

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

GENERIC CONCERN TASK FORCE

EMPLOYEE CONCERN # IN-85-288-001

Subject: Improper Handling of Snubbers

Date of Investigation: April 25, 1986

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## I. BACKGROUND

Sequoyah Nuclear Plant (SQN) Generic Concern Task Force has identified the following potential generic issue:

### Improper Handling of Snubbers

This issue was generated from an employee concern communicated to Quality Technology Company (QTC) in response to the Watts Bar Employee Concern Program. The specific concern # IN-85-288-001 was expressed to QTC as follows:

Snubbers are not handled properly and are not adjusted and installed in accordance with the manufacturer's recommended practices of protecting them in waterproof coverings, storing and carrying them compressed, and adjusting their paddles only while they are held vertical. Construction department concern; CI has no more information.

## II. SCOPE

The scope of this investigation was directed toward the verification of the occurrence of this concern at SQN and assessment of impact on SQN performance.

- A. During the course of the investigation, discussions were held with cognizant personnel in Mechanical Maintenance, Power Stores, Modifications Branch, and Design Services' sections of NUC PR.
- B. Answers to these questions were discussed:
  - 1. What are the manufacturer's recommended practices for handling, adjusting and installation of snubbers.
  - 2. Do any manufacturers recommend:
    - a. Protecting snubbers with waterproof coverings,
    - b. Storing and carrying snubbers compressed,
    - c. Adjusting snubber paddles only while the snubber is held vertical.

### III. SUMMARY OF FINDINGS

Through discussions with NUC PR personnel, which included some who had worked in Construction during initial snubber storage, handling, and installation, the allegation of improper handling of snubbers at SQN was substantiated.

1. Even though an attempt was made by Construction to store snubbers inside, some of them may have been stored outside. Currently, all snubbers are stored inside by SQN Power Stores where they are kept under controlled conditions.

Mechanical snubbers are stored at SQN Power Stores in the compressed position, but only because the vendor packages the snubbers during shipment in the compressed position.

During a telecon between Individual #1, of SQN Mechanical Maintenance, and Individual #2, of Pacific Scientific on January 8, 1986, the following was verified:

The vendor, Pacific Scientific, does not specify storage and/or handling requirements concerning the position of mechanical snubbers.

2. The end-plug is sometimes referred to in the field as the "paddle." The vendor, Pacific Scientific, lists on "good practice" of placing the arrestor in a vertical position on a table to make end-plug adjustments. MI-6.13A does not use this "good practice," but paragraph 6.3.2.4 provides sufficient instructions and precautions to properly rotate the end-plug or "paddle." The advice provided by the vendor is intended to help in preventing possible damage to internal components of mechanical snubbers which could occur if the support cylinder was completely removed from the housing assembly.
3. TVA, Division of Construction, Sequoyah Nuclear Plant Inspection Instruction No. A-3, "Inspection and Cycling of Shock Suppressors," Revision 6 dated December 29, 1980 (Reference #5) required that all snubbers be cycled and documented during installation. Twenty two II A-3 documents were randomly sampled in two systems to verify that cycling was documented as completed.

SI-162.2 requires that replacement snubbers and snubbers which have repairs that might affect the functional test results will be tested to meet the functional test criteria before installing in the unit.



### III. SUMMARY OF FINDINGS (continued)

There has been an SI-162.2 inspection performed during each unit refueling outage. There have been three unit one and two unit two refueling outages. All five of these data packages were reviewed for failures that could be attributed to storage/installation damage. There were 858 snubbers inspected with 44 failures (5.1%). Twelve of these failures (1.4%) could have been caused by improper storage resulting in failure due to rust or corrosion and 10 of these failures (1.2%) could have been caused by improper end paddle rotation during installation. The remainder of the failures were not related to possible storage/installation damage.

Summary: Storing mechanical snubbers in the compressed or extended position or any position in between does not affect the operability of mechanical snubbers. Rotation of the "paddle" is seldom required. Whenever this adjustment is made, the support cylinder is kept engaged with the housing assembly. There is no cause for moving the support cylinder in a linear direction. The adjustment is rotational only, and many times this adjustment is made with the snubber installed while both ends are pinned or fixed in place. This concern is only applicable to size PSA 1/4 and PSA 1/2 mechanical snubbers because of their specific design. This concern is not relative to other PSA snubber sizes. Post-maintenance tests are always performed on new snubbers or snubbers repaired to the extent that snubber operability might be affected as discussed in the scope of SI-162.2.

### IV. CONCLUSIONS AND RECOMMENDATIONS

#### A. Conclusions

Although the concern of "improper handling of snubbers" was substantiated at SQN, the accumulated evidence indicates that initial testing and periodic surveillance testing would have detected any damage that would have prevented the snubbers from performing their intended safety function.

#### B. Recommendations

None

DOCUMENTS REVIEWED AND REFERENCES

1. Sequoyah Nuclear Plant Surveillance Instruction SI-162.1, "Snubber Visual Inspection (Hydraulic and Mechanical)," Revision 7.
2. Sequoyah Nuclear Plant Surveillance Instruction SI-162.2, "Snubber Functional Testing (Hydraulic and Mechanical)," Revision 4.
3. Sequoyah Nuclear Plant Administrative Instruction AI-36, "Storage, Handling, and Shipping of QA Material, " Revision 8. :
4. Sequoyah Nuclear Plant Maintenance Instruction MI-6.13A, "Removal and Reinstallation of Hydraulic and Mechanical Snubbers," Revision 2.
5. TVA, Division of Construction, Sequoyah Nuclear Plant Inspection Instruction No. A-3, "Inspection and Cycling of Shock Supressors," Revision 6 dated December 29, 1980.