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Memorandum

TO : The Files

THRU: Roger S. Boyd, Chief DRM/for. DATE: August 4, 1966
Research & Power Reactor Safety Branch
Division of Reactor Licensing

FROM : Keith Woodard
Research & Power Reactor Safety Branch

SUBJECT: CONFERENCE TELEPHONE CONVERSATION
ON SEISMIC DESIGN OF INDIAN POINT NO. II
50-247

On August 1, 1966, a conference call was held concerning the seismic design of Indian Point No. II with the following persons participating:

N. M. Newmark, Newmark & Associates
W. Hall, Newmark & Associates
W. Cahill, Consolidated-Edison
C. Sowtar, Consolidated-Edison
G. Harstead, Westinghouse
R. Imhoff, United Engineers
K. Woodard, Division of Reactor Licensing

The purpose of this conversation was to clarify certain written information submitted by the applicant, and to discuss certain aspects of the design which will be considered during the detailed design of the facility. Portions of the conversation which would expedite Staff review of the areas where clarification was required are discussed below:

1. The applicant stated that the vertical and horizontal seismic motions are assumed in the design to act simultaneously.

2. It was stated by Con-Ed. that a ductility factor of 2 will be used in the design of all Class I vessels and piping.

3. The applicant stated that 100% of all liner stud welds will be visually inspected.

4. Con-Ed. stated that all liner seam welds will be pressure tested. Where possible, these tests will be performed before concrete is poured and accessibility is limited or prohibited.

5. Concerning the field inspection and quality control procedures of the receipt and placement of the steel reinforcing bars, the applicant stated that the U. S. Testing Laboratory would oversee the overall quality control procedures provided by Westinghouse and United Engineers. They also stated that since the ASTM A-432 steel to be used has a lower ductility,

inspection would be required after the bars had been bent in the area of the opening and in the dome. All reinforcing bars will have the same specifications so that use of the wrong steel is precluded. The inspection of each heat will also be audited by U. S. testing.

6. Representatives of Con-Ed. confirmed that diagonal reinforcement will be provided to carry the entire seismic shear without participation of the liner or concrete, except for the upper area of the dome; and that seismic shear will not be considered to be carried by diagonal bars in compression.

7. The applicant stated that the increased lateral forces imposed on the building by the earth backfill during seismic disturbance will be taken into account in the design.

Two items were discussed which concern aspects of the design which we believe should be considered during the detailed design stage. Representatives of Con-Ed. assured the Staff that these two items would be considered in the detailed design as follows:

1. Any Class I equipment which is located in a Class II building or supported by a Class II strucutre will be protected from damage during an earthquake or will be backed up with Class I equipment, capable of providing for a safe reactor shutdown, located in or attached to Class I. structures. Also, for equipment which is mounted on a responding structure (as contrasted to those that undergo the ground motion), the corresponding increase in magnitude of the motion at the points of support will be factored into the design.

2. Assurance of adequacy of the large penetration will be obtained by the following measurements and observations during the containment proof test:

a. Strain measurements will be made in the area of the stiffening ring and in areas adjacent to the opening.

b. A visual inspection for cracking will be performed.

c. Measurements of dimensional changes will be made.

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