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YANKEE ATOMIC ELECTRIC COMPANY

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B.4.1.1.
WYR 80-79

July 8, 1980

U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Attention: Mr. Boyce H. Grier, Director
Office of Inspection and Enforcement

References: (a) License No. DPR 3 (Docket No. 50-29)
(b) USNRC Letter to YAEC dated May 8, 1980

Subject: Response to IE Bulletin 80-11 - "Masonry Wall Design"

Dear Sir:

In response to Reference (b), a survey was undertaken to identify all masonry walls which are in proximity to or have attachments from safety-related piping or equipment such that wall failure could affect a safety-related system. Table 1 provides the results of the survey and briefly describes the equipment associated with these walls.

The masonry walls identified in Table 1 have successfully performed their intended function under all postulated loads and load combinations during the plant's long operating history. By the original design code, these loadings were limited to dead weight, live, wind and thermal loads.

As part of the Systematic Evaluation Program, we are in the process of upgrading the plant to resist seismic forces. Based upon our present re-evaluation schedule, floor amplified response spectra (ARS) should be completed by early spring, 1981. Once the ARS are complete, we will re-evaluate the adequacy of those walls prioritized in Table 2 to determine whether these walls will perform their intended function. Table 2 is a listing of those walls in the proximity to safety systems required to function during or after a seismic event.

Allowable stresses will be based upon the 1979 Uniform Building Code (UBC), Chapter 24 and the most recently published American Concrete Institute (ACI) code. If both UBC and ACI allowables are exceeded in the course of our re-evaluation effort, modifications required to bring the wall's stress within UBC allowables will be implemented consistent with Technical Specifications. If, however, the stresses exceed UBC allowables but are within ACI allowables,

we will still install all required modifications but not on the priority basis, thus allowing a more orderly scheduling of work and manpower. If the wall stresses are within UBC allowables, the wall will be acceptable as is.

The ACI and the more conservative UBC codes have been industry standards for many years. These codes allowables are conservative, have a solid basis, in fact, are widely accepted and are substantiated by test data. Since all of the concrete block walls are of single wythe construction and are only subjected to load cases clearly covered by both codes, we feel that no further justification for the use of these codes as the basis of our re-evaluation criteria is required.

We trust this information is satisfactory; however, if you have any questions, please contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

L. H. Heider
Vice President

DEV/kaf

Attachments

COMMONWEALTH OF MASSACHUSETTS)
)ss
COUNTY OF WORCESTER )

Then personally appeared before me, L. H. Heider, who, being duly sworn, did state that he is a Vice President of Yankee Atomic Electric Company, that he is duly authorized to execute and file the foregoing request in the name and on the behalf of Yankee Atomic Electric Company, and that the statements therein are true to the best of his knowledge and belief.

Robert H. Groce Notary Public
My Commission Expires September 14, 1984

Table 1

Results of Plant Survey to Identify Masonry
Walls in Proximity to Safety-Related Equipment

Screenwell and Pump House

The safety class service water pumps are located at elevation 1000'. The upper portion of this building (above el. 1019') is constructed of block walls which potentially could impact on the service water pumps and piping.

Control Room

The wall nearest the turbine, as well as the walls which divide the area into several rooms, are constructed with block walls. Aside from room integrity, a wall failure could affect the radiation monitor, safety injection or diesel generator panels, or if it falls outward, it could impact on the feedwater, emergency feedwater, or service water systems.

Switchgear Room

The north, east, and west walls are constructed of concrete block. In addition, two of the plant's three batteries are in the confines of the switchgear room in individual block rooms.

Failure of the east wall could damage the post-accident hydrogen vent system.

Failure of the north wall may affect the 2400/480 volt transformers or 2400 volt switchgear if it falls inside, or the feedwater or emergency feedwater systems if it falls outside.

Failure of the west wall may affect the 2400 volt switchgear. In addition, the effects on cable trays must be examined.

Mechanical Equipment Room

This room is located at the east end of the switchgear room at the same elevation. Failure of the north or east walls could damage the post-accident hydrogen vent systems.

Cable Tray House

The cable tray house is located directly above the control room and is constructed with concrete block. Electrical and I&C cable from safety class equipment runs through this building and could potentially be damaged by collapsing walls.

Auxiliary Boiler Room

This room is constructed of concrete block whose failure might affect the safety class main steam, auxiliary steam, and emergency feedwater systems.

Diesel Generator Building

This building houses the 3 emergency diesel generators, 3 HPSI pumps, 3 LPSI pumps, accumulator and associated piping, electrical components, and I&C equipment. All walls are constructed of concrete block.

All piping except for the diesel fuel oil lines are hung off structural steel. The fuel oil lines penetrate the block walls.

Almost all of the conduit, cables, instrumentation and electrical panels are mounted directly to the block walls.

Primary Auxiliary Building

The north wall of the primary auxiliary building at elevation 1022' and between columns 6 and 8 is constructed of block walls. These walls could fall on the safety class component cooling water pumps.

The safety class post LOCA recirculation piping penetrates the wall and post LOCA recirculation valve electrical equipment is supported directly off the walls.

The safety injection piping penetrates this block wall above the 2nd story. In addition the vapor container (V.C.) containment isolation solenoid valves (safety class) are supported off this wall

The hydrogen storage room is constructed of block walls and houses V.C. pressure transmitters and nitrogen supply for the accumulator trip valves. The effect of collapsing walls must be further evaluated in this area.

The portion of the PAB which houses the charging pumps, purification pumps, shutdown cooling system, LPST cooling system etc., is of mixed construction. The outside walls are concrete, while the majority of the internal equipment separation walls are solid block.

The majority of the piping is supported off steel, however, there are some small lines such as seal injection, service water, and demineralized water which are not. In addition, numerous valve stem extensions penetrate the block walls and some instrumentation is supported off the walls.

Mechanical Equipment Room

This room has numerous block walls, through which the spent fuel piping (safety class) and ventilation ducting passes (NNS). In addition, the spent fuel pool cooling heat exchanger is located here and may be subject to damage from collapsing walls.

Non-Radioactive Pipe Chase

This is constructed with concrete block and houses piping which is safety class. Affects of collapsing walls must be evaluated.

Turbine Building

Most of the lower section of the turbine building is constructed with concrete block. The feedwater piping (safety class) and the service water piping (safety class) must be evaluated for effects of falling block walls.

Table 2

Prioritized Equipment Required for Safe Shutdown
During and After a Seismic Event

Priority/Description

1. Diesel Generator Building

This building houses the 3 emergency diesel generators, electrical components, and I&C equipment. All walls are constructed of concrete block.

All piping except for the diesel fuel oil lines are hung off structural steel. The fuel oil lines penetrate the block walls and could fail.

Almost all of the conduit, cables, instrumentation and electrical panels are mounted directly to the block walls and could be adversely affected by collapsing walls.

2. Switchgear Room

The north and west walls are constructed of concrete block. In addition, two of the plant's three batteries are in the confines of the switchgear room in individual block rooms.

Failure of the north wall may affect the 2400/480 volt transformers or 2400 volt switchgear if it falls inside, or the feedwater or emergency feedwater systems if it falls outside.

Failure of the west wall may affect the 2400 volt switchgear.

In addition, the effects on cable trays must be examined.

3. Auxiliary Boiler Room

This room is constructed of concrete block whose failure might affect the safety class main steam, auxiliary steam, and emergency feedwater systems.

4. Primary Auxiliary Building

The portion of the PAB which houses the charging pumps is of mixed construction. The outside walls are concrete, while the majority of the internal equipment separation walls are solid block.

5. Cable Tray House

The cable tray house is located directly above the control room and is constructed with concrete block. Electrical and I&C cable from safety class equipment runs through this building and could potentially be damaged by collapsing walls.

6. Control Room

The wall nearest the turbine, as well as the walls which divide the area into several rooms, are constructed with block walls. Aside from room integrity, a wall failure could affect the radiation monitor, or diesel generator panels, or if it falls outward, it could impact on the feedwater or emergency feedwater systems.

7. Turbine Building

Most of the lower section of the turbine building is constructed with concrete block. The feedwater piping (S.C.) must be evaluated for affects of falling block walls.

8. Non-Radioative Pipe Chase

This [illegible] constructed with concrete block and houses piping which is safety class. [illegible] collapsing walls must be evaluated.