

Docket No. 50-346
License No. NPF-3
Serial No. 1-217
September 29, 1981



RICHARD P. CROUSE
Vice President
Nuclear
(419) 594-8000

Mr. James G. Keppler
Regional Director, Region III
Office of Inspection & Enforcement
U. S. Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137



Dear Mr. Keppler:

IE Bulletin No. 80-11, dated May 8, 1980 (Log No. 1-362), requires all power reactors with an operating license (except Trojan, Sequoyah Unit, North Anna Unit 2 and Salem Unit 2) to evaluate for structural adequacy all masonry walls which are in proximity to or have attachments from safety-related piping or equipment such that a wall failure could affect a safety-related system.

On July 14, 1980 and November 4, 1980 we submitted to you our response to Items 1, 2a, 2b, and 3 of the Bulletin. Our May 15, 1981 letter (Serial No. 1-200) revised Toledo Edison's submittal date for this final report to September 1981. Attached is the final report for IE Bulletin No. 80-11.

In the performance of the evaluation required by IE Bulletin 80-11 we reviewed and/or reanalyzed 267 masonry walls. One hundred sixty nine of these walls were reanalyzed and 39 were found not to meet our acceptance criteria. These 39 walls were further analyzed and the failure of 3 of them were found not to affect safety-related systems or equipment. The remaining 36 walls even though not meeting our acceptance criteria still have adequate margin so as to not adversely affect operability of the unit. Our present schedule calls for the required modifications to these walls to be completed in January 1983.

Yours very truly,

ds d/5

RPC:CLM

Attachments

cc:
NRC Office of Inspection & Enforcement
Division of Reactor Operations Inspection
Washington, DC 20555

NRC Davis-Besse No. 1 Resident Inspector

IE11
S1/1

Docket No. 50-346
License No. NFP-3
Serial No. 1-217
September 29, 1981

FINAL REPORT
MASONRY WALL RE-EVALUATION
RESPONSE TO NRC IE BULLETIN NO. 80-11
DAVIS-BESSE NUCLEAR POWER STATION UNIT 1

In response to NRC IE Bulletin 80-11 a walkdown was performed at the Davis-Besse Nuclear Power Station, Unit 1 to identify all masonry walls and attachments of safety and non-safety related systems and equipment to the masonry walls. When the review of this walkdown information determined that there were no safety related systems or equipment attached to a wall or in the room(s) bounded by that wall, the wall was eliminated from further walkdown activity and analysis.

In our July 14, 1980, response to the bulletin (Serial No. 1-150), we indicated that 256 masonry walls had been identified and that 53 were being excluded from further analysis because no safety related systems or equipment were attached to or in the vicinity of the walls. This left 203 walls to be further evaluated. In our November 4, 1980, response to the bulletin (Serial No. 1-169) we indicated that the number of walls to be analyzed had changed. This change was due to: 1) some larger walls being divided into smaller walls (subwalls) to facilitate data collection and analysis, and 2) additional walls were excluded as a result of further walkdowns. In this response we indicated that the total number of walls/subwalls was 267 with 99 excluded, leaving 168 to be analyzed. Since that response one additional wall that was previously excluded was found to support an adjacent wall with safety related attachments. This wall has been added to those requiring analysis and brings that total to 169.

The 169 walls/subwalls were analyzed and compared against the acceptance criteria established in our November 4, 1980 response. The analysis showed that 130 walls/subwalls met and 39 walls/subwalls did not meet the acceptance criteria. Since some walls were divided into smaller subwalls to facilitate analysis, the 39 walls/subwalls that did not meet the acceptance criteria are actually only 32 walls. The results of our analysis presented in Table I are based on the wall/subwall numbers used for analysis. Where two or more subwalls make up a larger wall, this is indicated by a footnote. Twenty eight of the 39 walls/subwalls which did not meet the acceptance criteria will be modified. Of the remaining eleven walls/subwalls, six which serve as fire barriers will be removed and replaced with alternate means of fireproofing; two will be removed and replaced with impingement barriers; three have been further examined and the consequences of their failure found to be acceptable. The corrective action for each of the 39 walls/subwalls is summarized in Table I.

Eighteen of the twenty-eight wall/subwall modifications are required to meet the acceptance criteria during a postulated seismic event. Nine of the wall/subwall modifications are required to meet the acceptance criteria during compartment pressurization from a main feedwater line break or crack. The remaining modification requires adding a seismic joint to coincide with one in a supporting structure.

All of the 39 walls/subwalls not meeting the acceptance criteria have been reviewed to determine if any may have an adverse affect on the operability of the Unit. This review indicated that even though these walls/subwalls did not meet the acceptance criteria, there was adequate margin against failure such that the Unit could safely be operated until the modifications were made.

Presently, work packages have been issued for implementing modifications to thirty walls/subwalls, and the work is in progress. The remainder of these work packages will be issued for implementation by November 1, 1981. Based on our current schedule we anticipate having all of these modifications completed in January, 1983.

TABLE I - SUMMARY OF NON-ACCEPTABLE WALLS ANALYZED
 UNDER NRC BULLETIN NO. 80-11

Wall/Subwall	Load Causing Non-Acceptance	Wall Area or Item Causing Non-Acceptance	Summary of Corrective Action
311D	OBE	Upper half of east edge is not connected to any support.	Concrete pilaster will be added to provide support.
1068	SSE	Bottom connection of wall to floor.	Systems adjacent to this wall will not be affected due to postulated wall failure.
2047	SSE	Bottom connection of wall to floor	Hangers 31-HCC-5-H5, 31-HCC-5-H6 and 31-HCC-5-H7 will be modified to remove attachment to wall.
2297	SSE	Top connection of wall (floor beam)	Floor beam will be braced.
2337	SSE	Bottom connection of wall to floor	Angles and expansion bolts will be used to reinforce connection.
3016(1)	OBE	Top connection to floor above	Fixing wall 3026 will also fix this wall.
3026(1)	OBE	Adjacent support walls (3016 & 3036) do not pass acceptance criteria	Top connection to floor above is missing and will be added.
3036(1)	OBE	Top connection to floor above	Fixing wall 3026 will also fix this wall.
3167	Compartment pressure due to a break in the main feedwater line	Masonry and top connection of wall (floor beam)	Steel bracing external to wall will be added.

TABLE I (Cont.)

Wall/Subwall	Load Causing Non-Acceptance	Wall Area or Item Causing Non-Acceptance	Summary of Corrective Action
3177	Compartment pressure due to a break in the main feedwater line	Masonry	Steel bracing external to wall will be added.
3187	Compartment pressure due to a break in the main feedwater line	Masonry and top connection of wall (floor beam)	Steel bracing external to wall will be added.
3237	Compartment pressure due to a crack in the main feedwater line	Top connection of wall (floor beam) and north edge connection to adjacent concrete wall	Floor beam will be braced and edge connection will be reinforced with angles and expansion bolts.
3287	Compartment pressure due to a crack in the main feedwater line	South edge connection to adjacent concrete wall	Connection will be reinforced with angles and expansion bolts.
3307	OBE	Top connection of wall (floor beam)	Floor beam will be braced.
3407	SSE	Top connection of wall (floor beam)	Floor beam will be braced.
3447(2)	OBE or compartment pressure caused by a crack in the main feedwater line	Masonry	Bracing external to wall will be added.
3457(2)	OBE or compartment pressure caused by a crack in the main feedwater line	Masonry	Bracing external to wall will be added.
3467(2)	OBE or compartment pressure caused by a crack in the main feedwater line	Masonry	Bracing external to wall will be added.

TABLE I (Cont.)

Wall/Subwall	Load Causing Non-Acceptance	Wall Area or Item Causing Non-Acceptance	Summary of Corrective Action
4016	OBE	Masonry, top connection to floor above and bottom connection to floor	Steel pilasters will be added.
4036	OBE	Masonry, top connection to floor above, bottom connection to floor, and east edge connection to adjacent masonry wall	Steel bracing external to wall will be added.
4107	Compartment pressure due to a crack in the main feedwater line	Masonry and all connections to adjacent supports	Steel bracing external to wall will be added.
4117	Compartment pressure due to a crack in the main feedwater line	Masonry and all connections to adjacent supports	Wall will be removed.
4127	Compartment pressure due to a crack in the main feedwater line	Masonry and all connections to adjacent supports	Wall will be removed.
4647	OBE	Seismic joint at south end of wall is missing	Required seismic joint will be added.
4786(3)	OBE	Masonry, top connection to floor above and bottom connection to floor	Steel bracing external to wall will be added.
4796(4)	OBE	Top connection to floor above	Steel bracing external to wall will be added.
4806	OBE	Seismic joint is missing	Wall will be removed.

TABLE I (Cont.)

Wall/Subwall	Load Causing Non-Acceptance	Wall Area or Item Causing Non-Acceptance	Summary of Corrective Action
4817	OBE	Adjacent support walls (4806 & 4826) do not pass acceptance criteria and masonry does not pass acceptance criteria	Wall will be removed.
4826	OBE	Seismic joint is missing	Wall will be removed.
4837	OBE	Masonry	Wall will be removed
4847	OBE	Masonry	Wall will be removed.
4857	OBE	Adjacent support wall (4847) does not pass acceptance criteria	Wall will be removed.
4886(4)	OBE	Top connection to floor above, bottom connection to floor and side connection to adjacent concrete wall	Steel bracing external to wall will be added.
4896(4)	OBE	Top connection to floor above	Steel bracing external to wall will be added.
4906(3)	OBE	Top connection to floor above	Steel bracing external to wall will be added.
5107	OBE	Top connection of wall (floor beam)	Floor beam will be braced.
5167	OBE	Masonry	Systems attached to wall have been examined for potential failure and failure is acceptable.
5207	SSE	Top connection of wall (floor beam)	Floor beam will be braced.

TABLE I (Cont.)

Wall/Subwall	Load Causing Non-Acceptance	Wall Area or Item Causing Non-Acceptance	Summary of Corrective Action
5257	OBE	Masonry	Systems attached to wall have been examined for potential failure and failure is acceptable.

Notes:

- (1) Walls 3016, 3026 and 3036 have been analyzed as one wall unit.
- (2) Walls 3447, 3457 and 3467 are one wall unit.
- (3) Walls 4786 and 4906 are one wall unit.
- (4) Walls 4796, 4886 and 4896 are one wall unit.