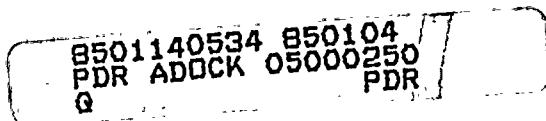


ENCLOSURE

SAFETY EVALUATION
MASONRY WALL DESIGN, IE BULLETIN 80-11
TURKEY POINT PLANT UNITS 3 AND 4
DOCKET NOS. 50-250/251
STRUCTURAL AND GEOTECHNICAL ENGINEERING BRANCH
STRUCTURAL ENGINEERING SECTION A

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 techniques used, technical information reviewed, acceptance criteria, and technical findings with respect to masonry wall construction at Turkey Point units. The staff has reviewed this TER and concurs with its technical findings. The following is our summary of major technical findings:

1. There are about 97 safety related masonry walls at Turkey Point units. The licensee has relied upon the working stress criteria to qualify the safety related masonry walls with one exception. This exception is discussed in item 3 below. The licensee's working stress criteria are in compliance with the staff acceptance criteria with one minor difference. This difference is discussed in item 2 below.
2. The following table provides a comparison between the differing staff allowable stresses and the licensee's allowable stresses for the load combinations involving the safe shut-down earthquake loads (SSE).



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TABLE
COMPARISON OF ALLOWABLE STRESSES
(EXTREME ENVIRONMENTAL LOAD COMBINATIONS)

TYPE OF STRESS	STAFF ALLOWABLE (Appendix A of TER)	LICENSEE ALLOWABLE
a. Tension parallel to bed joint	1.5 X ACI 531-79 Allowable	1.67 X ACI 531-79 Allowable
b. Tension normal to bed joint	1.3 X ACI 531-79 Allowable	1.67 X ACI 531-79 Allowable
c. Shear in Masonry	1.3 X ACI 531-79 Allowable	1.67 X ACI 531-79 Allowable

However, as noted on p. 11 of the TER, the licensee has also adopted the following conservative measures in its evaluation which amply compensate for the above differences:

- ° The licensee has used 2% damping value as opposed to 7% value allowed by the staff acceptance criteria, and
- ° The licensee has used the peak value of the applicable response spectra if the natural frequency of the wall is on the lower side of the peak (p. 12 of the TER).

Considering the above conservative measures and the fact that the licensee plans to conduct plant specific tests to verify the assumed values for material properties used in the evaluation (Section 3.3 of the TER), the staff concludes that the licensee's working stress criteria meet the intent of the staff acceptance criteria.

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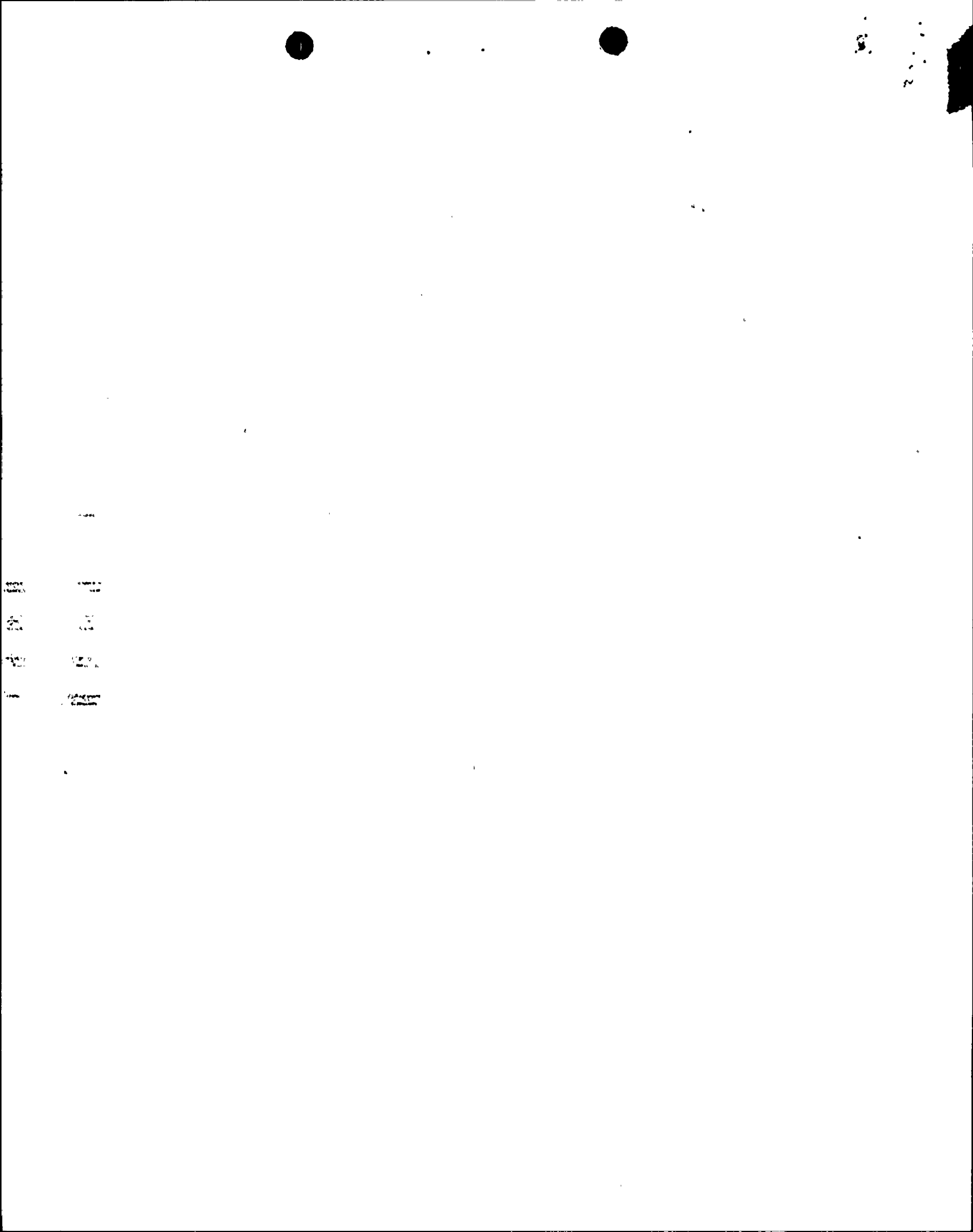
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3. The licensee has relied on the arching action theory to qualify 30 Steam Generator Feed Pump (SGFP) enclosure walls when subject to the pressure loads resulting from the postulated break in the feedwater pump discharge line. For all other load combinations (including seismic loads which involve dynamic, fully reversed cycling loadings), the working stress criteria have been used to qualify these walls.

As discussed on p. 10 and 11 and in Appendix B of the TER, the licensee has demonstrated via applicable test data (conducted by others) that the SGFP enclosure walls can develop one-way arching action when subject to relatively uniform and, essentially, static pressure load resulting from the postulated pipe break. In addition, the calculated deflections and stresses indicate ample margin of the safety when compared to the test data. Based on the above findings, the staff considers that, specifically, for the SGFP enclosure walls at Turkey Point units and for the pipe break pressure loads which have been shown to be nearly static, the use of the one way arching action is acceptable (Note that the staff still maintains the position that the use of arching action for all types of walls and loading conditions is not acceptable).

4. The following describes the licensee's activities regarding the modification of the masonry walls:



- ° Number of walls to be modified 33
- ° Number of walls to be removed 16
- ° Number of walls to be removed 5
and rebuilt

In addition to the above, the licensee has also committed to modify, if necessary, 13 walls which were originally qualified by the arching action (these walls are other than the SGFP walls) to bring them in compliance with the working stress criteria.

Based on the above findings and the licensee's commitments, the staff concludes that the Items 2(b) and 3 of the IE Bulletin 80-11 have been fully implemented at Turkey Point units and that there is a reasonable assurance that the safety-related masonry walls at Turkey Point units will withstand the specified design load conditions without impairment of (a) wall integrity or (b) the performance of the required safety functions.

