

January 10, 1966

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CONSOLIDATED EDISON OF NEW YORK  
INDIAN POINT UNIT NO. 2 - CONTAINMENT SYSTEM

As requested by P. Norian, Section 5.0 of the subject Safety Analysis Report pertaining to the containment system has been reviewed and the following comments are submitted for your consideration. Seismic and combined loading criteria, which DRL generally refers to its consultants in this field, have not been considered in this review.

- a) The proposed containment represents the first application of a leakage prevention system whereby all penetrations access openings, airlock seals, and containment steel liner welds are continuously pressurized at a design pressure level during plant operation. In consequence, outleakage in the event of loss-of-coolant accident is prevented at these penetrations and welds, by the fact that pressurization air is maintained higher than the calculated peak accident pressure.
- b) In addition, the penetration and weld pressurization system proposed permits continuous monitoring of any leakage increase during plant operation, as well as independent leak-detection testing of each penetration. Such a system enables a program of leakage surveillance which assures that the leak tight integrity of the containment system can be better maintained than that afforded by only periodic tests of penetrations (Class B tests) as practiced in other containments.
- c) The proposed isolation valve seal water system for the isolation valves or lines penetrating the containment boundary, provides, in a manner analogous to the penetration pressurization system, a means to block any prevailing leakage paths through pipes and valves to the atmosphere. In this case, water is injected in the piping sections at isolation valves to effect a seal. This sealing system becomes operative only when called upon to function, either automatically (presumably on valve isolation signal) or manually.

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3. Engineered Safeguards Functional Operability Testing

Inasmuch as the applicant proposes several engineered safeguards, whose operation are relied upon, in support of the conclusions derived in Safety Evaluation Section 12, the requirements for demonstrating their reliability by tests is considered essential at this time, as it may influence the respective system design.

It is recommended that the applicant state the proposed design capability incorporated in each of the following systems to enable testing under the pressurized environment of the containment structure. (Class B test as defined in our Reactor Containment Testing Criteria) when integrated leakage tests are planned;

- a) Isolation Valve Seal Water System
- b) Air recirculation cooling
- c) Containment Spray

Test Leakage Rate

The applicant has selected a design basis accident leakage rate of 0.1% / 24 hrs. at a reference accident pressure of 47 psig in his safety evaluation of the loss-of-coolant accident. To determine the corresponding test leakage limit, a reduction factor must be applied to the design basis accident leakage. The capability to measure containment leakage rates, significantly less than 0.1% / 24 hr. particularly at reduced test pressures has not been substantiated in the report. Although this information may not serve the immediate requirements of the construction permit application, its consideration is suggested at this time. The containment design may be influenced by the test leakage which must be met or, if not practical, a revision of the design basis accident leakage rate becomes necessary to achieve a test leakage limit that may be measured with a verifiable assurance of accuracy.

Isolation Valve Seal Water System

The design basis of this system indicates that effective sealing of isolation valves on lines penetrating the containment is assured by its operation. However, the system as proposed does not serve all lines (e.g. secondary steam lines) which penetrate the containment while, in some cases, required manual actuation for seal water injection is indicated, rather than automatic.

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Since the reliability of isolation and sealing of valve is essential to containment integrity in the event of loss-of-coolant accident, the basic criteria applied by the applicant with respect to both the application (or omission) and actuation mode of seal water injection should be defined for all penetrations.

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