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Assistant Director for PWR's  
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METROPOLITAN EDISON COMPANY THREE MILE ISLAND UNIT 1,  
DOCKET NO. 50-289 - RING GIRDER REPORT

The information submitted by the subject applicant with respect to the containment dome ring girder in report on, "Containment Building Ring Girder, Construction and Repair," dated December 1, 1971, and in the addendum to this report dated January 21, 1972, has been reviewed and evaluated by the DRS Structural Engineering Branch. An evaluation of the information submitted to date is attached hereto.

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Evaluation for Three Mile  
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THREE MILE ISLAND UNIT NO. 1

Docket No. 50-289

STRUCTURAL EVALUATION

REPORT ON CONTAINMENT BUILDING RING GIRDER CONSTRUCTION AND REPAIR

Reference

1. Applicant's report on "Containment Building Ring Girder Construction and Repair," (Docket No. 50-289), dated December 1, 1971.
2. Addendum to the above report dated January 21, 1972.

Content of Reports

The above cited reports give a general description of concrete voids that resulted during construction of the Containment Building Ring Girder for Unit No. 1 of the Three Mile Island Nuclear Station. They also present in detail the corrective actions which the applicant intends to implement.

Conclusion

Based on the information contained in the above referenced documents, we have concluded that the repaired ring girder should be capable to withstand the design loads which may be applied to the structure during its life time provided special attention is given to the items listed in the Appendix.

It is suggested that this listing be forwarded to the applicant for consideration with respect to the repair plans proposed; it should be fully implemented by the applicant.

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APPENDIX

1. Special attention should be given to quality assurance and quality control.
2. Six samples of concrete-epoxy-concrete joints should be prepared and stored in environment similar to the one obtaining in the ring girder. Three of these samples should be tested for tensile and shear strength after one year and three samples after three years after initial start-up. The tests should show that the epoxy joints have a strength better than or at least equivalent to the concrete strength. The results of these tests should be referred to the Commission within 10 days.
3. Install permanent structural provisions to facilitate access to the ring girder and dome area for the purpose of inservice inspections.
4. Conduct gage readings and visual inspection during the prestressing operations, during the acceptance and leak tests and 6, 12, 24 and 36 months after the acceptance test. These examinations should be performed by competent inspectors and with the aim of uncovering evidence of structural distress. Crack patterns should be recorded during each inspection. During the acceptance test the procedure indicated in the AEC Safety Guide #18 should be followed and in addition strain gage readings and visual inspection should be made as suggested by the applicant in the referenced reports.

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5. Submit to the Commission detailed reports of the results of the surveillance program within 10 days after the completion of those aspects of the program scheduled to be conducted at prestressing, at acceptance test, and at 6, 12, 24 and 36 months after the initial containment leak rate test. These reports will be used for the purpose of review and possible revision of the inservice surveillance program.
  
6. If a final weather-proofing treatment of the top surface of the ring girder and of the dome is used, the insulating characteristics of the weather-proofing material (to reduce the thermal gradients) as well as its ability to accommodate development and movement of cracks in the concrete surface of the dome should be carefully developed and specified. This weather-proofing should be such as to permit the visual inspection of concrete crack patterns.

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