JAN 11 1971

50-247

Anthony Z. Roisman, Esq.
Berlin, Roisman & Kessler
1910 North Street, N. W.
Washington, D. C.

In the Matter of Consolidated Edison Company of New York, Inc.
Indian Point Nuclear Generating Unit No. 2
Docket No. 50-247

Dear Mr. Roisman:

The following are the responses of the AEC regulatory staff to questions 21, 30 and 44 of the first series of questions submitted by you during a recess at the hearing in the above-captioned matter on December 18, 1970. The remaining questions on the list are for the applicant, and it is our understanding that they will respond to them.

Question 21

What is the evidence for classifying a dose of 25 rem whole body or 300 rem to the thyroid "allowable once in a lifetime"?

Answer

As stated in NBS Handbook 69 1/

> "An accidental or emergency dose of 25 rem to the whole body or a major portion thereof, occurring only once in a lifetime of the person, need not be included in the determination of the radiation exposure status of that person."

This statement was originally published as rule V-A in NBS Handbook 59. 2/ The explanatory material which accompanies rule V-A 1/ above includes the following statement:

1/ "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," U. S. Department of Commerce, National Bureau of Standards, Handbook 69, June 5, 1959, page 6.

2/ "Permissible Dose from External Sources of Ionizing Radiation," U. S. Department of Commerce, National Bureau of Standards, Handbook 59, September 24, 1954, pages 69-72.

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"In the over-all picture of occupational exposure during the working life of the individual, a dose of 25 rem may well be disregarded. Therefore, it may be assumed to have no effect on the radiation tolerance status of the person. In reality, however, it does influence the radiation tolerance status, otherwise there would be no reason for not permitting a repetition of a similar exposure. Accordingly, it is generally desirable to institute compensatory measures in such cases."

There appears to be no reference in the literature to a dose of 300 rem to the thyroid as allowable once in a lifetime.

A whole body dose of 25 rem and a thyroid dose of 300 rem are used as guideline values in the Commission's 10 CFR Part 100 Reactor Site Criteria. However, these site criteria specifically state that neither the 25 rem whole body dose or the 300 rem value for thyroid exposure are intended to imply that these numbers constitute acceptable limits for emergency doses to the public under accident conditions. Rather this 25 rem whole body value and the 300 rem thyroid value have been set forth in these guides as reference values, which can be used in the evaluation of reactor sites with respect to potential reactor accidents of exceedingly low probability of occurrence, and low risk of public exposure to radiation.

Question 30

What role does the AEC Compliance Division play during this break-in period?

Answer

During the "break-in period" the role of Compliance is as follows:

a. Procedures

The procedures for pre-critical tests, zero power tests, and power escalation are audited on a sample basis by Compliance prior to issuance of an operating license. The review of the selected procedures includes examination of the test objectives, prerequisites and specifications in sufficient depth and scope to determine that the test is so designed as to be capable of reliably demonstrating whether or not the system, subsystem, or component meets safety related representations made in the

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application, and that there will be sufficient documentation of test data and results during the test. The core loading procedure is always one of the specific procedures audited.

The remainder of the procedures, that is, those not specifically audited, are checked in a general review of the testing program by comparison of the test procedures with the testing program described in the FSAR to determine whether the applicant has included all of the tests to which he is committed.

b. Witnessing of Tests

Portions of selected tests are witnessed by Compliance inspectors. Portions of the core loading are always witnessed. The purposes of witnessing the tests are (a) to evaluate whether the testing is accomplished in accordance with the written approved procedures, the license, the Technical Specifications, and Federal Regulations, and (b) to verify that the operations are conducted safely.

c. Review of Test Results

For selected tests, Compliance compares the results obtained with predicted results and performance criteria. In some cases, this involves independent calculations from raw data. For all tests, Compliance determines that the applicant has established and is executing a suitable program for recording, evaluating, reviewing, approving, and retaining test data and results; for identifying results that are at variance with expected performance; and for taking appropriate corrective action.

Question 44

A highly-pressurized system like Indian Point No. 2 requires careful inspection. Explain why the ACRS several years ago reclassified a rupture of the reactor core vessel as possible where hitherto it had been considered "incredible."

Answer

We are not aware of any ACRS statement reclassifying a rupture of the reactor core vessel from "incredible" to possible. Whenever the chance of rupture cannot be ruled out as zero, then, of course, such an occurrence is "possible" though it may be highly unlikely. At the time of the construction permit review of Indian Point Unit 2, major emphasis was placed on enhancing those features which would assure containment integrity subsequent to an accident since the Indian Point site has a

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population distribution in its vicinity which is significantly greater than that for any other power reactor previously approved for construction up to that time. The ACRS took a particular interest in the protection afforded the containment liner from potential missiles which might be generated from structural failure of components. Accordingly, the ACRS included the following paragraph in their Report on Indian Point Nuclear Generating Unit No. 2 dated August 16, 1966, at the construction permit review.

> "The reactor vessel and various other components of the system are surrounded by concrete shielding which provides protection to the containment against missiles that might be generated if structural failure of such components were to occur during operation at pressure. This includes missile protection against the highly unlikely failure of the reactor vessel by longitudinal splitting or by various modes of circumferential cracking. The Committee favors such protection for large reactors in regions of relatively high population density."

With respect to a requirement for missile protection against the highly unlikely failure of the reactor vessel, similar provisions, consistent with the position of ACRS, have been incorporated in other plants located in regions of relatively high population density, including Indian Point Unit 3, Zion Units 1 and 2 and Midland Units 1 and 2.

Sincerely,

Myron Karman
Counsel for AEC Regulatory Staff

cc: Arvin Upton, Esq.
Stanley T. Robinson, Jr.

bcc: OGC Files Beth/G'twn/Docket
DRL
MKarman
JBKnotts
Kornblith, Compliance

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