

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
NEW YORK WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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April 16, 1981

Docket No. 50-336
A01531



Mr. Boyce H. Grier, Director
Region I
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

- References:
- (1) B. H. Grier letter to W. G. Council, dated January 27, 1981, transmitting I&E Bulletin No. 81-01.
 - (2) W. G. Council letter to B. H. Grier, dated March 11, 1981.
 - (3) W. G. Council letter to B. H. Grier, dated March 27, 1981.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
I&E Bulletin No. 81-01, Mechanical Snubbers

In fulfillment of the requirements of I&E Bulletin No. 81-01, Northeast Nuclear Energy Company (NNECO) performed visual examinations and manual stroke tests of accessible mechanical snubbers manufactured by International Nuclear Safeguards Corporation.

During these inspections, NNECO identified several snubbers which could not be stroked through their full range in both compression and tension. These snubbers were declared inoperable, and in accordance with Item 1e of Reference (1), NNECO provided the required justification for continued operation of Millstone Unit No. 2 in References (2) and (3). At that time, it was NNECO's intention, as concurred in by your Staff, to commence a plant shutdown by May 1, 1981, to replace all inaccessible INC mechanical snubbers with snubbers of a different design. However, as reported in Reference (3), evaluations were in progress to support operation of Millstone Unit No. 2 beyond May 1, 1981. These evaluations have been completed and the results, presented herein, support NNECO's conclusion that Millstone Unit No. 2 can be operated safely until the next cold shutdown at which time the snubber replacement program will commence.

Millstone Unit No. 2 utilizes forty-one (41) INC mechanical snubbers on safety related systems within the containment. The systems and the number of snubbers by model are presented in Table 1.

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NNECO has performed stress analyses and fatigue evaluations for all the systems within the containment on which INC mechanical snubbers are installed. The analyses conservatively assumed that all the INC mechanical snubbers have been locked in the cold position of the piping systems since the initial operation of the plant. This assumption is extremely conservative compared to the data obtained to date on failures of INC snubbers at Millstone Unit No. 2 as well as other nuclear plants. This data demonstrates much lower failure rates than that assumed herein. The results of the evaluations for each system are discussed below.

Pressurizer Safety and Relief Systems

A fatigue analysis was performed for those systems assuming all twenty (20) INC snubbers were locked in the cold condition from initial plant operation. The analysis incorporated all plant thermal cycles experienced to date and in addition, postulated both a safety and relief valve operation concurrent with a Safe Shutdown Earthquake (SSE).

The results of this analysis demonstrate a maximum usage factor of 0.7. This value remains below the code allowables for these systems. These systems experience the most severe thermal transients of all the containment systems analyzed. The results support the contention that Millstone Unit No. 2 can be safely operated at least until the next cold shutdown.

Pressurizer Spray System

The pressurizer spray system was analyzed assuming all the INC snubbers have been inoperable since the initial plant operation. In addition, all postulated operating cycles, including an SSE, were assumed.

The results of this analysis demonstrate a minimal increase in the stress level for this system. The original fatigue analysis was scaled to illustrate a conservative usage factor significantly below code allowables.

Safety Injection System

The safety injection system was analyzed assuming all INC mechanical snubbers have been frozen since initial plant operation. The fatigue evaluation included all the original postulated mechanical loadings and actual thermal cycles experienced to date.

The maximum usage factor calculated utilizing these conservative assumptions was 0.26 which remains below code allowables.

Containment Spray System

The containment spray system was analyzed assuming all INC snubbers were inoperable and included either a post accident operation of the system or an SSE. The thermal stresses calculated were below the fatigue endurance limit and the

stresses resulting from the seismic event were within code allowables.

The results of these analyses demonstrate that the integrity of this system would not be compromised in the event of a postulated accident requiring this system to be functional or following an SSE.

Shutdown Cooling System

The shutdown cooling system was analyzed assuming all the INC snubbers were inoperable and frozen in the cold position since initial plant operation. In addition, all thermal and mechanical cycles assumed in the original design were incorporated into the analysis. The increase in thermal stresses due to the inoperable snubbers is minimal and the fatigue analysis results demonstrate a conservative usage factor of 0.25.

NNECO has reviewed the results of inservice inspections performed at Millstone Unit No. 2. Inspections conducted on the pressurizer safety and relief, pressurizer spray, and shutdown cooling systems during outages in 1980 and 1977 confirm the absence of structural anomalies. Six (6) welds have been inspected in both the pressurizer safety/relief system and the pressurizer spray system and three (3) welds were inspected in the shutdown cooling system. The ultrasonic examinations revealed no recordable indications in any of the welds inspected.

Based on the results of the analyses and evaluations performed to date, NNECO has determined that all piping systems located within the containment at Millstone Unit No. 2 are acceptable with inoperable INC mechanical snubbers. The results of these analyses are not time dependent.

The thermal state and, therefore, the stress levels of the systems involved will remain constant until the plant is brought to a cold shutdown condition.

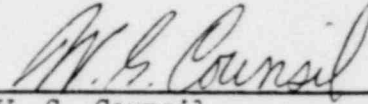
The conservatisms assumed in the analyses presented herein include a 100% snubber failure rate, SSE seismic loading, and actual plant thermal cycles experienced to date. NNECO concludes that the integrity and operability of the systems on which INC mechanical snubbers are installed will not be compromised by continued operation of Millstone Unit No. 2. A cold shutdown for the purposes of examining the INC mechanical snubbers within containment would unnecessarily add to the fatigue usage of the effected plant components. Therefore, it is NNECO's intention to operate the Unit until the next cold shutdown, during which the INC mechanical snubbers located in the containment

will be replaced with snubbers of a different design. All INC mechanical snubbers will be replaced prior to startup from the next refueling outage.

We trust you find this information satisfactory and concur in this approach.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council
Senior Vice President

Director of Nuclear Reactor Regulation
Attn: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

April 16, 1981

Then personally appeared before me W. G. Council, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensees herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Sheila M. Cates

Notary Public

My Commission Expires March 31, 1986

Table 1

INC Mechanical Snubbers in Containment

Millstone Nuclear Power Station, Unit No. 2

<u>System</u>	<u>Number Of Snubbers</u>	<u>Snubber Model</u>
Pressurizer Relief	1	MSVA-1
	19	MSVA-2
Pressurizer Spray	7	MSVA-2
Containment Spray	4	MSVA-1
	2	MSVA-2
Shutdown Cooling	2	MSVA-3
Safety Injection	3	MSVA-2
	3	MSVA-3