

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
WILLOW BROOK WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST WIND AND ENERGY COMPANY

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May 11, 1979

Docket No. 50-336

Director of Nuclear Reactor Regulation
Attn: Mr. R. Reid, Chief
Operating Reactors Branch #4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

References: (1) W. G. Council letter to B. H. Grier dated April 24, 1979
(2) W. G. Council letter to B. H. Grier dated May 7, 1979.
(3) W. G. Council letter to B. H. Grier dated April 30, 1979.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
I&E Bulletin 79-07

As delineated in Reference (1), the Millstone Unit No. 2 piping systems were originally designed utilizing computer programs employing techniques for combining responses of orthogonal earthquake motion other than algebraic summation. Subsequent to initial plant operation, six (6) tasks were undertaken involving piping reanalysis. These tasks were performed utilizing the ADLPIPE computer program and analyzing all three (3) directions simultaneously, a feature which results in algebraic summation of responses. The tasks analyzed were as follows:

(1) Volume Control Tank Charging Bypass Lines

Two (2) pneumatic operators were added to existing valves in three inch (3") piping in the low pressure section of the charging system. Each operator weighed ninety pounds (90#). No supports were added or modified.

(2) Nitrogen Addition System

Two (2) three-quarter inch (3/4") nitrogen addition lines were converted to a direct connect system into the steam generator blowdown lines. The nitrogen lines are not safety related and are isolated during plant operation. The blowdown lines also serve no safety function but are regarded as safety related because they are part of the steam generator secondary pressure boundary.

(3) Charging System

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Three (3) suction stabilizers were added to the four inch (4") charging pump suction lines (one per pump). The stabilizers were furnished with sliding supports. Small piping geometry changes were made and some

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were added. Previously, experienced piping vibrations have not recurred.

(4) Diesel Generator Exhaust Piping

Diesel generator silencers were replaced and relocated. Piping is twenty-four inch (24") diameter and some supports were added. Silencers were analyzed independent of piping. Failure would have to involve gross distortion and collapse of pipe to preclude diesel operability.

(5) Reactor Coolant Pump Tap Root Valve Instrument Lines

Two (2) one inch (1") lines are used for non-safety-related pressure instrumentation. Due to past vibration cracking of socket welds, geometry and supports were revised (approximately twenty feet (20') of piping). The significance of failure to plant safety is minor. No failures have occurred since the modification was made.

(6) Safety Injection and Containment Spray Test Line

Due to a cracking incident in a socket weld of a one and one-half inch (1-1/2") pipe, the line was analyzed to determine susceptibility to vibratory loadings. Failure was later attributed to internal valve leakage, that valve was repaired, and no physical changes to the piping or supports were made.

In summary, these modifications involved relatively minor changes to small portions of existing systems. Although these lines are classified as safety related, the effect of their failure on overall plant safety is minor.

The piping reanalysis was also performed using the ADLPIPE (FAST) February, 1977 Revision 1B computer program with the Regulatory Guide 1.92 option which guarantees SRSS combination of responses due to orthogonal earthquake motion. As reported in Reference (2), these systems have been found to meet the criteria for seismic systems delineated in Amendment 15 of the Millstone Unit No. 2 FSAR. During an NRC Staff review of the analysis results, three (3) discrete locations were presented as slightly exceeding allowable stress limits for the design basis earthquake (DBE) condition. Two (2) of the locations are located adjacent to the diesel generator exhaust silencers while the third location is in a one-half inch (1/2") relief valve line leading from a charging pump suction line to a floor drain. The maximum DBE stress level condition reported for the diesel generator exhaust locations was 22,404 psi. NNECO based its conclusion, in part, on conservatism identified on the Analysis Summary Sheets. If omitted, these conservatism would have shown these locations to be within Code Allowable Stress Limits. Subsequent to the meeting, some of these conservatism were quantified. A review of original plant design criteria applicable to piping indicates that these stresses may be compared with 1.8 S_H. 1.8 S_H for this location equals 25,740 psi; therefore, the stresses as calculated for this location meet original design criteria.

The maximum DBE stress level condition reported for the charging relief valve piping location was 32,135 psi. A review of that analysis indicates that the one-half inch (1/2") relief valve weight was conservatively assumed to be twenty pounds (20#). The actual weight of this valve has been confirmed to be 4.25 pounds. A rerun of this analysis now shows the stress at this location,

as well as all others, to be below the DBE stress condition allowable and all other analyzed conditions.

A review of the remaining valves in this analysis has revealed that all actual valve weights are less than or equal to the weights included in the analysis.

This review further reinforces our previously stated contention that these systems meet the criteria for seismic systems delineated in the Millstone Unit No. 2 FSAR and are acceptable for continued use.

Per an NRC Staff request, we have also reviewed the impact of I&E Bulletin 79-04 on these particular systems. Our docketed response to Bulletin 79-04, Reference (3), concludes that no instance of improper Velan valve weights exist for these or other systems.

Because the supports for these six systems were calculated to be within allowable stress limits, the Staff concerns identified in I&E Bulletin 79-02 are being addressed on a schedule compatible with the request of the Bulletin.

NNECO review of the above information has determined that the seismic reanalysis confirms that pursuant to 10CFR50.59, there are no unreviewed safety questions. The Millstone Unit No. 2 Nuclear Review Board has concurred in this determination.

We trust that you find the above information, coupled with the information previously transmitted, responsive to your concerns.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Council
W. G. Council
Vice President

By: D. C. Switzer
D. C. Switzer
President

Attachment