

FINAL REPORT
TURBINE BUILDING DESIGN
POTENTIALLY REPORTABLE DEFICIENCY NO. 77/15

I. Description of the Deficiency

The design of the Unit 1 Turbine Building roof was checked and found to be deficient in that the roof will not withstand tornado wind loads. Detailed analysis of the roof indicates that it will, however, withstand seismic loads. The seismic design is dependent upon structural reinforcement from both the Q-decking and roof bracing. This design would be acceptably weakened if a tornado were to remove and sweep away the Q-decking and roofing.

II. Safety Implications

The analysis concluded that the existing turbine building design does not assure that nearby safety related (Category I) buildings would not be adversely affected under design basis tornado wind loads. This conclusion is contrary to the commitment stated in the Grand Gulf PSAR, Volume 10, Appendix R, page R3.3.1-1. Based on this information, MP&L reported the deficiency to the NRC under 10CFR50.55(e)(1)(ii) on December 14, 1977.

III. Corrective Action in Progress

(a) The detailed analysis of tornado effects on all portions of the Unit 1 Turbine Building was completed on January 31, 1978 and disclosed that only the roof bracing had inadequate capacity. By March 15, 1978, Unit 1 roof bracing repair drawings had been developed and issued for construction. Drawings reflecting the strengthening of the floor beam connections (line 11 frame at elevations 133' -0" and 166' -0") to resist the axial forces

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from the tornado wind loads were issued for construction by May 15, 1978. Some additional but minor revisions on purlin connections in the Unit 1 Turbine Building are scheduled for completion during the first half of September 1978.

- (b) The analysis of tornado wind loads effects on the Unit 2 Turbine Building is presently in progress. Unit 2 structural steel drawings issued for construction have been revised and re-issued where analysis is complete or are "on hold" where analysis is still in progress. These "on hold" drawings will be revised and reissued for construction consistent with the Unit 2 Turbine Building Engineering schedule.

IV. Corrective Action Taken

Details of the corrective action taken for this deficiency and documentation regarding action taken to prevent recurrence will be documented in Bechtel's Management Corrective Action Report (MCAR) GGNS No. 37. Upon completion of all corrective action the subject MCAR will be available for NRC review.