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POWER BUILDING
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WILLIAM O. PARKER, JR.
VICE PRESIDENT
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TELEPHONE: AREA 704
373-4083

November 26, 1980

Mr. James P. O'Reilly, Director
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Re: McGuire Nuclear Station
Units 1 and 2
Docket Nos. 50-369 and 50-370

Dear Mr. O'Reilly:

Pursuant to 10CFR 50.55e, please find attached Significant Deficiency Report SD 369/80-21, 370/80-16.

Very truly yours,

William O. Parker, Jr.

William O. Parker, Jr. By [illegible]

GAC:vr
Attachment

cc: Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

T. J. Donat
NRC Resident Inspector
McGuire Nuclear Station

8012050314

MCGUIRE NUCLEAR STATION

UNITS 1 & 2

REPORT NO: SD-369/80-21, 370/80-16

REPORT DATE: November 26, 1980

INITIAL NOTIFICATION DATE: October 31, 1980

FACILITY: McGuire Nuclear Station, Units 1 & 2

IDENTIFICATION OF DEFICIENCY: LOCA (Loss of Coolant Accident) Pressure Effects Not Considered in Analysis of Piping With Cold Penetrations

DESCRIPTION OF DEFICIENCY:

This report describes a deficiency in piping analysis of lines penetrating containment through bellows-type cold penetrations whereby Containment pressure due to LOCA was not considered. The design configuration of the bellows-type cold penetration allows for Containment movement without affecting the piping, however, internal Containment pressure acts on a flat bulkhead which rigidly connects the piping to the bellows. Because the bellows can expand, the pressure load is applied to the piping with a resultant load on its support/restraint system, including an anchor point at the Reactor Building (concrete) wall. Some piping systems penetrate straight through both Containment and the Reactor Building while others are routed through Containment and the Reactor Building at different azimuths and elevations. In the former case, an evaluation of higher loads on penetration structures is required. In the latter case, evaluations of pipe stresses, support/restraint locations and loads, and loads on penetration structures are required. Twenty-six (26) piping analysis math models require reanalysis. An estimated eighty-two (82) support/restraints require revision and some hardware changes.

ANALYSIS OF SAFETY IMPLICATION:

Worst case safety consequence is that piping which penetrates Containment through bellows-type cold penetrations is not qualified for the Faulted Condition including pressure buildup inside of Containment due to LOCA. For a postulated LOCA, containment isolation cannot be assured assuming inadequate support/restraint designs.

CORRECTIVE ACTION:

A comprehensive program has been initiated to complete the following:

(1) Review all piping penetrations and identify the following:

(a) Locations at which bellows-type cold penetrations are used and the pipe routing is straight through Containment and the Reactor Building Concrete Wall.

(b) Locations at which bellows-type cold penetrations are used and the piping penetrates the Containment and Reactor Building at different locations (azimuth and/or elevation).

(c) Locations at which piping penetration assemblies other than bellows-type cold penetrations are utilized.

(2) Perform stress analysis of piping associated with Item (1b) above to include LOCA pressure effects on Containment penetration assemblies. Confirm adequacy of existing pipe stress analysis, support/restraint locations and loads, and penetration assemblies, or define necessary hardware changes.

(3) Review structural calculations for penetration assemblies in Items (1a) and (1c) and confirm that Containment isolation for the Faulted Condition is assured, including LOCA pressure consideration.

(4) Make necessary hardware changes to affected items.

(5) Review piping analysis procedures to confirm that LOCA pressure loading is properly included in subsequent piping analyses as appropriate.

Schedules for completion of the above corrective action items are as follows:

Corrective Action Item	Completion Date Unit 1	Unit 2
(1) Penetration Review/Identify	Complete	6/1/81
(2) Piping Analysis Confirmation	12/19/80	Per Unit 2 Construction Schedule
(3) Penetration Calc. Review	12/19/80	Per Unit 2 Construction Schedule
(4) Hardware Changes	1/28/80	Per Unit 2 Construction Schedule
(5) Procedure Confirmation	-	3/1/81