

DEC 16 1968

Joseph A. Murphy, Reactor Projects Branch #1  
Division of Reactor Licensing

Original Signed by

THRU: Dudley Thompson, Chief  
Operational Safety Branch, DRL

STAFF ACRS REPORT - CONSOLIDATED EDISON COMPANY OF NEW YORK, INDIAN POINT  
UNIT NO. 3, DOCKET NO. 50-286

- Ref: (1) Memo, R. A. Birkel to File, subject docket, dated September 20, 1968.  
(2) Memo, R. A. Birkel to J. A. Murphy, subject docket, dated October 3, 1968.  
(3) Memo, R. A. Birkel to J. A. Murphy, subject docket, dated November 26, 1968.

Reference (1) presented our initial comments concerning the subject docket pursuant to an oral request for OSB support from RPB #1. Reference (2) indicated complete omission by the applicant of discussion of conduct of operations and testing of the plant and provided an outline of specific areas (subjects) that normally should be included within a PSAR. Reference (3) provided specific comments regarding Supplement No. 5 of the I. P. #3 PSAR. It is the purpose of this memorandum to provide that portion of the staff ACRS report, as requested by the Reactor Projects section, based upon submittals and specific discussions with the applicant.

We have accordingly reviewed the ConEd application for a construction permit to establish a finding concerning (a) Technical Qualifications, (b) Conduct of Operations, and (c) Administrative Controls.

#### Technical Qualifications

The Consolidated Edison Company of New York, Inc. (ConEd), as owners, have arranged for the purchase of equipment, consulting, engineering and construction services for the installation of the Indian Point Nuclear Unit No. 3. As sole owners, ConEd is responsible for the design, construction and operation of the unit; however, the applicant has engaged the Westinghouse Electric Corporation as prime contractor on a turnkey basis. Westinghouse has engaged United Engineers and Constructors as principal sub-contractor, who will provide A-E services and manage all site construction activities.

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The engineering and management responsibility for the design and construction of the I. P. #3 unit rests with the ConEd Mechanical Engineering Department. There are approximately 20 engineers in the Nuclear Division. Although the applicant does not have approval authority due to contractual relations, ConEd will review and comment on design and equipment specifications, procurement, fabrication, installation and construction aspects of the entire plant. In addition, the applicant has established a quality assurance surveillance program consisting of both an off-site and an on-site staff organization which will provide a continual auditing function for Q. A. and Q. C. as performed by the applicant's prime contractor and all associated sub-contractors, vendors and manufacturers. The applicant has engaged the services of the U. S. Testing Company to supplement their own program, in particular in the area of quality testing. Services from other firms, such as Pittsburgh Testing Laboratory, will also be used by the applicant. It is expected that the applicant's on-site Q. C. staff will consist of approximately six people reporting through the Q. C. Site Representative to the ConEd Superintendent of Construction. Q. A. for instrumentation and control equipment normally considered to be production line items will be performed subsequent to installation pursuant to pre-operational testing of the plant.

We have concluded that the applicant's organization and its contractors are technically competent to design and construct the proposed plant.

#### Conduct of Operations

The applicant proposes a station staff of approximately 200 full-time people to operate Units 1, 2 and 3. Unit No. 3 will have a staff of approximately 42 people. Unit shift operations will be directed by the Unit Watch Foreman reporting directly to the Station Shift Supervisor. The latter will report to the Station Generation Superintendent. Overall station responsibility resides with the Station General Superintendent. The proposed organization is shown in Section 3, Supplement No. 5 of the PSAR.

The Unit No. 3 Operating Group will consist of a staff of 16 men forming four 4-man shift operating crews, each headed by a Unit No. 3 Watch Foreman. The control room will be manned by a licensed reactor operator with the Watch Foreman, who will be a senior licensed reactor operator, in attendance in the control room on a part-time basis. An operator, mechanical-nuclear-plant, and an operator, mechanical-conventional plant, will be responsible for operations and minor maintenance surveillance outside the control room. These operators will not be AEC licensed operators. Normal Unit No. 3 shift requirements for radiation monitoring coverage and chemistry requirements will be provided by a health physics technician who will provide these services for all three units.

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For purposes of shift operating crew relief assignments for vacation, illness, jury duty, etc., the applicant proposes to employ overtime procedures to maintain plant operation. In the event of a labor strike, as has recently occurred, the applicant states that all nuclear units at the Indian Point Station will remain in operation, manned by trained and AEC licensed supervisory and management personnel.

We have indicated to the applicant that the operating staff size for Unit No. 3 is extremely marginal. The applicant maintains that the size of his operating staff is based on having sufficient manpower allocated to the unit to cope with all operating conditions. We do not share this view since the applicant has not yet evaluated his station manning requirements from an operating viewpoint covering all station conditions to justify and provide a sound basis for selecting a satisfactory operating staff. We believe a minimum Unit No. 3 shift operating crew of five men is required, at least during initial station power operation since Unit No. 3 will be operated from a separate control room; the control room will at times be manned by only one operator; unit interactions have not been evaluated; and unit is a first-generation 1000 Mwe reactor.

It should be pointed out that the staff has had a similar concern in this area with the application of the Arkansas Power & Light Company - Russellville Plant and the Indiana & Michigan Electric Company - D. C. Cook Plant. Our review of these applications has indicated that we would review in detail the operating philosophy and justification of nuclear station staffing during the operating license review.

Both staff and operating personnel will be drawn largely from the ranks of the Unit Nos. 1 and 2 organization. Specific training for Unit No. 3 will be provided for the AEC licensed operator candidates approximately one year prior to fuel loading and will include both Westinghouse-administered training and on-site ConEd training. Since the Unit No. 3 staff will be developed from within the existing organization, we have received assurance from the applicant that competency of the Indian Point Station staff will not be diluted or downgraded.

On the basis of our review of the information presented, we conclude that the applicant has a training program which is satisfactory and will provide a qualified group in terms of competence and generally an adequate number of people. We are, however, not in agreement with the applicant regarding an adequately-sized shift operating crew. We plan to pursue this matter as well

as the overall staffing requirements for the Indian Point Generating Station in sufficient detail and time to assure an adequate operating shift crew size prior to initial plant startup.

#### Administrative Controls

In order to ensure continued safety and efficiency of operation after plant startup, administrative procedures and controls are being developed to review the operation of the plant as well as to consider design modifications, changes in operating procedures and tests. The applicant states, however, that on-site station management will monitor, review and evaluate station operation on an informal, continuous basis with this responsibility properly vested in the Station General Superintendent. We have discussed this aspect with the applicant and expressed our concern for the informal nature of the review and have suggested a formal designation of an Indian Point Station Nuclear Safety Review Committee. The staff concern is that operation of a nuclear complex generating upwards of 2300 Mwe requires a formal approach toward on-site continuing safety review of station operation.

An off-site review and audit committee, the Nuclear Facility Safety Committee, has been established to review the operation of the station, the operating organization, the procedures for operation, changes in the facility and conduct of tests or experiments. The Indian Point Station reactor engineer is the only line organization representative on the committee, thus assuring independence of the committee from the station line organization. The committee is chaired by the Manager of the System Operation Department, and reports collectively to the Vice Presidents for System Operation, Production and Engineering.

The applicant has indicated the administrative controls which are being developed and implemented to provide protection of plant personnel against exposure to radiation and radioactive material. The Health Physics Supervisor will be responsible for the implementation of all controls for radiation exposure and in these matters reports directly to the General Superintendent. Radiation protection will be achieved through the development of administrative exposure control procedures, adequate work plans and safe practices in all activities related to station operation.

The planning for emergency conditions is being developed in close parallel to the plan used by Unit No. 1. Emergency planning for Unit No. 3 is outlined in Supplement No. 5 of the PSAR. The emergency plan will include

the following specific areas: (a) shift responsibilities, (b) alarm systems, (c) communication systems, (d) environmental monitoring equipment (portable), (e) notification of and liaison with authorities, (f) medical facilities, (g) critical actions to be performed prior to evacuation, (h) initial assessment of damage plans, and (i) evacuation plans.

Based upon the information presented, we conclude that the applicant has generally provided a satisfactory method for development of administrative controls. We continue to have, however, concern for the informal surveillance of daily station operation as proposed. We plan to review the administrative controls that are developed in detail at the operating license stage.

*b/* Ralph A. Birkel  
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cc: D. J. Skovholt, AD/RO:DRL  
D. Muller, Chief, RPB#1:DRL

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