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Docket No. 50-247

NOV 4 1974

Consolidated Edison Company
of New York, Inc.
ATTN: Mr. William J. Cahill, Jr.
Vice President
4 Irving Place
New York, New York 10003

Gentlemen:

As a result of our generic review of the Westinghouse ECCS Evaluation Model, we have identified information which must be provided on a case-by-case basis to enable us to complete our review of individual plant compliance with the criteria set forth in paragraph 50.46(b), "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Cooled Nuclear Power Reactors," of 10 CFR Part 50. The information required is identified in the Enclosure to this letter. (Items 1 and 2 are applicable to all plants. Item 3 is applicable to plants with ice-condenser containments.)

In order to maintain our review schedule the Indian Point Nuclear Plant Unit No. 2, we need the information requested by December 1, 1974.

Please contact us if you desire any discussion or clarification of the information required.

Sincerely,

Original Signed

George Lear, Chief
Operating Reactors Branch #3
Directorate of Licensing

Enclosure:
Request for Additional
Information

cc: See next page

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cc:

Leonard M. Trosten, Esquire
LeBoeuf, Lamb, Leiby & MacRae
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Honorable George Segnit
Mayor, Village of Buchanan
188 Westchester Avenue
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Dr. William E. Seymour
Staff Coordinator
New York State Department of Commerce
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OFFICE ➤						
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DATE ➤						

ADDITIONAL INFORMATION REQUIRED
FROM ALL UTILITIES
UTILIZING WESTINGHOUSE NUCLEAR STEAM SUPPLY SYSTEMS

1. Provide justification for the following input parameters used in the ECCS evaluation model:

   a) Net Free Containment Volume - Justification should include the total gross internal containment volume and the internal structures and equipment and their volumes which are subtracted to obtain the net free containment volume. A discussion of the uncertainties should be provided.

   b) Passive Heat Sinks - Discuss the method of determining the passive containment heat sinks. Identify each heat sink by category (i.e., cable tray, equipment supports, floor grating, crane wall, etc.) and provide surface area, thickness, materials of construction, thermal conductivity and volumetric heat capacity, by component category used in the containment transient analysis code.

   c) Starting Time of Containment Cooling System(s) - Discuss the factors that show that the start time(s) assumed in the containment response analysis represent the earliest possible initiation of system(s) operation.

   d) Containment Initial Conditions - Compare the initial values of temperature, pressure and relative humidity in the containment with the range of values that will be permitted during plant operation.

e) Containment Spray Water Temperature - Show that the value of containment spray water temperature used in the containment response analysis is the lower bound temperature consistent with plant operating conditions.

2. For the most severe break provide the following information:

a) Fan-cooler heat removal rate as a function of containment atmosphere temperature. Show that minimum operational values of service water temperature have been used in determining the fan-cooler heat removal rate.

b) Mass and energy release rates to the containment as a function of time during the blowdown, refill and reflooding periods of the accident. Include any spilled ECCS water.

3. For plants using the ice condenser containment provide the following additional information:

a) For each heat sink identified for question 1(b) above, indicate the location within the containment (i.e., upper compartment, lower compartment or ice condenser compartment).

b) Graphically provide the maximum steam condensation rate in the lower compartment as a function of time from t=0 until the core is recovered. Consider each of the following possible sources of steam condensation and show the condensation rate of each as a function of time for the above time period:

(1) passive heat sinks;

(2) lower compartment containment sprays (give the spray flow rate as a function of time);

(3) upper compartment containment spray water returning to the lower compartment (give the flow rate as a function of time);

(4) ice condenser drain water entering the lower compartment (give the flow rate as a function of time);

(5) interface between the containment sump water and the lower compartment atmosphere; and,

(6) lower compartment normal cooling systems which could operate during the accident.

For items (3), (4), (5), and (6) above, discuss the analysis performed to determine the steam condensation rates. Identify and justify all heat transfer coefficients and processes, service and drain water temperatures, and containment atmospheric conditions assumed in the analysis.

c) Graphically show the containment pressure and upper and lower compartment atmosphere temperatures calculated by the LOTIC analysis as a function of time from the time of accident initiation until the core is recovered. On the same figure show the containment pressure used for the ECCS performance evaluation as a function of time and identify the time at which core "reflooding" starts.

d) Identify and justify the possible flow paths which are available to allow the flow of air from the upper compartment to the lower compartment during the time from t=0 seconds until the core is recovered. Provide the flow area and loss coefficient for each flow path.

e) Graphically compare the steam energy release rate into the lower compartment to the total steam condensation rate in the lower compartment for the period t=0 seconds until the core is recovered. In the event that the total steam condensation rate in the lower compartment exceeds the steam release rate into the lower compartment at any time, graphically show the air flow rate from the upper compartment to the lower compartment and the upper compartment and lower compartment pressure transients. Describe the analysis used to determine the effect of the air flow from upper to lower compartment upon the lower compartment depressurization rate.