Docket File

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

Docket No. 50-247

May 12, 1969

R. S. Boyd, Assistant Director for Reactor Projects, DRL
THRU: D. R. Muller, Chief, Reactor Project Branch #1 DRM

SITE VISIT AND MEETING WITH NEWMARK AND HALL AT
INDIAN POINT NUCLEAR GENERATING UNIT NO. 2, MAY 2, 1969

1. SUMMARY

No true dynamic analyses have been performed in connection with the seismic design of the Indian Point 2 facility. Instead, a refined static approach using a peak ground response spectrum for a chosen damping factor is used to determine seismic loads. This may not be acceptable, especially for the containment.

Newmark and Hall are becoming increasingly concerned about the seismic design criteria and implementation thereof for controls and instrumentation.

The site visit and subsequent meeting provided Drs. Newmark and Hall with a useful firsthand view and good background in the design approach used for structural and seismic design problems.

General housekeeping, orderliness, and cleanliness of the site were not impressive.

2. STATUS OF CONSTRUCTION

The status of construction of the Indian Point 2 facility was briefly reviewed before initiating the site tour.

More than two-thirds of the containment concrete wall has been poured. Concrete pouring has recently been restarted, and it is expected that pouring will have been completed up to the dome spring line by May 30. Reinforcing is currently being installed in the dome.

Major equipment supports and components have been installed in the containment. Pump impellers and motors and the pressurizer have yet to be installed. Primary coolant piping is presently being installed and some snubbers have been installed. Most of the equipment in the primary auxiliary building (PAB) has been installed and cable laydown is proceeding. The fuel storage building interior is nearing completion.

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The present schedule calls for the following milestones:

Cold hydrostatic test of primary system	9/15/69
Hot functional testing of primary system	10/27/69
Containment pressure test	12/15/69
Fuel loading	12/29/69
Plant at full power	5/4/70

3. SITE INSPECTION

A short tour through the turbine building provided views of the high pressure turbine (with casing removed), the steam line check valves, and welding of condenser tubes into the tube sheet.

At the intake structure both circulating water pumps and motors and service water pumps were noted.

At the containment the nature of backfill against the containment walls was observed and detail of reinforcement at the major construction opening was noted. The location and placement of diagonal reinforcement was also noted.

Inside the containment the area of buckled liner repair was observed. The support of primary system equipment and piping was examined at various points inside the containment.

In general, orderliness and cleanliness of the construction areas was not impressive, although Dr. Newmark rated it informally as average.

4. CONTAINMENT DESIGN REPORT

Newmark and Hall would like a copy of the draft Containment Design Report as submitted informally by Con Ed as soon as the figures become available. Con Ed promised to send the figures to DRL in about two weeks. Completion of the report in final form will be delayed until after DRL questions have been issued so that additional material can be added for completeness as an organized presentation.

5. BACKFILL AROUND CONTAINMENT WALL

Drs. Newmark and Hall were interested in how the effect of backfill had been factored into seismic analysis of the containment. The analyses made appear to be adequate and a brief description of the calculations and assumptions should be documented.

6. LARGE PENETRATIONS

Analysis of the large penetration design (16 ft diameter) is still underway. Completion of this analysis is not scheduled for an early date. Results will have to be reported to Newmark and Hall before they can complete their report on Indian Point 2.

7. SPLICES IN REINFORCEMENT FOR THE CONTAINMENT VESSEL

Cadweld splicing and testing were briefly discussed. Dr. Newmark indicated his concern with loss of ductility in the placement of adjacent splices when splices are cut out for test. He feels that adjacent splices should be no less than five feet apart.

8. DIAGONAL REINFORCEMENT

Dr. Newmark indicated his concern with proper spacing for diagonal reinforcement. Spacing should be comparable to horizontal and vertical reinforcement.

9. LINER DESIGN

Liner design and calculated stresses still need clarification as per Newmark and Hall question in their letter of February 5.

10. PROOF TEST AND INSTRUMENTATION

Dr. Newmark desires a complete description of the proposed structural proof test (pressure test) and instrumentation to be used. He is particularly interested in measurements needed to adequately verify the design concept for the large penetration. His position is to test containment penetration fully so that design methods used are verified. The minimum instrumentation would be to measure the incremental change in diameter across the large opening in several different directions. Methods of doing this were briefly discussed. Strain gages in combination with linear variable differential transformers or a theodolite or possibly a newly developed method using a reflected light beam are under consideration.

11. DYNAMIC ANALYSIS

No real dynamic analyses are being made for the Indian Point 2 facility. Instead, a refined static approach is used which involves using the peak value of the ground acceleration of the response spectrum and a chosen value of damping factor.

12. PIPING DESIGN - HANGERS AND SUPPORTS

The seismic analysis was performed as above using a 5% damping factor and where the peak acceleration is applied as a static force acting simultaneously in all

three degrees of freedom. Newmark and Hall requested more detail with respect to stress and deformation criteria used. It was pointed out that information on stress limits is presented in Appendix A of the PSAR. Deformation criteria are not required since yield is not reached.

13. CLASS I EQUIPMENT IN CLASS II OR CLASS III STRUCTURES

The question was raised as to what Class I equipment was located in Class II or Class III structure. Apparently there are no Class II structures.

14. SEISMIC CRITERIA FOR INSTRUMENTATION

Newmark and Hall are concerned about the seismic design criteria and implementation thereof for controls and instrumentation. Apparently "some" seismic specification is employed in the instrumentation purchase order but no tests or analyses are, or have been, made to verify that the specification is met. The content of the specification was not known and its applicability is also unverified.

Karl Kniel

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RE: QUALITY CONTROL AUDIT - INDIAN POINT 2

Based on the availability of personnel, it is necessary that plans for the proposed QC audit of the referenced facility be firmed up at an early date so that appropriate arrangements can be made. It is felt that we must reduce the scope and depth of these audits; however, in this case, a first class audit is considered essential. Accordingly, please submit the following information to Headquarters as soon as possible:

1. Proposed audit dates.

2. Proposed systems to be audited.

R. T. Carlson, CO:I X

3. Assist personnel desired. Please attempt to minimize Region II or Headquarters participation. Emphasis on consultants is considered appropriate.

bcc: F. J. Nolan, CO

Original signed by
J. P. O'Reilly

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