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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'84 SEP 26 P4:24

BEFORE THE COMMISSIONERS:
Nunzio J. Palladino, Chairman
Thomas M. Roberts
James K. Asselstine
Frederick M. Bernthal
Lando W. Zech, Jr.

OFFICE OF SECRETARY
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_____)	
In the Matter of)	
)	
CONSOLIDATED EDISON COMPANY OF)	Docket Nos.
NEW YORK, INC.)	50-247 SP
(Indian Point, Unit No. 2))	50-286 SP
)	
POWER AUTHORITY OF THE STATE OF)	
NEW YORK)	September 26, 1984
(Indian Point, Unit No. 3))	
_____)	

LICENSEES' COMMENTS ON
SEPTEMBER 5, 1984 COMMISSION
MEETING REGARDING INDIAN POINT

Consolidated Edison Company of New York (Con Edison)
and the Power Authority of the State of New York (Power
Authority), licensees of Indian Point Units 2 and 3, respec-
tively, hereby respond to the Nuclear Regulatory
Commission's (Commission's) invitation to submit comments on
Staff's September 5, 1984 presentation to the Commission.
Memorandum from Samuel J. Chilk, Secretary of the

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Commission, to All Parties in the Indian Point Special Proceeding (Sept. 11, 1984).¹

Licensees agree with Staff that there is no need for further mitigative features or for a plant shutdown because the risks from the Indian Point plants are low and are small compared to non-nuclear risks. These conclusions are supported by sound engineering judgments and licensing practices, as well as by the thorough safety analyses conducted by Staff and licensees.

Licensees further agree with Staff that the Indian Point containments are among the best in their ability to withstand a highly unlikely core melt accident. Direct Testimony of Frank Rowsome and Roger Blond Concerning Commission Question 5 at (A) 27 (Rowsome/Blond Testimony). This is particularly significant because the performance of the containment in the unlikely event of such an accident is the critical determinant of whether there would be a release and, thus, whether public health could be affected. Staff noted that several features of the Indian Point containments are "unusually favorable," and found no containment features "unfavorable." Summary of Staff Testimony on Risk at the Indian Point Special Proceeding, Sept. 5, 1984, at 4.1-4.3

1. Because the Commission requested comments on Staff's presentation, and enclosed a copy of the transcript as guidance, licensees have treated 10 C.F.R. § 9.103 (1984) as waived.

(Summary). In fact, Staff concluded that "the plant range of variation in the frequency of severe releases of radiation is probably larger . . . than the differences that could be attributed to a population site demography." Discussion of Indian Point Probabilistic Risk Assessment at 16 (Sept. 5, 1984) (Discussion).

While both licensees and Staff mathematically expressed their conclusions regarding containment strength in probabilistic terms, these analyses are based upon standard structural engineering practices in the assessment of containment strength. Indian Point Probabilistic Safety Study (IPPSS) Appendix 4.4.1. These analyses demonstrate that the Indian Point containments can withstand an internal pressure of at least 141 psia before containment yielding could begin. Id. at 11. Staff reached a similar conclusion.¹ Direct Testimony of James F. Meyer and W. Trevor Pratt Concerning Commission Question 1, at III.B-19 (Meyer/Pratt Testimony); see NUREG-0850, "Preliminary

1. The onset of yielding was conservatively assumed to be the failure pressure by both licensees and Staff. Licensees' Testimony on Question One and Board Question 1.1 and Contention 1.1, at 77-78 (Licensees' Testimony on Question One); Direct Testimony of James F. Meyer and W. Trevor Pratt Concerning Commission Question 1, at III.B-19. This high failure pressure is approximately 2.3 times the design basis accident pressure and is a result of many conservatisms in the original containment structure design due to industrial and Commission licensing practices. Licensees' Testimony on Commission Question One at 77-78; IPPSS Appendix 4.4.1 at 15.

Assessment of Core Melt Accidents at the Zion and Indian Point Nuclear Power Plants and Strategies for Mitigating Their Effects" at 3-2 (1981).

Staff credits the "rare basalt concrete" in the basemats of the Indian Point containments as an important factor in the "extraordinarily good performance" of the containments. Discussion at 57. Licensees agree with Staff regarding the value of the basalt concrete. This type of concrete composition would limit the release of noncondensable gases in the unlikely event of loss of all containment cooling, thereby reducing the probability of an overpressurization failure and a subsequent atmospheric release. Meyer/Pratt Testimony at III.B-14.

Because of the high failure pressure of the containments, their large volume, and the composition of the basemats, the probability of containment breach is extremely unlikely or remote. Discussion at 53-57. Staff concluded that "few" core melt accidents would "lead to substantial societal health consequences" and that "very few" would cause any early fatalities. Summary at 12.2.

In discussing the interfacing systems LOCA (the V sequence), Staff correctly points out that the special design features at Indian Point result "in substantially lower vulnerability for each of the Indian Point units than is typical of almost any other pressurized water reactor

[PWR]." Discussion at 14. Thus, for the two accident sequences that dominate the risk for PWRs, slow over-pressurization accidents and the V sequence, the design of the Indian Point plants is superior to other PWRs.

Rowsome/Blond Testimony at (A)10-12, (A)25-26.

In its presentation, Staff also discussed the modeling of emergency planning for purposes of determining various possible accident consequences. Licensees and Staff agree that Staff's late relocation model is "extremely pessimistic" because it "assume[s] everybody was outdoors for 24 hours, nailed down to where they'd been when the accident happened." Discussion at 77. Because a radioactive release would not occur until at least 13 hours following a core melt accident, id. at 58, Staff's late relocation model actually assumes that no one would be evacuated for 36 to 48 hours. Licensees' Testimony of Thomas E. Potter on Commission Question Five at 6. This assumption clearly distorts the risk calculations. For example, 96 percent of Staff's calculated early fatality risk at Indian Point Unit 2 is due to use of this model. See Summary at 7.5. Had Staff used a more realistic evacuation model and eliminated a release category for a seismically-induced containment collapse¹, Staff's early fatality risk calculations would be

1. While Staff's analysis includes a release category for a seismically-induced containment collapse, Discussion

well below the Commission's Preliminary Safety Goal for early fatalities. See Policy Statement on Safety Goals for the Operation of Nuclear Power Plants, 48 Fed.Reg. 10,772, 10,774 (1983) (Quantitative Design Objectives). This margin below the Preliminary Safety Goal diminishes concerns about the uncertainty in these calculations.

Licensees also agree with Staff that the safety studies present "interesting implications for the effectiveness of evacuation as an emergency response tactic." Discussion at 78-79. Staff's conclusion that "[m]ost of the consequences look the same, no matter what [emergency response] model we used," id. at 78, is supported by licensees' analyses of alternative emergency responses. Power Authority's Proposed Findings of Fact 235-238.¹

Furthermore, Staff bases its risk estimates on the conservative source term methodology used in the Reactor

at 61, licensees' witnesses presented testimony demonstrating that this failure mode could not occur under conditions caused by any credible seismic event in the Indian Point vicinity. See Power Authority's Proposed Findings of Fact 81; Con Edison's Proposed Findings of Fact 1.1-83. Staff retained a failure mode for this accident because a detailed review of licensees' analysis had not been completed. Power Authority's Proposed Findings of Fact 82; Con Edison's Proposed Findings of Fact 1.1-84.

1. Additionally, licensees demonstrated that, using a more realistic source term, there would be no early fatalities, even assuming no evacuation or shelter for 24 hours following an accident. Licensees' Testimony of William R. Stratton, Walton A. Rodger, and Thomas E. Potter on Question One at 62.

Safety Study (RSS). Discussion at 42. Licensees and Staff agree that this methodology overstates the source term. Licensees' Testimony of William R. Stratton, Walton A. Rodger, and Thomas E. Potter on Question One at 9 (Stratton et al. Testimony); Testimony of Robert M. Bernero on Severe Accident Source Terms at 3. These overly conservative source terms lead to overestimates of the consequences of various accidents, particularly early fatalities at densely populated sites. Stratton et al. Testimony at 5.

Licensees also agree with Staff's position on relative risk: the issue of whether the Indian Point plants pose a "disproportionate share of the risk" is a "[moot] question" because the absolute risk is so low. Discussion at 69; Licensees' Testimony on Question One and Board Question 1.1 and Contention 1.1, at 23. Even using RSS-type source terms, the early fatality risk at Indian Point Unit 2 is below the Commission's Preliminary Safety Goal by a factor of 70 (one part in 70,000 of the non-nuclear early fatality risk), and the comparable risk is below the Preliminary Safety Goal by a factor of 75 for Indian Point Unit 3 (one part in 75,000 of the non-nuclear early fatality risk). Licensees' Testimony of Dennis C. Bley, Donald F. Paddleford, Thomas E. Potter, and Dennis C. Richardson on Commission Question Five at 5-6, 7 (Table 1) (Bley et al. Testimony); cf. 48 Fed.Reg. at 10,774.

The latent fatality risk at Indian Point Unit 2 is below the Preliminary Safety Goal by a factor of 165 (one part in 165,000 of the non-nuclear cancer risk), and Indian Point Unit 3 is below this Preliminary Safety Goal by a factor of 710 (one part in 710,000 of the non-nuclear cancer risk). Bley et al. Testimony at 6, 7 (Table 1); cf. 48 Fed.Reg. at 10,774. Staff stated that, even considering uncertainties, possible errors in the risk assessment, and the combined risk from both plants, it is extremely unlikely that the Indian Point plants pose a latent fatality risk anywhere near the Commission's Preliminary Safety Goal. Rowsome/Blond Testimony at B-15 to B-16; Discussion at 85.

Commissioner Bernthal has requested that, at the next meeting, Staff discuss additional mitigative or preventive features. Discussion at 94-95. In licensees' view, any discussion of features not examined by the parties and the Atomic Safety and Licensing Board during the hearings would be inappropriate. Staff and licensees are in agreement that voluntary plant modifications implemented by licensees have significantly reduced the likelihood of a severe release. Discussion at 81. Additionally, the use of more realistic

source terms significantly reduces the value of such mitigative or preventive features.¹ Stratton et al. Testimony at 63-64.

In conclusion, the parties have commented fully upon the issues raised during the proceeding. Not only did all parties file extensive proposed findings of fact and conclusions of law, but they have submitted comments to the Commission at its request upon the Recommendations of the Atomic Safety and Licensing Board² and specifically upon

1. Licensees continue to object to the Safety Assurance Program (SAP) proposed by Staff and adopted by the Board in its Recommendations. The record of the proceeding provides no basis for requiring the implementation of such a major new program at the Indian Point units. Moreover, SAP is unnecessary to achieve compliance with the Commission's rules and regulations or with its Preliminary Safety Goals and, "[i]n fact, at Indian Point significant safety improvements have been made" on a voluntary basis. Recommendations to the Commission at 40 n.19 (Oct. 24, 1983).

2. See, e.g., Licensee's Comments on the Recommendations of the Indian Point Special Proceeding Licensing Board (Feb. 6, 1984); Intervenors' Comments on Licensing Board Recommendations on Indian Point Units 2 and 3 (Feb. 6, 1984); NRC Staff's Comments Concerning Licensing Board Recommendations (Feb. 6, 1984); Parents Concerned About Indian Point's Comments to the Nuclear Regulatory Commission on the Recommendations of the Atomic Safety and Licensing Board (Feb. 2, 1984).

Chairman Gleason's dissent.¹ Staff's September 5, 1984 presentation made clear that the risks from the Indian Point plants are low and that no additional mitigative features are necessary.

1. See, e.g., Power Authority's Response to the Commission's Order of July 30, 1984 (Aug. 13, 1984); Con Edison's Comments on the Licensing Board Chairman's Dissent in the Recommendations of the Indian Point Special Proceeding (Aug. 13, 1984); NRC Staff Response to the Commission's Order of July 30, 1984 (Aug. 13, 1984); Union of Concerned Scientists Comments on Judge Gleason's Dissent (Aug. 13, 1984).

Respectfully submitted,

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NEW YORK)
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)

September 26, 1984

CERTIFICATE OF SERVICE

I hereby certify that on the 26th day of September, 1984, I caused a copy of Licensees' Comments on September 5, 1984 Commission Meeting Regarding Indian Point to be served by hand on those marked with an asterisk, and by first class mail, postage prepaid, on all others:

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