

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

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April 19, 1984

BLRD-50-438/83-55, HTRD-50-518/84-02
BLRD-50-439/83-48, HTRD-50-~~420~~/84-02

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U.S. Nuclear Regulatory Commission
Region II

Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

BELLEFONTE AND HARTSVILLE NUCLEAR PLANTS UNITS 1 AND 2 - DEFECTIVE PSCo SHOCK
ARRESTOR CAPSTAN SPRING TANG -BLRD-50-438/83-55, BLRD-50-439/83-48,
HTRD-50-518/84-02, HTRD-50-~~420~~/84-02 - FINAL REPORT

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The subject deficiency was initially reported to NRC-OIE Inspector Linda Watson
on October 13, 1983 in accordance with 10 CFR 50.55(e) as NCR BH001. A similar
condition was subsequently discovered at Hartsville Nuclear Plant and has been
documented as NCR HTN NEB 8303. Enclosed is our final report for both plants.

If you have any questions, please get in touch with R. H. Shell at
FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills

L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

BELLEFONTE AND HARTSVILLE NUCLEAR PLANTS UNITS 1 AND 2
DEFECTIVE PSCo SHOCK ARRESTOR CAPSTAN SPRING TANG
NCRs BH001 AND HTN NEB 8303
BLRD-50-438/83-55, BLRD-50-439/83-48
HTRD-50-518/84-02, HTRD-50-520/84-02
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

TVA has been notified by Pacific Scientific Company (PSCo), Anaheim, California, that two sizes of PSCo shock arrestors (snubbers), the PSA-1 and PSA-3, delivered to Bellefonte (BLN) and Hartsville (HTN) may have defective capstan spring tangs. According to PSCo's service report, SR83-01, "Shock Arrestor Capstan Spring Service Report," the following snubbers are affected:

PSA-1 snubbers with serial numbers: 15672 through 16921
18211 through 21160
21411 through 22060
22311 through 22710

PSA-3 snubbers with serial numbers: 21311 through 21610
24311 through 25310
25361 through 25960
27194 through 28543

The capstan spring in PSCo snubbers provides a resistance to any sudden accelerations, and allows the snubber to hold these accelerations to within specified limits. The capstan spring tang is the mechanical unit of the spring used to initiate necessary "braking" action. Report SR83-01 states that snubbers used by another utility were found to have broken or cracked capstan spring tangs, and an analysis of these springs has shown that the defects were due to stresses induced during spring forming which caused hydrogen cracking during subsequent silverplating.

Safety Implications

Suspected snubbers identified by PSCo are used in various safety-related systems at BLN and HTN. If any of these suspected snubbers were defective to the point that the capstan spring tang broke, then the snubber could not mitigate the acceleration of connected safety-related piping induced by a seismic event. This, in turn, could lead to a more severe accident than those presently analyzed in the plant's design basis.

Corrective Action

TVA has determined that this deficiency is limited at Bellefonte to 18 snubbers, all of which were designated for use in unit 2. The specific snubbers are listed below and are scheduled to be replaced by TVA construction forces at BLN by May 31, 1984.

PSA-1 snubbers:	20428	20999	21009	PSA-3 snubbers:	24312	24377
	20989	21001	21015		24325	24385
	20997	21003	21055		24333	24390
	20998	21008			24339	

At Hartsville, TVA has identified 351 suspect snubbers (all PSA-1s). These are being returned to the vendor for inspection, repair, and recertification. TVA anticipates this process will be complete by September 10, 1984.

To prevent a recurrence of this problem, PSCo has informed TVA that all capstan springs are now subjected to a magnetic particle inspection after silverplating.