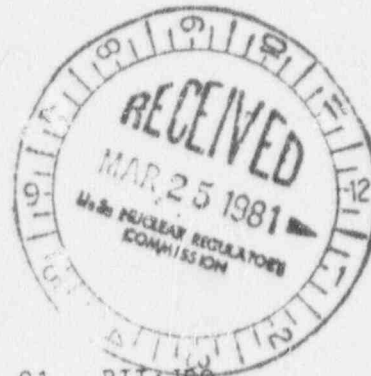


400 Chestnut Street Tower II

March 13, 1981

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303



Dear Mr. O'Reilly:

OFFICE OF INSPECTION AND ENFORCEMENT BULLETIN 81-01 - RII:JPD
50-259, -260, -296 BROWNS FERRY NUCLEAR PLANT

In response to your January 27, 1981, letter to H. G. Parris which transmitted OIE Bulletin 81-01, enclosed are the results of our investigations for our Browns Ferry Nuclear Plant. As stated in our responses to items 2.c and 3.c, TVA has had an ongoing inspection program for these snubbers and has sufficient confidence in the condition of these snubbers to request exemption from any additional testing until the next scheduled refueling outage of each unit.

We estimate that 200 man-hours will be required to fully implement the proposed actions. If you have any questions regarding this matter, please call Jim Domer at FTS 857-2014.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure

cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Q 8108270 044

ENCLOSURE
RESPONSE TO IE BULLETIN 81-01
BROWNS FERRY NUCLEAR PLANT
DOCKET NOS. 50-259, -260, -296

Actions to be Taken by Licensees of Operating Reactors:

ITEM 1

Within 30 days of the issuance date of this bulletin, all normally accessible* INC mechanical snubbers installed on safety-related systems or in storage shall be visually examined and tested as follows:

- a. Perform a visual examination for damage and, without causing the system to be inoperable except as permitted by the facility technical specifications, verify that the snubbers have freedom of movement by performing a manual test over the range of the stroke in both compression and tension.
- b. Perform an operability test to confirm that (1) activation (restraining action) occurs in both compression and tension and (2) the drag forces are within the specified range in both compression and tension. The tests shall be performed on all snubbers in storage and on a representative sample (10% of the total of this type of snubber in use in the plant or 35, whichever is less) of the normally accessible snubbers that are in service and can be individually removed without causing the system to be inoperable, except as permitted by the facility technical specifications. For each snubber that does not meet the test acceptance criteria, an additional representative sample (as defined above) of this type of snubber shall be tested. For each of these additional snubbers that do not meet the test acceptance criteria, another representative sample of this type of snubber shall be tested. This cycle shall be repeated until no more failures have been found or until all snubbers of this type have been tested. The samples should be made up of snubbers representing the various sizes.
- c. Snubbers which have been examined and tested in a manner comparable to Items 1a and 1b above within the last six months may be exempted.
- d. If any failures are identified in Items 1a or 1b above, take corrective action and evaluate the effect of the failure on the system operability pursuant to the facility technical specifications for continued operation.
- e. If failures are identified in Items 1a and 1b above, and if INC snubbers are known to be located in any inaccessible areas, a plant shutdown shall be performed within 30 days after the discovery of the first inoperable snubber and inspections conducted in accordance with Item 2a and 2b below, unless justification for continued operation has been provided to the NRC.

*"Normally accessible" refers to those areas of the plant that can be entered during reactor operation.

RESPONSE:

There are no normally accessible INC mechanical snubbers installed on safety-related systems or in storage at Browns Ferry Nuclear Plant. Therefore this item does not apply to Browns Ferry.

ITEM 2

Visually examine and test all inaccessible INC mechanical snubbers installed on safety-related systems at the next outage of greater than five days duration as follows:

- a. Visually examine and manually test all inaccessible snubbers as described in Item 1a above.
- b. Perform an operability test on a representative sample of inaccessible snubbers as described in Item 1b above.
- c. Snubbers which have been examined and tested in a manner comparable to Items 2a and 2b above within the last six months may be exempted.
- d. If any failures are identified in Items 2a or 2b above, take corrective action to evaluate the effect of the failure on system operability pursuant to the facility technical specifications for resuming operation.

RESPONSE:

Each of the three units at Browns Ferry contains 14 INC mechanical snubbers installed inside containment on the reactor vessel level control line (Yarway column).

- a. These snubbers are stroked each refueling outage in compliance with plant instructions.
- b. A representative sample (10%) of the INC mechanical snubbers will be tested for activation and the drag force will be measured during the next inspection.
- c. Attached is a tabulation of the results of previous inspections of mechanical snubbers performed in recent years at Browns Ferry. The tabulation shows that all of the INC snubbers have been stroked each refueling outage since they were installed. We believe this tabulation will provide the information that is the stated purpose of the bulletin and have sufficient confidence in the condition of the snubbers to request exemption from any additional testing until the next scheduled refueling outage of each unit.
- d. Any failure of the INC mechanical snubbers to meet acceptance criteria will be evaluated and appropriate corrective action taken.

ITEM 3

Provide a schedule for an inspection program covering mechanical snubbers produced by other manufactures. As a minimum, this inspection program shall:

- a. Include all snubbers installed on safety-related systems;
- b. Include the visual examination and manual test described in Item 1a above for all snubbers;
- c. Snubbers which have been examined and tested in a manner comparable to Item 3b above within the last twelve months may be exempted;
- d. Require the corrective action and evaluations described in Items 1d and 2d above; and
- e. Be completed prior to the completion of the next refueling outage. Plants which are currently in a refueling outage should perform the visual examination and manual tests of inaccessible mechanical snubbers before resumption of operations unless some other basis for assurance of snubber operability is provided to the NRC.

RESPONSE:

Snubbers manufactured by Pacific Scientific Company, Kin-Tech Division, are installed on the safety-relief valve tailpipes and Main Steam Lines A and D on all three units at Browns Ferry.

- a. No other safety-related systems except as covered by response 2 above have any mechanical snubbers installed.
- b. Visual examinations and stroking of snubbers have been performed on mechanical snubbers since they were installed at Browns Ferry. The requirements of these examinations and stroking comply with the requirements of item 1a.
- c. The tabulation of the results of the visual examination and stroking of the PSA snubbers is also included in the attached tabulation. Considering the 100 percent acceptance history of the snubbers which have been examined we propose to examine and test at the next refueling outage of each unit any snubbers which have not previously been examined and tested, and to continue a surveillance program in accordance with the plant instructions or Technical Specifications, whichever may govern.
- d. Any failure of the PSA mechanical snubbers to meet the acceptance criteria will be evaluated and the appropriate corrective action taken.
- e. There are no units currently in a refueling outage. The next refueling outage is scheduled to begin in April 1981 for unit 1, in September 1981 for unit 3 and in March 1982 for unit 2. Examinations and tests as proposed in response 3c above will be performed during those outages.

ITEM 4

Submit a report of the results of the inspections, testing and evaluation requested in Item 1 to NRC within 45 days of the issuance date of this bulletin. Report the results of the inspections, testing and evaluation requested in Item 2 within 30 days after the inspection and testing have been completed. The response to Item 3 shall be submitted within 60 days of the issuance date of this Bulletin. The results of the inspections performed for Item 3 shall be submitted within 60 days after the completion of the inspection.

The reports shall contain the following:

- a. A description of the visual examinations and tests performed.
- b. Number of snubbers examined and tested. Grouping by manufacturer name, model number, and size is acceptable.
- c. Number of failures identified; manufacturer name, model number, size, mode of failure, cause of failure, corrective action, snubber location, effect of failure on plant and system safety, and justification for continuing or resuming operation.
- d. The above information shall also be provided for the snubbers exempted by Items 1c, 2c, and 3c above.

RESPONSE:

Since item 1 for accessible INC snubbers does not apply to Browns Ferry, no further report is required for that item. The attached tabulation is submitted as an interim report for item 2 on inaccessible INC mechanical snubbers and on item 3 for other mechanical snubbers. The subsequent reports will be submitted on a timely basis in accordance with the responses above.

- a. The examinations and tests previously conducted and reported in attachment 1 were performed in accordance with plant instructions. The pertinent pages of the current instruction are included as attachment 2. These instructions will be revised as necessary to comply with item 2b.
- b-d. The attached tabulation provides the detail required to supply the information requested in the items.

Through the voluntary program that TVA has maintained at Browns Ferry the condition of mechanical snubbers on safety-related systems has been monitored through the years, and the results are recorded on the plant instruction data sheets filed at the plant. We believe this is an effective program and have extended it to other plants.

Attachment 1

BROWNS FERRY NUCLEAR PLANT

MECHANICAL SNUBBER FUNCTIONAL TEST HISTORY

UNIT	DATE	SNUBBER MFG.	TESTED NO. %	NUMBER FAILED	MAINTENANCE INSTRUCTION/COMMENT
1 & 2	8-74	INC	14 100% 14 100%	5 11	Reported in NRC IE Bulletin 81-01 as "Unit 2 & 3"
UNIT 1 & 2 FIRE OUTAGE BEGAN 3/75 - NEW VERSION INC INSTALLED AND PSA INSTALLED ON MSRV TAILPIPES 4/76 - RESTART FROM FIRE OUTAGE 8/76					
UNIT 3 COMMERCIAL OPERATION - 3/77					
1	9-77	PSA INC	11 25% 14 100%	0 0	MMI 36
2	5-78	PSA INC	14 25% 14 100%	0 0	MMI 36
3	9-78	PSA INC	7 15% 14 100%	0 0	MMI 59D
1	11-78	PSA INC	7 15% 14 100%	0 0	MMI 59D
2	5-79	PSA INC	5 10% 14 100%	0 0	MMI 59D
3	9-79	PSA INC	7 15% 14 100%	0 0	MMI 59D
1	1-80	PSA INC	7* 15% 14 100%	0 0	MMI 59D
2	11-80	PSA INC	46 100% 14 100%	0 0	MMI 59D
3	12-80	PSA INC	41 90% 14 100%	0 0	MMI 59D

*UNIT 1 (2-80) 53 A PIPE CLAMP NUTS STAKED - WORKORDER 000-9190

NOTE: 1. All INC Snubbers are MSAV, size 1

2. PSA Snubbers are: Unit 1, 52 size PSA-10
1 size PSA-3
Unit 2, 46 size PSA-10
Unit 3, 48 size PSA-10

7.0 ALARA Considerations (Continued)

7.2 Compare personnel exposure rates and attempt to use those people with the least exposure.

8.0 Instruction

8.1 General Surveillance Requirements

8.1.1 Yarway columns in each unit are equipped with a total of 14 International Nuclear Safe Guard Corporation snubbers. All (100%) of these snubbers are to be tested during the refueling outage of the unit in which they are installed.

8.1.2 All steam relief valve piping and the main steam lines A and D in the drywell are equipped with Pacific Scientific snubbers as follows:

	Number of Snubbers Installed		
	Unit 1	Unit 2	Unit 3
On relief valve piping	*40	42	44
On MS lines A and D	4	4	4
	*53	46	48

A sufficient number of snubbers shall be tested each refueling outage so that all snubbers will be tested within ten-year period. For annual refueling outages ten percent (5 snubbers) and for 18 months between refueling outages 15 percent (7 snubbers) are to be tested. During the end-of-cycle-test all snubbers that have not previously been tested within the previous ten-year period are to be tested. To assure that representative samples of snubbers in the system are tested, they are to be tested in the sequence in which they are listed on the data sheets (the exact sequence is not required within a batch). Figure 2 (page 22) is included as an overall location plan and the individual installations are shown on pages 23-41.

9. Testing

9.1 See Caution. International Nuclear Safe Guard Corporation snubbers on the two Yarway columns are to be observed for freedom of movement by moving the piping with the snubbers attached. Move the pipe in different directions in order to more directly activate each snubber of the cluster. The snubbers may be observed on the two vertical 3/4-inch pipes at the two locations near the core spray lines on the third and fourth elevations in the drywell. If the action of the snubber is in doubt, it is to be disconnected and stroked separate from the line.

CAUTION: Do not move Yarway piping to an extreme degree at locations remote from snubber attachments.

9.2 If any of the snubbers do not travel through its full stroke or has been damaged, it is to be replaced by a snubber of the same configuration from lower Stores prior to startup of the unit.

9.3 Pacific Scientific snubbers are to be tested as follows:

9.3.1 See Caution. Disconnect the snubber from its attachment by removing the four belts from the mounting flange (refer to Figure 1.)

CAUTION: Do not rotate one end of any Pacific Scientific snubber relative to its other end. This twisting will damage internal parts.

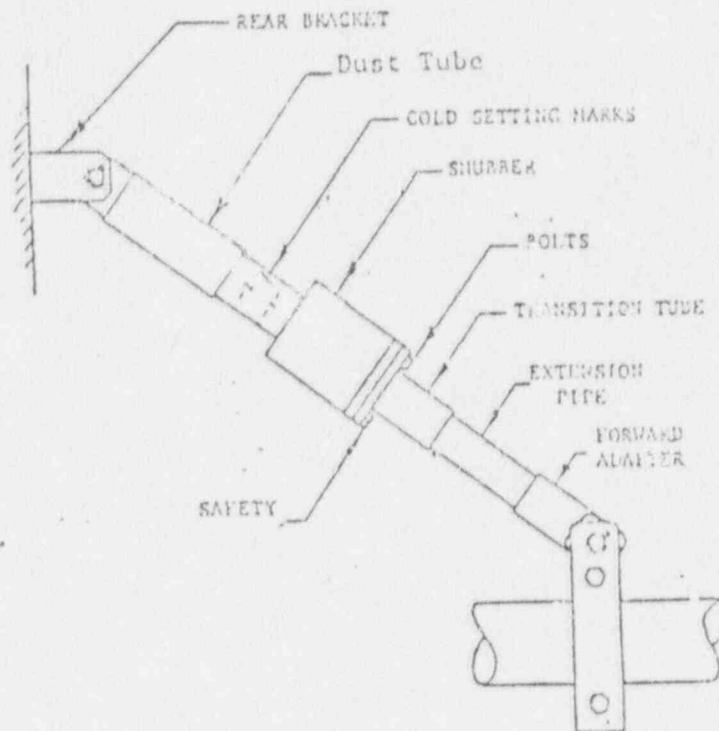


FIGURE 1 TYPICAL INSTALLATION

9. Testing (Continued)

9.3. (Continued)

9.3.2 Swing the attachment and/or the snubber to the side so that the snubber may be moved through its six-inch stroke in both directions. If the attachment will not pivot sufficiently, the lock nut on the threaded extension may be loosened and the extension screwed in to provide clearance, if so equipped. If these procedures do not provide sufficient clearance, the pin connecting the attachment to the lug may be removed, using a brass bar or soft-faced hammer to prevent marring the end of the pin.

9. Testing (Continued)

9.3 (Continued)

9.3.3 See Caution. Move the snubber through its full travel in both directions, applying force by hand attempting to increase the speed of the snubber. Note whether the snubber resists increased speed with the force applied and whether it travels smoothly through the full six-inch stroke.

CAUTION: Slow the snubber speed before it reaches the end of its stroke. The internal parts of the snubber rotate at high rates of speed, and coming to a sudden stop at the end of the stroke can cause damage to the snubber.

9.3.4 Snubbers which lock-up preventing the full six-inch stroke or move without resistance, are inoperable and are to be replaced with new snubbers of the same configuration from Power Stores prior to startup of the unit.

NOTE: The PSA-10 Snubbers originally installed are a model not currently manufactured by Pacific Scientific. They are painted with white epoxy and are rated at 10,000 pounds design load. The spares in Power Stores are the later design which have a zinc-nickel cad protective coating and have a 10,000 pound design rating. These snubbers are dimensionally and functionally interchangeable.

9.3.5 When a Pacific Scientific snubber is determined to be inoperable an additional refueling interval batch of snubbers is to be tested. For each snubber determined to be inoperable an additional batch of snubbers shall be tested until no additional snubbers fail or all snubbers have been tested. (The snubbers tested during the next refueling outage shall be in sequence after any snubbers tested in compliance with this paragraph.)

10. Return to Service

- 10.1 Upon completion of the functional test bring the snubber and its attachment back into alignment and into contact with each other. (If an attachment pin has been removed be sure it is free of burrs and coated with an approved anti-seized compound* before reinstallation.) Note the cold position setting as indicated by "cold setting marks" (figure 1) paint stenciled on the snubber. The line through the middle of the "3" should be aligned with the edge of the dust tube since the cold position setting of all these snubbers is "midrange" according to the detail installation drawings. If the cold position setting is not "3," and the snubber has an adjustable extension, adjust the extension to achieve the proper cold position setting. Many of the installations do not have any adjustment and the as-found reading is to be recorded.
- 10.2 Make sure the locking tab is on the bolt, apply an approved anti-seized compound* to the threads, and thread the bolts through the attachment into the flange of the snubber. Tighten the bolts to approximately 40 foot pounds. Bend the lock tab up against a flat of the hex head bolt and down over the edge of the flange to prevent loosening the bolt.
- 10.3 Observe the snubber for any evidence of damage, tighten any extension lock nuts, and check the clamp attachment nuts for tightness. See that lock wires are installed on the screws which hold the dust tubes in place. Generally observe the snubber and its attachments for any condition which would prevent its function.

*Fel-Pro N-1000 or "Never Seize" pure nickel compound special nuclear grade
NC-165

10. Return to Service (Continued)

10.3 (Continued)

during its cycle between test, record and take appropriate action.

- 10.4 Attach or update a linen tag to the snubber (or snubber location) starting by the person responsible. Fill out and submit the required data sheets. **