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Docket Nos. 50-250
and 50-251

Dr. Robert E. Uhrig, Vice President
Advanced Systems and Technology
Florida Power and Light Company
Post Office Box 529100
Miami, Florida 33152

Dear Dr. Uhrig:

We have completed our preliminary review of your February 11 and April 13, 1981 responses to IE Bulletin 80-11 for the Turkey Point Plant Unit Nos. 3 and 4. In order to complete our review we need the additional information identified in the enclosure to this letter. Please provide this information within 30 days from the date of this letter.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by:
S. A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosure:
Request for Additional
Information

cc w/enclosure:
See next page



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OFFICE	ORB#1: DLV	ORB#1: BL					
SURNAME	MGrotenhuis	SVarga					
DATE	03/26/82:ds	03/29/82					



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TECHNICAL EVALUATION

Based on the Licensee's reevaluation criteria, a technical evaluation was conducted and the following concern identified: It is noted that sufficient information has not been provided to justify certain increase factors for allowable stresses at Turkey Point Plant Units 3 and 4. Also, conclusive evidence must be submitted to justify the inelastic design approaches (energy balance technique and arching action) used in the analysis. The seismic analysis methods need to be explained more clearly. Before a final technical evaluation report can be issued, the Licensee is required to provide the following information:

1. Indicate whether the construction practice for the masonry structures at Turkey Point Plant Units 3 and 4 was in conformance with the provisions specified for the special inspection category in ACI 531-79 [8]. If not, explain and justify the use of allowable stresses.
2. With reference to Section II of Reference 5, justify the proposed 67% increase in allowable stresses for masonry in tension and shear. For factored loads, the SEB criteria [6] suggest the following factors:

Shear reinforcement and/or bolts	1.5
Masonry tension parallel to bed joint	1.5
Shear carried by masonry	1.3
Masonry tension perpendicular to bed joint	
for reinforced masonry	0
for unreinforced masonry	1.3

3. With reference to page 10 of Reference 5, explain how modes higher than the fundamental mode were accounted for. Provide a sample calculation.
4. Explain how the openings and attachments from piping or equipment are accounted for in the beam analysis.



5. Indicate how earthquake forces in three directions were considered in the analysis.
6. In Reference 5, the Licensee indicates that the energy balance technique and arching theory have been used to qualify some masonry walls. The NRC, at present, does not accept the application of these techniques to masonry walls in nuclear power plants in the absence of conclusive evidence to justify this application. The Licensee is requested to indicate the number of walls which have been analyzed by each of these techniques.

The following areas need technical verification before any conclusion can be made about these techniques.

1. Energy Balance Technique

- o For the walls which were analyzed by using the energy balance technique, provide technical basis to ensure that the ductile mode of failure will take place (if they fail).
- o Provide justification and test data (if available) to validate the applicability of the energy balance technique to the masonry structures at Turkey Point Units 3 and 4 with particular emphasis on the following areas:
 - a. nature of the load
 - b. boundary conditions
 - c. material strengths
 - d. size of test walls.

2. Arching Theory

- o Explain how the arching theory handles cyclic loading, especially when the load is reversed.
- o Provide justification and test data (if available) to validate the applicability of the arching theory to the masonry structures at Turkey Point Plant Units 3 and 4 with particular emphasis on the following areas:
 - a. nature of the load
 - b. boundary conditions
 - c. material strength
 - d. size of the test walls.
- o If hinges are formed in the walls, the capability of the structures to resist in-plane shear force would be diminished, and shear failure might take place. This in-plane shear force would also reduce the out-of-plane stiffness. Explain how the effect of this phenomenon can be accurately determined.



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REFERENCES

1. IE Bulletin 80-11
Masonry Wall Design
NRC, 08-May-80
2. R. E. Uhrig
Letter to J. P. O'Reilly, NRC. Subject: Response to IE Bulletin
80-11
Florida Power & Light Co., 24-Jul-80
L-80-234
3. Letter to J. P. O'Reilly, NRC. Subject: IE Bulletin 80-11 - Delay
of Re-evaluation and Final Report
Florida Power & Light Co., 04-Nov-80
L-80-373
4. R. E. Uhrig
Letter to J. P. O'Reilly, NRC. Subject: Response to IE Bulletin
80-11
Florida Power & Light Co., 11-Feb-81
L-81-47
5. R. E. Uhrig
Letter to J. P. O'Reilly, NRC. Subject: Turkey Point Units 3 and 4
- Final Report in Response to IE Bulletin 80-11
Florida Power & Light Co., 03-Apr-81
L-81-153
6. Interim Criteria for Safety-Related Masonry Wall Evaluation
NRC, 00-Jul-81
SRP 3.8.4, Appendix A
7. Uniform Building Code
International Conference of Building Officials, 1979
8. Building Code Requirements for Concrete Masonry Structures
Detroit: American Concrete Institute, 1979
ACI 531-79 and ACI 531-R-79

