

January 15, 1992

DISTRIBUTION:

Docket File	NRC/Local PDR	PD4-1 r/f
SPeterson(2)	MVirgilio	JLarkins
PNoonan(2)	CGrimes	TAlexion(2)
TWesterman	DHagan	OGC
Ghill(8)	Wanda Jones	PD4-1 p/f
ACRS (10)	GPA/PA	ARM/LFMB
RTwigg	JNorberg	

Docket Nos. 50-313  
and 50-368

Mr. Neil S. Carns  
Vice President, Operations ANO  
Entergy Operations, Inc.  
Route 3 Box 137G  
Russellville, Arkansas 72801

Dear Mr. Carns:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 156 AND 129 TO FACILITY OPERATING  
LICENSE NOS. DPR-51 AND NPF-6 - ARKANSAS NUCLEAR ONE, UNITS 1  
AND 2 (TAC NOS. M81997 AND M81998)

The Commission has issued the enclosed Amendment Nos. 156 and 129 to Facility  
Operating License Nos. DPR-51 and NPF-6 for the Arkansas Nuclear One, Unit  
Nos. 1 and 2 (ANO-1&2). These amendments consist of changes to the Technical  
Specifications (TSs) in response to your application dated October 15, 1991.

The amendments revise ANO-1 TSs 3.16 and 4.16 and ANO-2 TS 3/4.7.8 by replacing  
the existing snubber visual inspection schedules and the surveillance requirements  
for visual acceptance criteria in accordance with the intent of NRC Generic  
Letter 90-09.

A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance  
will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

Original signed by Sheri R. Peterson for:  
Thomas W. Alexion, Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III, IV and V  
Office of Nuclear Reactor Regulation

Original signed by:  
Sheri R. Peterson, Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III, IV, and V  
Office of Nuclear Reactor Regulation

280026

9202030150 920115  
PDR ADDOCK 05000313  
P PDR

Enclosures:

1. Amendment No. 156 to DPR-51
2. Amendment No. 129 to NPF-6
3. Safety Evaluation

cc w/enclosures:  
See next page

ENCLOSURE

OFC	:LA/PD4-1	:PE/PD4-1	:PM/PD4-1	:PM/PD4-1	:EMEB
NAME	:PNoonan	:RTwigg/pk	:TAlexion	:SPeterson	:JNorberg
DATE	:12/3/91	:12/4/91	:12/5/91	:12/5/91	:12/6/91

OFC	:OGC	:D/PD4-1	:	:	:
NAME	:JLarkins	:	:	:	:
DATE	:12/3/91	:1/15/91	:	:	:

OFFICIAL RECORD COPY

Document Name: ANO AMEND/81997

280026

DFoICP  
11. 3



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

January 15, 1992

Docket Nos. 50-313  
and 50-368

Mr. Neil S. Carns  
Vice President, Operations ANO  
Entergy Operations, Inc.  
Route 3 Box 137G  
Russellville, Arkansas 72801

Dear Mr. Carns:

SUBJECT: ISSUANCE OF AMENDMENT NOS. 156 AND 129 TO FACILITY OPERATING  
LICENSE NOS. DPR-51 AND NPF-6 - ARKANSAS NUCLEAR ONE, UNITS 1  
AND 2 (TAC NOS. M81997 AND M81998)

The Commission has issued the enclosed Amendment Nos. 156 and 129 to Facility Operating License Nos. DPR-51 and NPF-6 for the Arkansas Nuclear One, Unit Nos. 1 and 2 (ANO-1&2). These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated October 15, 1991.

The amendments revise ANO-1 TSs 3.16 and 4.16 and ANO-2 TS 3/4.7.8 by replacing the existing snubber visual inspection schedules and the surveillance requirements for visual acceptance criteria in accordance with the intent of NRC Generic Letter 90-09.

A copy of our related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

*Sheri R. Peterson*

for Thomas W. Alexion, Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III, IV and V  
Office of Nuclear Reactor Regulation

*Sheri R. Peterson*

Sheri R. Peterson, Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III, IV, and V  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 156 to DPR-51
2. Amendment No. 129 to NPF-6
3. Safety Evaluation

cc w/enclosures:  
See next page

Mr. Neil S. Carns  
Entergy Operations, Inc.

Arkansas Nuclear One, Units 1 & 2

cc:

Mr. Donald C. Hintz  
Executive Vice President  
and Chief Operating Officer  
Entergy Operations, Inc.  
P. O. Box 31995  
Jackson, Mississippi 39286

Mr. John R. McGaha  
Vice President, Operations Support  
Entergy Operations, Inc.  
P. O. Box 31995  
Jackson, Mississippi 39286

Mr. Jerry Yelverton  
General Manager, Plant Operations  
Entergy Operations, Inc.  
Route 3 Box 137G  
Russellville, Arkansas 72801

Mr. Robert B. McGehee  
Wise, Carter, Child & Caraway  
P. O. Box 651  
Jackson, Mississippi 39205

Mr. Nicholas S. Reynolds  
Winston & Strawn  
1400 L Street, N.W.  
Washington, D.C. 20005-3502

Mr. Charles B. Brinkman, Manager  
Washington Nuclear Operations  
ABB Combustion Engineering Nuclear Power  
12300 Twinbrook Parkway, Suite 330  
Rockville, Maryland 20852

Mr. Robert B. Borsum  
Licensing Representative  
B&W Nuclear Technologies  
1700 Rockville Pike, Suite 525  
Rockville, Maryland 20852

Mr. James J. Fisicaro  
Director, Licensing  
Entergy Operations, Inc.  
Route 3, Box 137G  
Russellville, Arkansas 72801

Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
1 Nuclear Plant Road  
Russellville, Arkansas 72801

Admiral Kinnaird R. McKee, USN (Ret)  
214 South Morris Street  
Oxford, Maryland 21654

Regional Administrator, Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

Honorable Joe W. Phillips  
County Judge of Pope County  
Pope County Courthouse  
Russellville, Arkansas 72801

Ms. Greta Dicus, Director  
Division of Radiation Control and  
Emergency Management  
Arkansas Department of Health  
4815 West Markham Street  
Little Rock, Arkansas 72205-3867



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 156  
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated October 15, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 156, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John T. Larkins, Director  
Project Directorate IV-1  
Division of Reactor Projects III, IV, and V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: January 15, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 156

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Revise the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

REMOVE PAGES

vi  
66i  
110e  
110f  
110g-2  
-----  
-----

INSERT PAGES

vi  
66i  
110e  
110f  
110g-2  
110g-3  
110g-4

4.16.1	SNUBBER VISUAL INSPECTION INTERVAL	110g-2	
4.18.1	UPPER TUBE SHEET VIEW OF SPECIAL GROUPS PER SPECIFICATION 4.18.3.a.3	110o2	--
5.1-1	MAXIMUM AREA BOUNDARY FOR RADIOACTIVE RELEASE CALCULATION (EXCLUSION AREA)	111a	
6.2-1	MANAGEMENT ORGANIZATION CHART	119	
6.2-2	FUNCTIONAL ORGANIZATION FOR PLANT OPERATIONS	120	

### 3.16 Shock Suppressors (Snubbers)

#### Applicability

This technical specification applies to all shock suppressors (snubbers). The only snubbers excluded from this requirement are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.

#### Objective

To assure adequate shock suppression protection for primary coolant system piping and any other safety related system or component under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. This is done by assuring the operability of those shock suppressors installed for that purpose.

#### Specification

- 3.16.1 With one or more applicable snubbers inoperable, within 72 hours either:
- a. Replace or restore the inoperable snubbers to an OPERABLE status and perform an engineering evaluation of the attached components per Specification 4.16.1.f or,
  - b. Perform a review and evaluation which justifies continued operation with the inoperable snubber(s) and perform an engineering evaluation of the attached component(s) per Specification 4.16.1.f or,
  - c. Declare the attached system inoperable and follow the appropriate ACTION statement for that system.

#### Bases

Shock suppressors are designed to prevent unrestrained pipe motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion during startup and shutdown. The consequence of an inoperable shock suppressor is an increase in the probability of structural damage to piping as a result of a seismic or other event initiating dynamic loads. It is therefore required that all shock suppressors required to protect the primary coolant system or any other safety system or component be operable during reactor operation.

Because the shock suppressor protection is required only during low probability events, a period of 72 hours is allowed for repairs, replacements or evaluations. If a review and evaluation of an INOPERABLE snubber is performed and documented to justify continued operation, and provided all design criteria are met with the INOPERABLE snubber, then the INOPERABLE snubber would not need to be restored or replaced. In case a shutdown is required, the allowance of 36 hours to reach a cold shutdown condition will permit an orderly shutdown consistent with standard operating procedures.



#### 4.16 SHOCK SUPPRESSORS (Snubbers)

##### Applicability

This technical specification applies to all shock suppressors (snubbers). The only snubbers excluded from this requirement are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety-related system.

##### Objective

Verify an acceptable level of operability of the shock suppressors protecting the primary system and any other safety-related system or component.

##### Specification

4.16.1 The following surveillance requirements apply to all applicable shock suppressors.

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers may be categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.16-1. The visual inspection interval for each category of snubber shall be determined based upon the criteria provided in Table 4.16.1.

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify (1) that there are no visible indications of damage or impaired operability, and (2) attachments to the foundation or supporting structure are functional and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified as INOPERABLE and may be reclassified OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested in the as found condition and determined operable per Specifications 4.16.1.d or 4.16.1.e, as applicable. However, when the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined inoperable and cannot be determined operable via functional testing for the purpose of establishing the next visual inspection interval. All snubbers connected to a common hydraulic fluid reservoir shall be evaluated for operability if any snubber connected to that reservoir is determined to be inoperable.

d. Functional Tests

At least once each refueling shutdown a representative sample of snubbers shall be tested using the following sample plan.

At least 10% of the snubbers required by Specification 3.16.1 shall be functionally tested either in place or in a bench test. For each snubber that does not meet the functional test acceptance criteria of Specification 4.16.1.e, an additional 10% of the snubbers shall be functionally tested until no more failures are found or until all snubbers have been functionally tested.

The representative samples for the functional test sample plans shall be randomly selected from the snubbers required by Specification 3.16.1 and reviewed before beginning the testing. The review shall ensure as far as practical that they are representative of the various configurations, operating environments, range of sizes, and capacities. Snubbers placed in the same locations as snubbers which failed the previous functional test shall be retested at the time of the next functional test but shall not be included in the sample plan. If during the functional testing, additional sampling is required due to failure of only one type of snubber, the functional testing results shall be reviewed at that time to determine if additional samples should be limited to the type of snubber which has failed the functional testing.

**TABLE 4.16-1**  
**SNUBBER VISUAL INSPECTION INTERVAL**

**NUMBER OF INOPERABLE SNUBBERS**

<b>Population per Category (Notes 1 and 2)</b>	<b>Column A Extend Interval (Notes 3 and 6)</b>	<b>Column B Repeat Interval (Notes 4 and 6)</b>	<b>Column C Reduce Interval (Notes 5 and 6)</b>
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

**Note 1:** The next visual inspection interval for a snubber category shall be determined based upon the previous inspection interval and the number of INOPERABLE snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, categories must be determined and documented before any inspection and that determination shall be the basis upon which to determine the next inspection interval for that category.

**Note 2:** Interpolation between population per category and the number of INOPERABLE snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, and C if that integer includes a fractional value of INOPERABLE snubbers as determined by interpolation.

TABLE 4.16-1 (Continued)  
SNUBBER VISUAL INSPECTION INTERVAL

- Note 3: If the number of INOPERABLE snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.
- Note 4: If the number of INOPERABLE snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- Note 5: If the number of INOPERABLE snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of INOPERABLE snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of INOPERABLE snubbers found during the previous interval and the number in Column B to the difference in the numbers in Column B and C.
- Note 6: Specified surveillance intervals may be adjusted plus or minus 25 percent to accommodate normal test and surveillance schedule intervals up to and including 48 months, with the exception that inspection of inaccessible snubbers may be deferred to the next shutdown when plant conditions allow five days for inspection. See Note 7 for definition of interval as applied to snubber visual inspections. The provisions of Specification 4 regarding surveillance intervals are not applicable.
- Note 7: Interval as defined for the shock suppressors (snubbers) visual inspection surveillance requirements is the period of time starting when the unit went into cold shutdown for refueling, and ending when the unit goes into cold shutdown for its next scheduled refueling. This period of time is nominally considered to be an 18 month period, or a 24 month period based on the type of fuel being used. However, the period of time (interval) could be shorter or longer due to plant operating variables such as fuel life and operating performance.

## BASES

All safety related snubbers are required to be operable to ensure that the structural integrity of the reactor coolant system and all other safety related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety related systems and then only if their failure, or failure of the system on which they are installed, would have no adverse effect on any safety related system.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to plant systems. Therefore, the required inspection interval varies based upon the number of INOPERABLE snubbers found during the previous inspection in proportion to the sizes of the various snubber populations or categories and the previous inspection interval as specified in NRC Generic Letter 90-09, "Alternative Requirements For Snubber Visual Inspection Intervals and Corrective Actions". Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the result of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by inservice functional testing, that snubber may be exempted from being counted as inoperable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber by visual inspection, or are similarly located or exposed to the same environmental conditions such as temperature, radiation and vibration.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety related component or system has been adversely affected by inoperability of the snubber. The engineering evaluation is performed to determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

If a review and evaluation of an INOPERABLE snubber is performed and documented to justify continued operation, and provided that all design criteria are met with the INOPERABLE snubber, then the INOPERABLE snubber would not need to be restored or replaced.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 129  
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated October 15, 1991, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 129, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John T. Larkins, Director  
Project Directorate IV-1  
Division of Reactor Projects III, IV, and V  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: January 15, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 129

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Revise the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE PAGES

3/4 7-22  
3/4 7-23  
--- ----  
--- ----  
B 3/4 7-5

INSERT PAGES

3/4 7-22  
3/4 7-23  
3/4 7-23c  
3/4 7-23d  
B 3/4 7-5



This page intentionally left blank.

## PLANT SYSTEMS

### 3/4.7.8 SHOCK SUPPRESSORS (SNUBBERS)

#### LIMITING CONDITION FOR OPERATION

3.7.8 All snubbers shall be OPERABLE. The only snubbers excluded from this requirement are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.

APPLICABILITY: MODES 1, 2, 3 and 4. MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES.

ACTION: With one or more applicable snubber inoperable, within 72 hours either:

- a. Replace or restore the inoperable snubber(s) to an OPERABLE status and perform an engineering evaluation of the attached component(s) per Specification 4.7.8.f or,
- b. Perform a review and evaluation which justifies continued operation with the inoperable snubber(s) and perform an engineering evaluation of the attached component(s) per Specification 4.7.8.f or,
- c. Declare the attached system inoperable and follow the appropriate ACTION statement for that system.

#### SURVEILLANCE REQUIREMENTS

4.7.8 Each applicable snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program and the requirements of Specification 4.0.5.

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers may be categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by Table 4.7.8-1. The visual inspection interval for each category of snubber shall be determined based upon the criteria provided in Table 4.7.8-1.

SURVEILLANCE REQUIREMENTS (Continued)

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that (1) there are no visible indications of damage or impaired OPERABILITY, and (2) attachments to the foundation or supporting structure are functional and (3) fasteners for the attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections shall be classified as INOPERABLE and may be reclassified OPERABLE for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested in the as found condition and determined OPERABLE per Specifications 4.7.8.d or 4.7.8.e, as applicable. However, when the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined inoperable and cannot be determined OPERABLE via functional testing for the purpose of establishing the next visual inspection interval. All snubbers connected to a common hydraulic fluid reservoir shall be evaluated for operability if any snubber connected to that reservoir is determined to be inoperable.

d. Functional Tests

At least once each refueling shutdown a representative sample of snubbers shall be tested using the following sample plan.

At least 10% of the snubbers required by Specification 3.7.8 shall be functionally tested either in place or in bench test. For each snubber that does not meet the functional test acceptance criteria of Specification 4.7.8.e, an additional 10% of the snubbers shall be functionally tested until no more failures are found or until all snubbers have been functionally tested.

The representative samples for the functional test sample plans shall be randomly selected from the snubbers required by Specification 3.7.8 and reviewed before beginning the testing. The review shall ensure as far as practical that they are representative of the various configurations, operating environments, range of sizes, and capacities. Snubbers placed in the same locations as snubbers which failed the previous functional test shall be retested at the

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

time of the next functional test but shall not be included in the sample plan. If during the functional testing, additional sampling is required due to failure of only one type of snubber, the functional testing results shall be reviewed at that time to determine if additional samples should be limited to the type of snubber which has failed the functional testing.

#### e. Functional Test Acceptance Criteria

The snubber functional test shall verify that:

- 1) Activation (restraining action) is achieved within the specified range in both tension and compression, except that inertia dependent, acceleration limiting mechanical snubbers may be tested to verify only that activation takes place in both directions of travel;
- 2) Snubber bleed, or release rate where required, is present in both tension and compression, within the specified range;
- 3) Where required, the force required to initiate or maintain motion of the snubber is within the specified range in both directions of travel; and
- 4) For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement.

Testing methods may be used to measure parameters indirectly or parameters other than those specified if those results can be correlated to the specified parameters through established methods.

#### f. Functional Test Failure Analysis

An evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. The results of this evaluation shall be used, if applicable, in selecting snubbers to be tested in an effort to determine the OPERABILITY of other snubbers irrespective of type if they may be subject to the same failure mode.

For the snubbers found inoperable, an engineering evaluation shall be performed on the components to which the inoperable snubbers are attached. The purpose of this engineering evaluation shall be to determine if the components to which the inoperable snubbers are attached were adversely affected by the inoperability of the snubber in order to ensure that the component remains capable of meeting the designed service.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

If any snubber selected for functional testing either fails to activate or fails to move, i.e., frozen-in-place, the cause will be evaluated and, if caused by manufacturer or design deficiency, all snubbers of the same type subject to the same defect shall be evaluated in a manner to ensure their OPERABILITY. This requirement shall be independent of the requirements stated in Specification 4.7.8.d for snubbers not meeting the functional test acceptance criteria.

#### g. Preservice Testing of Repaired, Replacement and New Snubbers

Preservice operability testing shall be performed on repaired, replacement or new snubbers prior to installation. Testing may be at the manufacturer's facility. The testing shall verify the functional test acceptance criteria in 4.7.8.e.

In addition, a preservice inspection shall be performed on each repaired, replacement or new snubber and shall verify that:

- 1) There are no visible signs of damage or impaired operability as a result of storage, handling or installation;
- 2) The snubber load rating, location, orientation, position setting and configuration (attachments, extensions, etc.), are in accordance with design;
- 3) Adequate swing clearance is provided to allow snubber movement;
- 4) If applicable, fluid is at the recommended level and fluid is not leaking from the snubber system;
- 5) Structural connections such as pins, bearings, studs, fasteners and other connecting hardware such as lock nuts, tabs, wire, and cotter pins are installed correctly.

#### h. Snubber Seal Replacement Program

The seal service life of hydraulic snubbers shall be monitored to ensure that the service life is not exceeded between surveillance inspections. The expected service life for the various seals, seal materials, and applications shall be determined and established based on engineering information and the seals shall be replaced so that the expected service life will not be exceeded during a period when the snubber is required to be OPERABLE. The seal replacements shall be documented and the documentation shall be retained in accordance with Specification 6.10.2.

TABLE 4.7.8-1  
SNUBBER VISUAL INSPECTION INTERVAL

NUMBER OF INOPERABLE SNUBBERS

Population per Category (Notes 1 and 2)	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

Note 1: The next visual inspection interval for a snubber category shall be determined based upon the previous inspection interval and the number of INOPERABLE snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, categories must be determined and documented before any inspection and that determination shall be the basis upon which to determine the next inspection interval for that category.

Note 2: Interpolation between population per category and the number of INOPERABLE snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, and C if that integer includes a fractional value of INOPERABLE snubbers as determined by interpolation.

TABLE 4.7.8-1 (Continued)  
SNUBBER VISUAL INSPECTION INTERVAL

- Note 3: If the number of INOPERABLE snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.
- Note 4: If the number of INOPERABLE snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.
- Note 5: If the number of INOPERABLE snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of INOPERABLE snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of INOPERABLE snubbers found during the previous interval and the number in Column B to the difference in the numbers in Column B and C.
- Note 6: Specified surveillance intervals may be adjusted plus or minus 25 percent to accommodate normal test and surveillance schedule intervals up to and including 48 months, with the exception that inspection of inaccessible snubbers may be deferred to the next shutdown when plant conditions allow five days for inspection. See Note 7 for definition of interval as applied to snubber visual inspections. The provisions of Specification 4.0.2 regarding surveillance intervals are not applicable.
- Note 7: Interval as defined for the shock suppressors (snubbers) visual inspection surveillance requirements is the period of time starting when the unit went into cold shutdown for refueling, and ending when the unit goes into cold shutdown for its next scheduled refueling. This period of time is nominally considered to be an 18 month period, or a 24 month period based on the type of fuel being used. However, the period of time (interval) could be shorter or longer due to plant operating variables such as fuel life and operating performance.

TABLE 3.7-4

SAFETY RELATED HYDRAULIC SNUBBERS

(DELETED)



## PLANT SYSTEMS

### BASES

following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.

#### 3/4.7.8 SHOCK SUPPRESSORS (SNUBBERS)

All snubbers are required OPERABLE to ensure that the structural integrity of the reactor coolant system and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety-related system.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies based upon the number of INOPERABLE snubbers found during the previous inspection in proportion to the sizes of the various snubber populations or categories and the previous inspection interval as specified in NRC Generic Letter 90-09, "Alternative Requirements For Snubber Visual Inspection Intervals and Corrective Actions". Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the result of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible and verified by inservice functional testing, that snubber may be exempted from being counted as inoperable. Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber by visual inspection, or are similarly located or exposed to the same environmental conditions such as temperature, radiation and vibration.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber. The engineering evaluation is performed to determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

If a review and evaluation of an INOPERABLE snubber is performed and documented to justify continued operation and provided that all design criteria are met with the INOPERABLE snubber, then the INOPERABLE snubber would not need to be restored or replaced.

## PLANT SYSTEMS

### BASES

---

To provide further assurance of snubber reliability, a representative sample of the installed snubbers will be functionally tested during plant shutdowns at 18 month intervals. These tests will include stroking of the snubbers to verify proper piston movement, lock-up and bleed. Observed failures of these sample snubbers will require functional testing of additional units. To minimize personnel exposures, snubbers installed in areas which have high radiation fields during shutdown or in especially difficult to remove locations may be exempted from these functional testing requirements provided the OPERABILITY of these snubbers was demonstrated during functional testing at either the completion of their fabrication or at a subsequent date.

#### 3/4.7.9 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

#### 3/4.7.10 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety related equipment and is a major element in the facility fire protection program.

In the event the portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for a twenty-four hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 156 AND 129 TO

FACILITY OPERATING LICENSE NOS. DPR-51 AND NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NOS. 1 AND 2

DOCKET NOS. 50-313 AND 50-368

1.0 INTRODUCTION

By letter dated October 15, 1991, Entergy Operations, Inc. (the licensee) submitted a request for changes to the Arkansas Nuclear One, Unit Nos. 1 and 2 (ANO-1&2), Technical Specifications (TS). The requested changes would revise ANO-1 TS 3.16 and 4.16 and ANO-2 TS 3/4.7.8 by replacing the existing snubber visual inspection schedules and the surveillance requirements for visual acceptance criteria in accordance with the intent of NRC Generic Letter (GL) 90-09.

2.0 EVALUATION

The snubber visual examination schedule in the existing TS is based on the permissible number of inoperable snubbers found during the visual examination. Because the existing snubber visual examination schedule is based only on the absolute number of inoperable snubbers found during the visual examinations irrespective of the total population of snubbers, licensees with a large snubber population find the visual inspection schedule excessively restrictive. The purpose of the alternative examination schedule is to allow the licensee to perform visual examinations and corrective actions during plant outages without reducing the confidence level provided by the existing examination schedule. The new visual examination schedule specifies the permissible number of inoperable snubbers for various snubber populations. The basic examination interval is the normal fuel cycle up to 24 months. Depending on the number of unacceptable snubbers found during the visual examination, this interval may be extended to as long as twice the fuel cycle or reduced to as short as two-thirds of the fuel cycle. The examination interval may vary by plus or minus 25 percent to make the examination coincide with the actual outage.

In the event that one or more snubbers are found inoperable during a visual examination, the Limiting Conditions for Operation (LCO) in the present TS require the licensee to restore or replace the inoperable snubber(s) to operable status within 72 hours or declare the attached system inoperable and follow the appropriate action statement for that system. This LCO will remain in the TS; however, the permissible number of inoperable snubbers and the subsequent visual examination interval will now be determined in accordance

with the new visual examination schedule (Table 1 of GL 90-09 dated December 11, 1990). As noted in the guidance for this line item TS improvement, certain corrective actions may have to be performed, depending on the number of inoperable snubbers found. All requirements for corrective actions and evaluations associated with the use of the visual examination schedule and stated in Footnotes 1 through 7 (Table 1 of GL 90-09) shall be included in the TS.

The licensee has proposed changes to ANO-1 TS 3.16 and 4.16 and ANO-2 TS 3/4.7.8 that are consistent with the guidance provided in GL 90-09 for the replacement of the snubber visual examination schedule with Table 1 (including Footnotes 1 through 7) of GL 90-09. On the basis of its review of this matter, the staff finds that the proposed changes to the TS for ANO-1&2 are acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comment.

### 4.0 ENVIRONMENTAL CONSIDERATION

The amendments involve changes in surveillance requirements, but there is no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (56 FR 60116). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

### 5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Twigg

Date: January 15, 1992