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VERMONT YANKEE NUCLEAR POWER CORPORATION

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B.4.1.1
WVY 80-97

REPLY TO:
ENGINEERING OFFICE
TURNPIKE ROAD
WESTBORO, MASSACHUSETTS 01581
TELEPHONE 617-366-9011

July 7, 1980

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attention: Mr. Boyce H. Grier, Director

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) USNRC Letter to VYNPC dated May 8, 1980;
IE Bulletin No. 80-11

Subject: Response to IE Bulletin No. 80-11, "Masonry Wall Design"

Dear Sir:

This letter is written in response to Reference (b) which requested that Vermont Yankee provide information concerning Masonry Wall Design at our facility. As requested by IE Bulletin No. 80-11, Vermont Yankee's responses to Items 1, 2a, and 3 of that bulletin are listed in the attachment to this letter.

We trust that this information is satisfactory; however, should you desire additional information, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

L. H. Heider
Vice President

RLS/smw

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 Vermont Yankee Nuclear Power Corporation, that he is duly authorized to execute and file the foregoing request in the name and on the behalf of Vermont Yankee Nuclear Power Corporation, 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

Response to IE Bulletin 80-11

Item 1

A survey was conducted by a check of plan drawings and a plant walk-through to determine where block walls are in relation to safety-related equipment. The turbine building is nonseismic, and with the exception of the diesel generator rooms, was not surveyed.

In general, block was not used for major construction, but was used for closure after equipment installation, removable shielding, or "fill in" around pipes passing through poured walls.

Masonry walls or fill-ins which are in proximity to or have attachments from safety-related piping or equipment, such that wall failure could affect a safety-related system, are listed below. The walls are listed in order of the priority by which they will be further evaluated.

1. Reactor Building, Elevation 303. Walls for new Analog System Battery Rooms.

2. Switchgear Room. South wall is block. Preliminary check with "R" meter indicates reinforcement. Affected equipment: bus 3 and cable trays.

3. Diesel Generator Rooms. West Closure wall is block. Affected equipment: Control cabinet and regulator.

4. Diesel Oil Day Tanks enclosure. Walls around Diesel Oil Day Tanks are block.

5. Battery Rooms. Walls are block; preliminary check with "R" meter indicates reinforcement.

6. Diesel Oil Storage Tank Pump Room. Wall between pumps is block.

7. Reactor Building, Elevation 213. Fill in, in wall adjacent to RCIC turbine. Affected equipment: governor end of RCIC turbine.

8. Reactor Building, Elevation 252. Stairwell enclosure - all block. CRD scram discharge volume mounted on it.

9. Reactor Building, Elevation 213. RCIC hangers, H8, H9, bolted through block fill in.

10. Reactor Building, Elevation 252. RHR valve room, east of primary containment. Equipment bolted to small block fill in.

11. Reactor Building, Elevation 252. South wall of RHR valve room, small fill in above Instrument Rack with Reactor Level Instrument 2-3-73A.

12. Reactor Building, Elevation 280. Removable block shield walls for Reactor Water Cleanup heat exchangers and pump rooms.

13. Reactor Building, Elevation 280. Shield walls around Standby Gas Treatment System.

14. Reactor Building, Elevation 303. Wall surrounding Fuel Pool Cooling System.

15. Reactor Building, Elevation 303. Closure wall to cleanup phase separator tank rooms.

16. Reactor Building, Elevation 303. Shield wall entrance to cleanup phase separator tank room. Affected equipment: Reactor Building Closed Cooling Water Pump.

17. Reactor Building, Elevation 318. Stair enclosure near RBCCW surge tank and Standby Liquid Control System.

18. Reactor Building, Lower Level. Five pipe hangers were identified as being bolted through block fill in the lower level of the Reactor Building:

    CS hanger H77 in the Lower Northeast Corner Room
    CS hanger H82 on the Northeast Wall of the Torus area
    RSW hangers H211 and H219 near the torus catwalk, west wall
    RCIC hanger H90, Northwest wall of the torus area.

19. Reactor Building, Elevation 303. Stair enclosure near Containment Air Compressor.

20. Control Room. Blocked in area of old viewing windows is near vital control panels.

21. HVAC Room. Walls near Control Room HVAC Chillers.

22. Diesel Generator Rooms. Fill in, in division wall between rooms could fall into either room.

23. Reactor Building - throughout. Various pipe penetrations through poured walls are filled in with block. Only a few blocks, at most, are above pipes or other equipment.

24. Reactor Building, Elevation 252. South of primary containment. Loose blocks used to shield stored material. Affected equipment: CRD modules.

25. Reactor Building, Elevation 318. Walls near Skimmer pumps. Evaluated as posing no operational problem. Loss of pumps or piping break will not be a problem.

Item 2

A description of our masonry wall re-evaluation program is provided below. The priorities to be used in this program are as indicated in the response to Item 1.

1. Determine as-built condition of the walls identified in Item 1.

   a. Develop as-built sketches including location and identity of all equipment mounted on the walls under evaluation.

   b. Detail location of safety-related systems in proximity to the walls under evaluation.

   c. Determine material properties and construction practices based upon historical records.

   d. Determine actual size and spacing of wall reinforcement using a magnetic "R" meter.

2. Determine applicable wall loads.

   a. Using existing building Amplified Response Spectra (ARS), determine in-plane and out of plane inertia forces.

   b. Determine equivalent loads (or stresses) due to seismic building displacements (where applicable).

   c. Determine local loads due to wall mounted equipment (Note: The pipe hangers which were through bolted (priorities 9 and 18 in Item 1) are actually bolted to block fill-ins in existing concrete walls.

3. Determine the state of stress of the walls due to the loads identified above using the working stress method.

4. 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 a 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.

5. Our re-evaluation effort has already begun and we plan to submit a written report by the end of Vermont Yankee's 1980 refueling outage.

Item 3

The ACI and the more conservative UBC codes have been industry standards for many years. The stresses allowed by these codes are conservative, have a solid basis and, in fact, are widely accepted and are substantiated by test

data. Since all of Vermont Yankee's concrete block walls are of single wythe construction and are only subjected to dead, live and seismic loads, 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.