, Appendix G; appropriate baseline inspection and periodic in-service inspection of the steam generator shells; startup of an idle loop at power; acceptable cumulative limits on downtime of protection systems and engineered safety features; and continuing availability of core outlet thermocouples.

The Committee also believes that further consideration should be given to augmented use of movable in-core detectors, appropriate in-service inspection of nozzles in the primary head of the steam generators, and to the detailed specification of administrative controls intended to prevent overpressurization of the reactor vessel below operating temperatures.

Generic problems relating to large water reactors have been identified by the Regulatory Staff and the ACRS and discussed in the Committee's report dated December 18, 1972. Those problems and additional generic problems identified in more recent ACRS reports should be dealt with appropriately by the Regulatory Staff and the Applicant.

The Advisory Committee on Reactor Safeguards believes that, if due regard is given to the items mentioned above, and subject to satisfactory completion of construction and pre-operational testing, there is reasonable assurance that Indian Point Nuclear Generating Station Unit No. 3 can be operated without undue risk to the health and safety of the public. The Committee believes that operation should be at power levels no greater than 2760 MW(t) prior to further Committee review.

Sincerely yours,

H. G. Mangelsdorf

H. G. Mangelsdorf
Chairman

References Attached

References

1. Final Facility Description and Safety Analysis Report (FSAR) for Indian Point Nuclear Generating Unit No. 3 dated December 4, 1970 (Amendment No. 13 to the Application for Licenses)

2. Supplements Nos. 1 through 22, dated June 30, 1971 through October 10, 1973, to the Indian Point Nuclear Generating Unit No. 3 FSAR

3. Letter, dated September 21, 1973, Directorate of Licensing, USAEC, to ACRS transmitting the Safety Evaluation Report for Indian Point Nuclear Generating Unit No. 3

4. Proposed Technical Specifications and Bases for Indian Point Nuclear Generating Unit No. 3 transmitted to the ACRS from the Directorate of Licensing, USAEC, on November 1, 1973.

5. Letter, dated September 26, 1973, Consolidated Edison of New York, Inc. (Con Ed) to the Directorate of Licensing, USAEC (DRL) concerning review of tanks at Indian Point Unit No. 3 which contain radioactive liquids

6. Letter, dated September 7, 1973, Con Ed to DRL, transmitting additional information concerning the design of Indian Point Unit No. 3 instrumentation, control and electrical systems

7. Letter, dated July 24, 1973, Con Ed to DRL, regarding results of review of control circuits of safety related equipment at Indian Point Unit No. 3

8. Letter, dated June 28, 1973, Con Ed to DRL, regarding the Indian Point Unit No. 3 Quality Assurance program

9. Letter, dated June 8, 1973, Con Ed to DRL, transmitting a report entitled "Dynamic Analysis of a Postulated Main Steam or Feedwater Line Pipe Break Outside Containment" dated May 8, 1973 applicable to Indian Point Unit No. 3

10. Letter, dated May 25, 1973, Con Ed to DRL, regarding motor-operated valves for isolating the Residual Heat Removal System from the Reactor Coolant System in Indian Point Unit No. 3

11. Letter, dated May 14, 1973; LeBoeuf, Lamb, Leiby and MacRae (LLL&M) to DRL; transmitting a report applicable to Indian Point Unit No. 3 entitled "Analysis of High Energy Lines" dated May 9, 1973

12. Letter, dated April 9, 1973, Con Ed to DRL concerning the electrical and mechanical systems design of Indian Point Unit No. 3

13. Letter, dated April 2, 1973, Con Ed to DRL, regarding modifications to the instrumentation, control and electrical systems in Indian Point Unit No. 3

14. Letter, dated January 23, 1973, Con Ed to DRL, concerning design of non-Category I equipment in Indian Point Unit No. 3

15. Letter, dated January 22, 1973, DRL to Con Ed requesting information needed to complete the Indian Point Unit No. 3 Operating License review

16. Letter, dated January 9, 1973, LLL&M to DRL, regarding fuel densification

17. Letter, dated November 6, 1972, DRL to Con Ed, requesting additional information needed to complete the Indian Point Unit No. 3 Operating License review.