UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO IE BULLETIN 80-11 "MASONRY WALLS"

INDIANA AND MICHIGAN ELECTRIC COMPANY

DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2

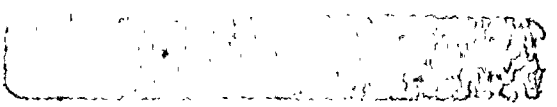
DOCKET NOS. 50-315 AND 50-316

The findings reported in this Safety Evaluation Report (SER) are based on the attached Technical Evaluation Report (TER), Attachment 1, prepared by Franklin Research Center (FRC) as a contractor to NRC. This TER contains the details of construction at D. C. Cook units. The staff has reviewed this TER and concurs with its technical findings. The following is our summary of major technical findings.

(1) As indicated in the Section 3.1 of the TER, the licensee's criteria used in the reevaluation of the masonry walls at D. C. Cook units, in general, either comply with the staff's acceptance criteria or exceed the staff's requirements. The only exception to the staff's acceptance criteria is the licensee's use of joint reinforcing (Dur-O-Wal) as a structural element to qualify unreinforced walls. This issue is discussed in item (2) below.

The allowable stresses used by the licensee for normal loads (includes severe environmental loads) are in compliance with the staff's acceptance ctiteria. The increase factors used by the licensee to obtain allowable stresses for extreme/abnormal load combinations are either less than or equal to those specified in the staff's acceptance criteria. Therefore, except for the joint reinforcing issue, the licensee's reevaluation criteria are acceptable.

(2) Five walls, designated as 12-4031-W1, 1-40330-W2 and -W3, and 2-4036-W2 and -W3 have been qualified by the licensee by relying on the horizontal joint reinforcing to resist the tensile stresses. This joint reinforcing is placed in alternate bed joints. The staff's position on the use of joint reinforcing to quality unreinforced walls is provided in Attachment 2. As indicated in this position, the function of the joint reinforcement in masonry walls is to prevent the formation of excessively large shrinkage cracks. The structural significance of joint reinforcement in masonry walls is not well established and, therefore, its use as a structural element is not acceptable. The implementation of the staff position is required to render above five walls acceptable to the staff.



(3) The licensee has adopted the following four types of modification to upgrade 34 walls.

- Beams added to the faces of walls
- Angles added to the faces of walls
- Grating added at knock-out areas to encapsulate block walls
- Beams added at the ends of walls.

All modifications have been completed as of October 30, 1981. The staff finds the licensee's approach to wall modifications acceptable as the modified walls have been shown to meet the staff acceptance criteria.

Based on findings in Items (1), (2), and (3) above, the staff concludes that with the implementation of the staff position on the use of the joint reinforcement, the Items 2(b) and 3 of IE Bulletin 80-11 have been fully implemented at D. C. Cook Units and that there is reasonable assurance that the safety-related masonry walls at D. C. Cook units will withstand the specified design load conditions without impairment of (a) wall integrity or (b) the performance of required safety functions.