

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA)	
EDISON COMPANY, <u>ET AL.</u> for a Class 103)	Docket No. 50-361
License to Acquire, Possess, and Use)	
a Utilization Facility as Part of)	Amendment Application
Unit No. 2 of the San Onofre Nuclear)	No. 89
Generating Station)	

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 89.

This amendment application consists of Proposed Technical Specification Change No. NPF-10-313 to Facility Operating License No. NPF-10. Proposed Technical Specification Change No. NPF-10-313 is a request to revise Surveillance Requirement 4.7.6.b of Technical Specification 3/4.7.8.6, "Snubbers." The proposed change would permit a one time extension to 20 months \pm 25% of the snubber visual inspection period for inspections to occur after the Cycle 5 refueling.

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Subscribed on this 3rd day of January, 1990.

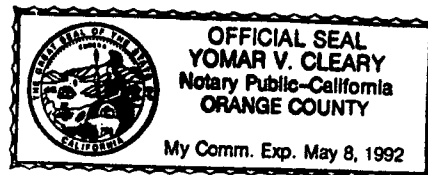
Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Harold B. Bay

Subscribed and sworn to before me this
3 day of January 1990.

Yomar V. Cleary
Notary Public in and for the County of
Orange, State of California



Charles R. Kocher
James A. Beoletto
Attorneys for Southern
California Edison Company

By: Charles R. Kocher
~~James A. Beoletto~~
Charles R. Kocher

DESCRIPTION AND SAFETY ANALYSIS
PROPOSED CHANGE NPF-10-313

This is a request to revise Technical Specification 3/4.7.6, "Snubbers".

EXISTING SPECIFICATION:

Unit 2: See Attachment "A"

REVISED EXISTING SPECIFICATION:

Unit 2: See Attachment "B"

DESCRIPTION:

San Onofre Nuclear Generating Station (SONGS) Unit 2 Technical Specification 3/4.7.6, "Snubbers", requires that snubbers on safety related systems be visually inspected at intervals according to a table which accounts for previous visual inspection results. This change would, on a one time basis, waive the inspection period in that table for the case of 3 or 4 snubbers having failed the previous inspection, by not counting certain visual inspection failures against the surveillance interval. The change would also, on a one time basis, extend the 18 month maximum interval to 20 months \pm 25%. The purpose of this proposed revision is to preclude the need for Southern California Edison (SCE) to shut down Unit 2 solely to perform these visual inspections. It is desirable to avoid the extra shutdowns because the affect on safety is very low as compared to the extremely high cost of such outages.

DISCUSSION:

1. Visual Inspection Period

Technical Specification (TS) 3/4.7.6, Surveillance Requirement 4.7.6.b, requires that visual inspections of snubbers on safety related (and associated) systems be performed according to a schedule table which accounts for previous inspection results. The maximum time interval between surveillances allowed by this table is 18 months \pm 25%. For certain snubbers, defined as "inaccessible" in the TS, the unit is required to be shut down to perform these visual inspections because of equipment operation, radiation dose and other considerations.

SONGS Unit 2 is on a nominal 24 month refueling cycle. In recognition of the fact that the table's 18 month maximum inspection interval is too short to accommodate the 24 month refueling cycle and that extending the inspection period to do so would not significantly impact safety, the NRC, in TS amendment 76, granted a one time extension of the maximum inspection interval from 18

months to 20 months \pm 25% for refueling cycle 4 inspections. (Twenty months + 25% yields a maximum of approximately 24 months for the period.) SCE had originally requested a permanent revision to the table, however, the NRC Staff elected to grant a one time change at that time because guidance on further improvements to this TS was expected to be available before the next predicted performance of this inspection. The guidance, a generic letter, has not yet become available, however.

During the cycle 4 inspection period, certain inaccessible snubbers were found to not meet the visual inspection acceptance criteria. Because of these inspection failures, the next (cycle 5) visual inspection period, according to the table in Surveillance 4.7.6.b, must be reduced from 18 months \pm 25% to 124 days (4 months) \pm 25%. This reduced surveillance interval would require Unit 2 to be shut down multiple times prior to the next scheduled refueling outage, each time for a several week outage, solely for the performance of these inspections. The following discussion will review these failures and root causes, and will demonstrate that there are significant benefits, with no significant impact on safety, to 1) waiving the reduced inspection interval by not counting the 4 visual inspection failures against the surveillance interval, and 2) extending the interval to accommodate the 24 month refueling cycle, on a one time basis.

2. Visual Inspection Failure Description

Mechanical snubbers are designed to prevent shock forces from damaging piping and components, and to accommodate for thermal expansion/contraction in system piping. The snubbers are attached to piping and support structures at both ends by load pins, which are in turn secured by means of either snap rings, cotter pins, or in some cases the load pin is threaded and secured by nuts.

On August 23, 1988, with the unit in Mode 5, during routine startup activities an operator found snubber S2-SI-152-H-001, located on a 3" high pressure Safety Injection (SI) line, unpinned at one end, thereby failing the visual inspection. The snubber was functionally (stroke) tested, determined to be operable, and repinned.

On May 23, 1989, with the unit in Mode 5, during a routine visual inspection, two snubbers were found to have failed inspection.

1) Snubber S2-SI-064-H-007, located on a 1" line off the 1B loop Safety Injection (SI) line, was found to be unpinned at one end. The snubber was stroke tested, found to be operable, and repinned. Other snubbers in the same area on the affected SI line were visually inspected and found to be satisfactory.

2) Snubber S2-CC-082-H-007, located on the Component Cooling Water (CCW) supply line to the No. 4 Reactor Coolant Pump motor lube oil cooler, was found to be unpinned at one end. Subsequent

stroke testing also found the snubber to be frozen. The snubber was replaced with an operable snubber.

On June 6, 1989, with the unit in Mode 5, during a walkdown in containment, snubber S2-SI-155-H-001, located on a 3" high pressure SI line, was found partially unpinned at one end. The snubber was stroke tested, determined to be operable, and repinned.

3. Root Cause, Corrective Actions, and Snubber Programs

In January 1987, SCE identified a problem with snubber load pin retaining snap rings (C-shaped spring clips) on smaller size snubbers (PSA 1/4, 1/2 and 3/4, termed "type 1"). For those type 1 snubbers that are located on lines that experience vibration, some of the clips have shown a tendency over time to become detached. At that time SCE implemented a program to replace the spring clip type load pins on these smaller snubbers with load pins restrained by cotter pins, which experience has shown are more reliable. As the snap ring clip failure rate was not high (there were no such failures in Unit 2 in 1987), the replacements were being performed in conjunction with the TS 4.7.6.d functional test surveillance.

All four of the above visual inspection failures involved snubber load pins, secured with snap rings, becoming detached. Two of the snubbers, S2-SI-064-H-007 and S2-CC-082-H-007, were type 1. The other two, S2-SI-152-H-001 and S2-SI-155-H-001, were larger PSA 1 (type 2) snubbers.

In response to the type 1 snubber visual inspection failures, SCE accelerated the snap ring replacement program. As of the end of the Cycle 5 refueling outage, the snap ring type load pins for all inaccessible type 1 snubbers in the Unit have been replaced with load pins secured by cotter pins.

The two PSA 1 snubber visual inspection failures are the only occurrences of failure of a type 2 snubber due to snap ring detachment at SONGS. The snap rings on the PSA 1 snubbers are larger and heavier than those on the type 1 snubbers, and have not historically been prone to detachment. Additional root cause investigation found that both snubbers are in essentially identical configurations: installed on High Pressure Safety Injection System lines such that the load pins on one of their brackets are parallel to the pipe (see Figure 1), and located near a Safety Injection System containment isolation check valve. Leak testing of these check valves is required as part of plant start up after an outage. During the testing, pressure waves in the lines are sometimes experienced as a result of the valves slamming shut. The configuration of these snubbers is such that the resultant pipe movement from the check valve slamming shut, in conjunction with the generally high vibration environment for the two snub-

bers, could be sufficient to dislodge a snap ring on the load pin that is parallel to the pipe.

In order to ensure that PSA 1 snubbers that could potentially be subject to similar conditions were corrected, the snap ring type load pins on all PSA 1 snubbers on SI lines in Containment (not just those in the above configuration) have been replaced with cotter pin secured load pins. In addition, PSA 1 snubbers have been added to the snap ring replacement program. There are 26 remaining inaccessible PSA 1 snubbers with snap ring type load pins. These load pins will be replaced with cotter pin load pins in the first outage of sufficient duration, but in any case prior to end of the Cycle 6 refueling outage.

In addition to the snap ring replacement program, SCE has in place an on-going snubber reduction program which is removing unnecessary snubbers from the plant. As of the end of the Cycle 5 refueling outage, there are 138 inaccessible type 1 snubbers remaining in Unit 2, all with cotter pin type load pins, and 39 inaccessible PSA 1 snubbers, 13 (those considered potentially susceptible to snap ring failure, as discussed above) with cotter pin type load pins.

One of the above visual inspection failures, snubber S2-CC-082-H-007, also failed the follow up functional (stroke) test. Disassembly revealed that the snubber had been side loaded, e.g., stepped on or bumped. This side loading occurred sometime after its last inspection in October, 1987. In late 1988, worker awareness of the importance and sensitivity of snubbers was increased by the placement of signs that specifically prohibited the use of snubbers as steps or handholds. This appears to have been effective, as there have been no further instances of this problem.

Overall, SCE's snubber maintenance program for both Units 2 and 3 has been very effective. Since 1983, 6,936 visual inspections have been completed on Unit 2 with only 7 failures, including those discussed above. Similarly, on Unit 3, 5,574 visual inspections have been completed with only 6 failures. This record amounts to a failure rate of 1/10 of 1%.

During the Cycle 5 refueling outage, all 574 inaccessible snubbers in Unit 2 (including these four) were visually inspected with no failures. In addition, all 366 accessible snubbers were inspected with no failures, for a total of 940 successful inspections.

Regarding accessible snubbers, as of the end of the Cycle 5 outage there are 94 type 1 snubbers with snap ring secured load pins (17 on one end only, with the other end attached by either cotter pin secured load pins or threaded load pins) remaining in the plant. There are 50 accessible PSA 1 snubbers with snap ring

secured load pins, three on one end only. It is SCE's intention to continue to correct as many of these as possible during the plant operating cycle, so that their number will continuously be reduced.

Should another unscheduled outage of sufficient duration occur, as many inaccessible snubbers as practicable will be visually inspected, and the results factored into the snubber service life program and future inspection intervals.

The snap ring replacement program is in effect for Unit 3 also. The remaining snap ring secured load pins on inaccessible type 1 and PSA 1 type 2 snubbers in Unit 3 will be replaced with cotter pin type load pins during the upcoming cycle 5 refueling outage, scheduled for April, 1990.

4. Other Considerations

There are several significant ramifications to completing a shutdown to perform an inspection such as this one. These considerations must be weighed against the benefits of shutting down to perform a single surveillance.

1. The cost of performing the inspections during an unscheduled shutdown is significant in comparison to the benefits realized by the snubber inspection, as several weeks would be required, including cooldown and heatup periods.
2. Performing the inspection during a refueling outage is best with respect to keeping radiation doses ALARA because inaccessible area radiation levels would be substantially lower, and the longer outage duration will allow better radiation protection planning and implementation.
3. An additional heatup/cooldown cycle would be required.
4. Any significant change in operating status increases the probability of unusual events, which are more likely to occur during transient operation than at full power steady state operation.

5. Summary

Based on the above discussion, SCE concludes that the probability of an inaccessible snubber failing before the Cycle 6 refueling outage has not increased due to the visual inspection failures found because the failures were due to a known cause which has been corrected on the affected snubbers, on all other inaccessible type 1 snubbers, and on inaccessible type 2 PSA 1 snubbers which are considered to be subject to similar conditions. SCE's

overall visual inspection program results have demonstrated a very low failure rate, and we believe that programs in place will reduce failure probability to even lower levels. Therefore, there would be no significant impact on safety to 1) waiving the reduced snubber visual inspection period by not counting the above discussed inspection failures against the surveillance interval, and 2) extending the period to encompass the refueling cycle, on a one time basis. In addition, there would be several benefits to effecting this extension by eliminating otherwise unneeded outages.

SAFETY ANALYSIS:

This proposed one time change to waive the reduced Surveillance 4.7.6.b inspection interval and extend the 18 month interval to 20 months \pm 25% shall be deemed to involve a significant hazards consideration if there is a positive finding in any one of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The visual inspection failures that the reduced surveillance interval was based on were all due to the same snap ring problem, which has been corrected for inaccessible type 2 snubbers subject to similar conditions and all inaccessible type 1 snubbers in the Unit. Therefore, a reduced surveillance interval is not required to maintain a high degree of confidence, and waiving the shortened interval will not introduce a significant increase in the probability of a snubber failure. Increasing the existing 18 month limit to 20 months introduces a 2 month extension to the interval. SCE's overall visual inspection history has a very low failure rate of 0.1% (~0.02%/year average). Based on this history and the above conclusion that no significant change to the failure rate is introduced, it may be concluded that an additional two month extension will not result in a significant increase in the probability of a snubber failure. Therefore, this proposed change will not result in a significant increase in the probability or consequences of a previously evaluated accident.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any previously evaluated?

Response: No.

The proposed Technical Specification change does not change the number, type, design function or remaining service life of snubbers in the unit. It affects only the frequency of snubber visual inspection. The proposed change does not alter the configuration of the facility or its operation. Therefore, the proposed change does not create the possibility of a new or different kind of accident.

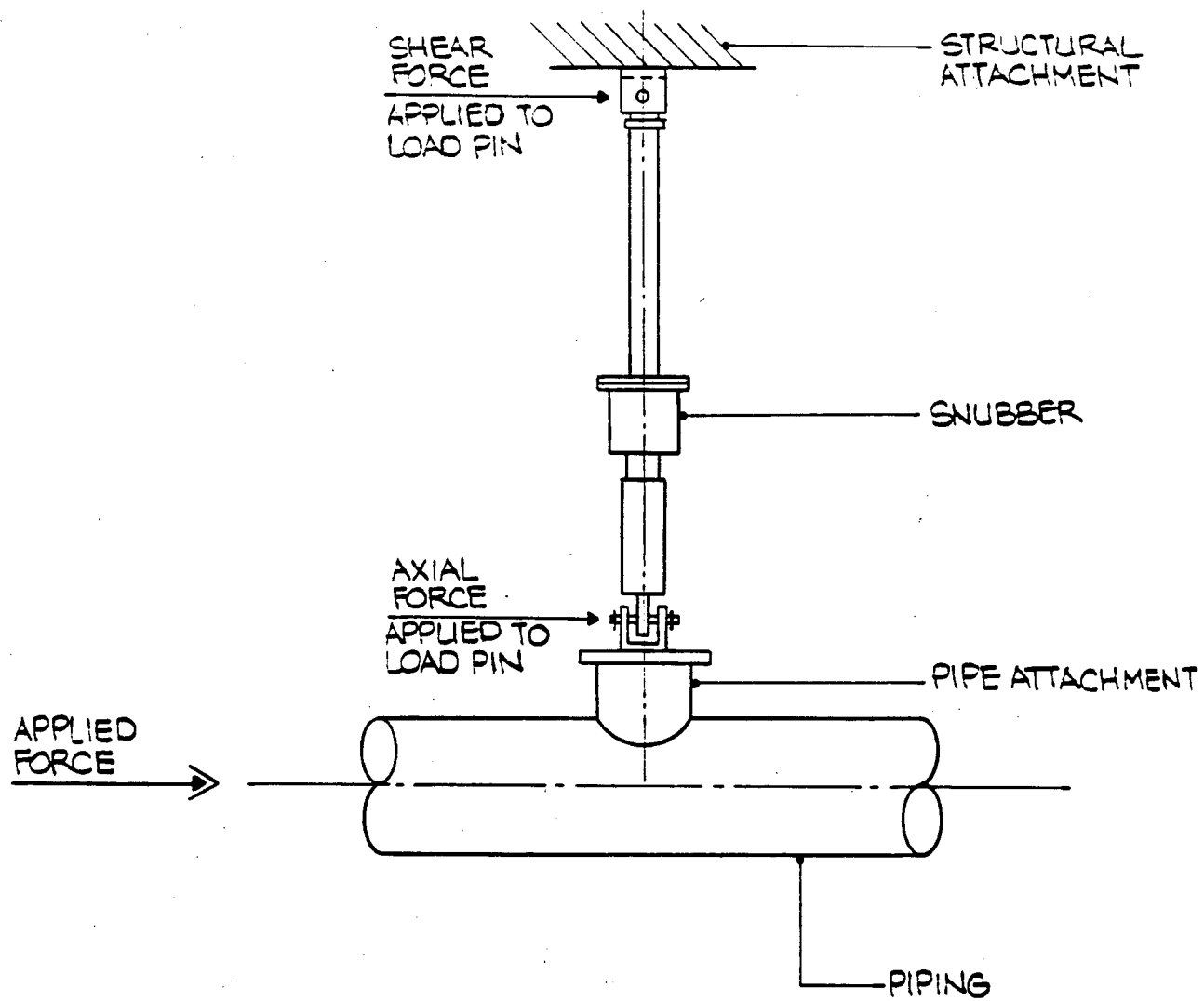
3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No.

As discussed in the response to criteria 1 above, the proposed change does increase the period of snubber visual inspection on a one time basis, which may slightly reduce the confidence in snubber operability at the end of the inspection interval and the associated margin of safety. However, past operating experience indicates that SCE's snubber maintenance program is more than adequate in minimizing snubber failures and responding appropriately to those failures that do occur. The chance of a snubber failure occurring during the increased visual inspection time interval is very small. Therefore, the proposed change does not involve a significant reduction in margin of safety.

SAFETY AND SIGNIFICANT HAZARDS DETERMINATION:

Based on the above Safety analysis, it is concluded that: 1) the proposed change does not constitute a significant hazards consideration as defined by 10 CFR 50.92; 2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and 3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

FIGURE NO. 1PLAN OR ELEVATION VIEW

NPF-10-313

ATTACHMENT "A"
Existing Specifications
Unit 2

PLANT SYSTEMS

3/4.7.6 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.6 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 snubbers inoperable, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.6.g on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.6 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program.

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

The first inservice visual inspection of snubbers shall be performed after 4 months but within 10 months of commencing POWER OPERATION and shall include all snubbers. If less than two snubbers are found inoperable during the first inservice visual inspection, the second inservice visual inspection shall be performed 12 months \pm 25% from the date of the first inspection. Otherwise, subsequent visual inspections shall be performed in accordance with the following schedule:

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

<u>No. Inoperable Snubbers per Inspection Period</u>	<u>Subsequent Visual Inspection Period*#</u>
0	18 months \pm 25%##
1	12 months \pm 25%###
2	6 months \pm 25%
3,4	124 days \pm 25%
5,6,7	62 days \pm 25%
8 or more	31 days \pm 25%

The snubbers may be categorized into two groups: Those accessible and those inaccessible during reactor operation. Each group may be inspected independently in accordance with the above schedule.

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 secure, and (3) fasteners for attachment of the snubber to (a) the component or pipe and (b) the snubber anchorage are secure. Snubbers which appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, provided 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 Specification 4.7.6.e or 4.7.6.f, as applicable. However, when a 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 an inoperable common hydraulic fluid reservoir shall be counted as inoperable snubbers.

*The inspection interval shall not be lengthened more than one step at a time.

#The provisions of Specification 4.0.2 are not applicable.

##20 months \pm 25% for inspections conducted during the Cycle 4 refueling outage.

###14 months \pm 25% for inspections conducted during the Cycle 4 refueling outage.

PLANT SYSTEMS

BASES

3/4.7.6 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.

For visual inspection snubbers are categorized into two (2) groups, those accessible and those inaccessible during reactor operation. For functional testing, snubbers are categorized into types by design and manufacturer, irrespective of capacity. For example, Pacific Scientific snubbers are divided into four types corresponding to different design features: PSA 1/4 and 1/2 are one type; PSA 1, 3, and 10 are another; PSA 6 is another; and PSA 35 and 100 are a fourth type.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies inversely with the observed snubber failures and is determined by the number of inoperable snubbers found during an inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results 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. Amendment No. 76 allows a one time extension of the inspection period during Cycle 4 operation while the NRC develops generic guidance applicable to 24 month operating cycles.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested during plant shut-downs at refueling intervals.

Hydraulic snubbers and mechanical snubbers may each be treated as a different entity for the above surveillance programs.