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UNITED STATES GOVERNMENT

Memorandum

TO : Roger S. Boyd, Assistant Director for Reactor Projects, DRL

DATE: November 20, 1967

THRU: D. R. Muller, Chief, RPB-1, DRL

FROM : J. A. Murphy, Project Leader, RPB-1, DRL

SUBJECT: CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT STATION NO. 3, DOCKET NO. 50-286

Meetings were held with Consolidated Edison and their contractors on August 22, September 8, and September 26, 1967. A report on these meetings is presented below.

August 22, 1967

A meeting was held in Bethesda on August 22, 1967, to discuss Indian Point Station No. 3 (IP-3). A list of those attending is attached. A summary of salient information obtained is presented below.

1. The containment buildings for Units 2 and 3 are essentially identical. The same drawings will be used in construction in all areas where the difference in ground elevation or penetration location does not require modification.

2. No tornado design criterion has been applied to the facility.

3. Westinghouse confirmed that part-length absorber rods will be used to control X-Y plane instabilities and burnable shims will be employed to insure a negative moderator temperature coefficient.

4. Peak fuel exposure anticipated is in excess of 40,000 MWD/T. No experience at this burnup with high heat fluxes exists. However, data from Saxton and Zorita will be available before IP-3 achieves high burnup.

5. The FIGHT Code used to determine gap activity divides the fuel rod into a series of rings, each one of which communicates directly with the gap.

6. Sodium thiosulfate has been tentatively chosen as the additive for the doped spray. However, Consolidated Edison will await the completion of the buffered sodium thiosulfate solution stability tests before making a final decision. Westinghouse indicated that these experiments should be completed in December 1967.

7. The Westinghouse representatives present were unable to provide complete answers to staff questions in the areas of sizing of the safety injection system, containment isolation, fuel handling, radioactive waste disposal system, steam supply system, accident analyses, and the containment pressure transient. We identified our questions in these areas and agreed to meet at a later date to discuss these topics.

September 8, 1967

A meeting was held at Bethesda on September 8, 1967, to discuss those items which the applicant was not prepared to discuss on August 22. The following information was obtained:

1. The critical and shutdown boron concentrations reported in the IP-2 PSAR were preliminary and were purposely highly conservative since they were used for sizing the CVCS.

2. Pu-240 is explicitly considered in considering the variation of excess reactivity with burnup.

3. Westinghouse agreed to provide a full description of the FIGHT Code.

4. The method used during pressure vessel installation to verify that the vessel is properly supported was described.

5. The pressurizer relief tank is sized to accommodate the total flow resulting from a loss of load assuming no immediate trip.

6. Steam-line supports will be designed to prevent containment damage from a whipping line in the event of an internal steam-line rupture.

7. The butterfly valves in the purge system are spring-loaded and do not require pressure to seat.

8. A high pressurizer level trip will be provided.

9. The possibility of a single rupture in the 10-inch steam bypass line resulting in simultaneous blowdown of all steam generators was discussed. The applicant agreed to evaluate the consequences of this accident. Westinghouse stated that the design criterion for a steam-line rupture leading to blowdown of one steam generator is that there be less than 1% of the fuel cladding perforations.

10. Westinghouse stated that they are re-evaluating the consequences of the fuel handling accidents previously considered. This evaluation should be complete by December 1, 1967.

11. We informed the applicant of our present concern regarding the fraction of the organic halides in the containment atmosphere following a core meltdown and discussed the sensitivity of this fraction to off-site doses. We also indicated that acceptance of iodine scavenging chemical additive spray system would be predicated on resolution of (1) the effect of the pressure and temperature conditions existing in the containment on the mass transfer rate, and (2) the stability of the chemical additive in the environment (temperature, pressure, radiation field) to which it would be subjected.

September 26, 1967

A meeting was held at 1717 H Street, NW., on September 26, 1967, to discuss the Consolidated Edison electrical transmission system and the Indian Point site normal and emergency power sources. A summary of salient information is presented below:

1. Busses 1, 2, 3, and 4 are normally fed from the unit auxiliary transformers; and busses 5 and 6, from the station auxiliary transformer. Upon failure of the generator and unit auxiliary transformer to supply power, busses 1 and 2 are connected to bus 5; and busses 3 and 4, to bus 6.

2. Four station service transformers feed the 480-V busses 5A, 2A, 3A, and 6A with bus ties open. Upon failure of the 138-KV system to supply power, emergency generator No. 1 starts to supply 480-V bus 5A; emergency generator No. 2, busses 2A and 3A; and emergency generator No. 3, bus 6A. Bus ties 5A-2A, 2A-3A, and 3A-6A are left open.

3. Lockouts will be provided to prevent improper operation of bus ties. These will prevent any two power sources from being tied together. A trip of any bus will lock out all possible sources of power to that bus until the lockout is re-set.

4. The circuit breakers connecting emergency generators No. 1, 2, and 3 to busses 5A, 2A, 3A, and 6A will not close if there is voltage on the bus from any source.

5. The emergency generators are provided with synchronizing equipment, so that they may be put on a loaded bus for testing.

6. The 125-V d.c. system has two batteries and two battery busses that are arranged so that two separate sources are available to each panel. Each panel is arranged so that it is automatically switched to the second source if the first source fails. A failure of one load will disconnect that load, but will not degrade the rest of the system. A failure of one source will automatically put all loads on the other source. The applicant was asked to furnish a diagram of the 125-V d.c. system.

7. The 120-V a.c. instrument supply system consists of four power sources, two of which are inverter sets, while two are derived from transformers. This provides two sources to important equipment and appears to meet single-failure criteria. The applicant was asked to furnish a diagram of the 120-V a.c. system.

8. The question of suitability of electrical equipment for operation inside the containment was raised, but answers were inconclusive. It was pointed out by DRL that certain desired information concerning the operation of the emergency diesels and sequentially starting equipment was contained in the answer to question 10, First Supplement to PSAR, Indian Point 2, but that this information had not been included in PSAR for Indian Point 3. We stated that an evaluation should be made which would include assurance that any two diesels will be adequate to supply engineered safeguards equipment, and that a failure in the sequencing circuits would not prevent minimum safeguards equipment from being started.

9. The applicant was asked to include horsepower designations on Figure 8-2.

10. It was stated that links would not be provided in main generator bus, but that terminals could be disconnected in approximately one hour.

11. A discussion of motors outside and inside containment is given on pages 6-26 and 6-27 of the PSAR. Additional information on the design of motors to be used inside containment, including recirculation pumps, was requested.

Attachment:
Attendance List

Meeting with: Consolidated Edison Company of New York, Inc., Docket No. 50-286

ATTENDANCE LIST

August 22, 1967

Westinghouse Atomic Power Divisions
Robert J. French
H. L. Russo
O. M. Hauge
R. Wiesmann

United Engineers and Constructors
Warren R. Thompson
J. R. Slotterback
W. C. Siler

Consolidated Edison Co. of N.Y., Inc.
J. A. Prestele
W. J. Cahill, Jr.
Fred Flugger
Carl A. Larson

Southern Nuclear Engineering, Inc.
Gilbert M. Brown
C. Rogers McCullough
Arnold Katterhenry

LeBoeuf, Lamb, & Leiby
A. E. Upton

AEC (DRL & CO)
R. S. Boyd, DRL
D. R. Muller, DRL
J. A. Murphy, DRL
V. Stello, DRL
P. Check, DRL
S. Pawlicki, DRL
R. Mattson, DRL
J. Hard, CO

September 8, 1967

Consolidated Edison Co. of N.Y., Inc.
C. A. Larson

Westinghouse Atomic Power Divisions
J. F. Paddleford

AEC, DRL
J. A. Murphy
D. R. Muller
Voss Moore

September 26, 1967

Consolidated Edison Co. of N.Y., Inc.
C. A. Larson
W. J. Balet

Westinghouse Electric Corp.
E. A. Sagan
R. Cooney

AEC (DRL, DRS, CO)
D. R. Muller, DRL
J. A. Murphy, DRL
G. D. Parr, DRL
J. V. Burgess, DRL
V. A. Moore, DRL
R. L. Ferguson, DRS
G. L. Madsen, CO

Distribution:

DRL Reading	R. Ireland	S. Pawlicki
RPB-1 Reading	D. Knuth	R. Mattson
S. Levine	V. Moore	R. L. Ferguson
D. R. Muller	J. Murphy	G. D. Parr
R. DeYoung	V. Stello	J. V. Burgess
C. Long	~~R. Wiessman~~	G. L. Madsen, CO
R. Tedesco	P. Check	CO (2)
		F. Leiderbach