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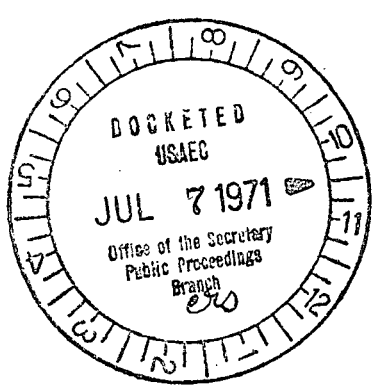
BEFORE THE UNITED STATES

ATOMIC ENERGY COMMISSION

In the Matter of	)	7-6-71.
Consolidated Edison Company of New York, Inc. (Indian Point Station, Unit No. 2)	)	Docket No. 50-247

ADDITIONAL TESTIMONY OF APPLICANT



PART I

Date: July 6, 1971

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The testimony in this document is being supplied in response to the evidence proposed to be introduced by the Citizens Committee for the Protection of the Environment by its letter to the Atomic Safety and Licensing Board dated June 4, 1971. For each item of testimony the particular proposed finding by the Citizens Committee to which the testimony responds and the witness who will sponsor the testimony at the hearing on July 13 are identified.

Response to Item 3.a.3.g (p. 6) (Mr. John D. McAdoo)

The possibility of explosions in the reactor vessel resulting from the accumulation of small releases of hydrogen was considered. There are two potential sources of hydrogen in the reactor, namely metal-water reaction and radiolysis. They occur at different times.

Metal water reactions occur during the period of high fuel cladding temperature before the ECCS has re-flooded the core. Hydrogen produced is rapidly swept to the containment with the steam produced by reflooding the hot fuel. Until it reaches the containment, there is no oxygen present, hence no possibility of combustion.

Radiolysis occurs during the long term cooling period following reflooding, and is accompanied with stoichiometric amounts of oxygen. The concentration of these gases does not reach the explosive range, even before dilution in the containment atmosphere, although a flammable mixture may be present inside the reactor pipe or reactor vessel dome. The energy release associated with combustion of this mixture is insufficient to damage the pressure retaining components of the system; hence it is not conceivable that safety related functions of the reactor coolant system would be affected by ignition of the mixture.

Release and mixing of hydrogen in the containment from the point of efflux was studied to show that mixing occurs within a very small space. Ignition here is a remote

possibility -- but in case it would occur, the heat energy of combustion can be accommodated within the capacity of the emergency containment cooling systems.

Response to Item 3.a.3(i) (p. 7) (Mr. John D. McAdoo)

A stainless steel water reaction does not occur below a temperature of about 2500°F. Since temperatures do not reach this value in the design basis accident, such reactions will not occur.

Response to Item 3.b.3 (p. 8) (Mr. John D. McAdoo)

Spray nozzles randomly selected from those to be installed in Unit 2 were tested by the manufacturer and found to exhibit drop size characteristics much more favorable than that assumed in the FSAR. The analysis was made assuming a number mean drop size larger than that representing two standard deviations from the norm of the measured data. The analysis is therefore quite conservative in this regard.

Response to Item 6.b. (p. 15) (Mr. Joseph A. Prestele)

The plant will be adequately protected against unauthorized entry by the measures outlined in the answer to Citizens Committee's question No. H-30. In addition to the roving guard patrol of the site, the normal point of entry to the fenced plant proper is through a continuously guarded gateway. Unauthorized attempts at entry by breaching or climbing the fence will be deterred by intensive perimeter lighting. Such lighting will also facilitate detection of any attempts to gain unauthorized access to the plant. In addition, Con Edison has under study a method of direct surveillance of the lighted fence perimeter by a modern electronic detection system to further enhance security precautions.

If, in spite of these precautions, an unauthorized person were to attain access to the fenced area, entry to the plant controlled area buildings would be prevented by locked doors. Further, entry points to the controlled area from the conventional area will be equipped with alarms and indicators to alert the Staff to any unauthorized entry.

Response to Item 6.C. (p. 16) (Mr. John J. Grob)

An analysis of the probability of an aircraft hitting Indian Point Unit No. 2 has been completed. It is based upon (1) a survey of the current number of over-flights by aircraft in the general vicinity of the Indian Point site; (2) a probabilistic approximation of the distance from the airway centerline to the point where an aircraft hits the terrain being overflown if there is an inflight accident; (3) the incidence rate of in-flight aircraft accidents resulting in a serious crash; and (4) the area of the Indian Point Unit No. 2 that is considered to represent a target for such an aircraft crash.

The in-flight accident data upon which the study was based was obtained from the accident investigation files of the National Transportation Safety Board. Airway and overflight data was obtained from the New York Air Route Traffic Control Center. The result of the study yields an estimated probability of a hit by an aircraft into the reactor containment, the spent fuel or the control room buildings, of $p = 9 \times 10^{-8}$/year.

Stated in other ways:

1. One hit would be expected in 11 million years.
2. The probability of having a hit in a year is 0.00000009 or a chance of 1 in 11 million per year.

The Applicant concludes from this study that the likelihood of an aircraft hitting Unit No. 2 is so remote that this contingency need not be considered in the design.

With respect to the specific assertions in section 6.C. 1), 2), and 3) of intervenor's proposed findings, the nearest holding pattern is the Brewster holding pattern serving the Westchester County Airport. Only a small number of aircraft use this holding pattern, and the closest point of the pattern is 8 miles northeast of the Indian Point site. The nearest approach route to Kennedy Airport does not go directly over the plant site but rather passes two miles east of the site. There are many aircraft movements within ten horizontal miles of the site, but the Indian Point site is not unique in this respect. These movements are taken into account in the analysis described above.