

June 15, 1984  
(NMP2L 0085)

Mr. R. W. Starostecki, Director  
U.S. Nuclear Regulatory Commission  
Region I  
Division of Project and Resident Programs  
631 Park Avenue  
King of Prussia, PA 19406

Re: Nine Mile Point Unit 2  
Docket No. 50-410

Dear Mr. Starostecki:

Enclosed is a final report for the problem concerning mechanical snubbers supplied by Pacific Scientific Company. This problem was reported via a telecon to R. Gallo of your staff on November 17, 1983. An interim report was submitted via our letter dated December 16, 1983.

Very truly yours,

*C. V. Mangan*

C. V. Mangan  
Vice President  
Nuclear Engineering & Licensing

TL:ja  
Enclosure  
xc: Director of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

R. A. Gramm, Resident Inspector

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NIAGARA MOHAWK POWER CORPORATION  
NINE MILE POINT UNIT 2  
DOCKET NO. 50-110

Final Report for a Problem  
Concerning Mechanical Snubbers

Description of the Problem

The problem concerns the mechanical snubbers supplied by Pacific Scientific Company and was identified by the vendor to Stone & Webster Engineering Corporation via letter dated September 21, 1983. The vendor informed Stone & Webster Engineering Corporation that during testing of mechanical snubber Model PSA-1, at another plant, four of the seven snubbers tested revealed a broken capstan spring tang. The details of testing and cause of failure at this plant are not known. The capstan springs are manufactured for Pacific Scientific Company by a spring manufacturer. Pacific Scientific has indicated that the problem pertains to only mechanical snubber models PSA-1 and PSA-3 with certain serial numbers. The broken springs were sent by the vendor for an independent metallurgical examination.

The metallurgical examination report notes that some of the tangs of the capstan springs submitted for analysis exhibited cracks (microcracks) in the bend radius. The report concludes that the cracks are formed during silver plating and are a result of high residual stress in the formed radius of the tang coupled with hydrogen generated during the cleaning and plating operation combining to produce hydrogen-induced cracking. The springs that crack as a result of the plating operation have all been made by one manufacturer. A second manufacturer who makes the same springs has not experienced the cracking problem although they are plated by the same vendor. The report also notes that in the springs in which the tangs cracked, the tangs were formed after the springs had been aged at 900°F whereas, in the case of the other spring vendor, the tangs were formed prior to age hardening at 900°F.

Pacific Scientific has since performed additional testing of capstan springs which contained microcracks. Based on these tests and independent metallurgical evaluation, Pacific Scientific has concluded that those mechanical snubbers which contain the subject capstan springs meet the requirements of Pacific Scientific Design Specification DR1319 because these springs with microcracks sustained the designed cyclic loads during testing. However, the corrective actions outlined below are being/will be taken.

Analysis of Safety Implications

As a result of the Pacific Scientific Company's conclusion that the subject capstan springs meet the requirements of its design specification, a deficiency does not exist. As a result, this condition does not meet the criteria for reportability under 10CFR50.55(e).

Corrective Action

Suspected snubbers have been returned to the vendor for examination. The vendor is required to replace any snubbers if springs are found to contain microcracks. The corrected snubbers will be returned to the Nine Mile Point Unit 2 site by September 1, 1984.