AmerGen
A PECO Energy/British Energy Company

Clinton Power Station
P.O. Box 678
Clinton, IL 61727
Phone: 217 935-8881

U-603365
8E.100c
June 9, 2000

Docket No. 50-461

10CFR50.55a

Document Control Desk
Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: ASME Section XI Relief Request Regarding
Examination and Testing of Snubbers at Clinton Power Station

Dear Madam or Sir:

Attached for NRC review and approval is a request for relief from the requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1989 Edition, no Addenda, with regard to the performance of snubber examinations and tests at Clinton Power Station (CPS). Details concerning the applicable ASME Section XI Code requirements, the affected components, and the basis and justification for the requested relief are provided in the attached relief request. The format of the attached relief request is based on the format that has been used to date in the CPS Inservice Inspection Program Manual.

Inservice inspection of ASME Code Class 1, 2, and 3 components (including supports) is required to be performed in accordance with Section XI of the ASME Code pursuant to 10CFR50.55a (f) except where specific written relief has been granted by the Commission. Per 10CFR50.55a (f)(5), if a licensee determines that conformance with certain requirements of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the NRC in support of that determination and a request made for relief from the ASME Code requirement. Further, 10CFR50.55a (a)(3) states that alternatives to the requirements of paragraph 10CFR50.55a (f) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Relief Request No. 4201, Revision 0, is being submitted (Attachment 1) in accordance with the above requirements of 10 CFR 50.55a. The relief request is necessary to resolve a conflict in snubber test requirements between what is specified in the current Code

A047

RGN-001

Edition to which CPS is committed and what was specified in the plant Technical Specifications prior to implementation of the Improved Technical Specifications (ITS) at CPS. Specifically, snubber examinations and tests were initially performed at CPS in accordance with Technical Specification (TS) 3/4.7.4, "Snubbers." License Amendment 61 was issued on November 22, 1991, to allow CPS to extend snubber visual inspection intervals without reducing the confidence level provided by the existing inspection interval. This change was issued based on the guidance contained in Generic Letter (GL) 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." Subsequently, License Amendment 95 to the CPS Operating License was issued on December 2, 1994, which relocated the TS requirements for snubbers to the Operational Requirements Manual (ORM) upon implementation of the ITS.

By letter U-602701, dated March 14, 1997, CPS submitted its program for the second 120-month Inservice Inspection (ISI) interval. As part of that submittal, CPS adopted ASME Section XI, 1989 Edition, no Addenda. Subsection IWF-5000 of that code edition specifies the use of the first Addenda to ASME/ANSI OM-1987, Part 4, which conflicts with the CPS ORM, and contradicts with the intent of GL 90-09. Therefore, relief is being requested to clearly allow the CPS snubber inspection/testing program to be based on the NRC-approved program previously established under the CPS Technical Specifications in lieu of the noted Code requirements. A copy of ORM Section 2.4.1, containing the CPS snubber operational requirements, is included as Attachment 2 for information.

The planning of work activities for the next refueling outage (RF-7) is dependent on the NRC's approval of the attached relief request. CPS therefore respectfully requests NRC's prompt review and determination regarding approval of the attached relief request in order that appropriate work scheduling may be accomplished for RF-7 in the fourth quarter of this year.

Sincerely yours,

Paul D. Hinnenkamp
Plant Manager

JLP/blf

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

CLINTON POWER STATION

ASME Section XI Relief Request

RELIEF REQUEST 4201 (Revision 0)

SYSTEM/ COMPONENT(S) FOR WHICH RELIEF IS REQUESTED	All ASME Section III Code Class 1, 2, and 3 snubbers.
CODE REQUIREMENT	ASME Section XI, 1989 Edition, no Addenda requires snubbers be examined, tested and repaired or replaced in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988).
CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED	Given that compliance with Subsection IWF-5000 of ASME Section XI, 1989 Edition, no Addenda, requires the implementation of the first Addenda to ASME/ANSI OM-1987, Part 4, it will be necessary for Clinton Power Station (CPS) to return the snubber examination and testing program to that which existed prior to the implementation of Generic Letter (GL) 90-09. Snubber examinations and tests were initially performed at CPS in accordance with Technical Specification (TS) 3/4.7.4, "Snubbers." Amendment 61 issued on November 22, 1991, revised TS 3/4.7.4 to allow CPS to extend snubber visual inspection intervals without reducing the confidence level provided by the existing inspection interval. Amendment 61 was issued based on guidance contained in GL 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Action." Subsequently, Amendment 95, issued on December 2, 1994, converted the TS to the improved TS format and the snubber examination and testing requirements were relocated to Section 2.4.1 (and its applicable subsections) of the Operational Requirements Manual (ORM).

By letter U-602701, dated March 14, 1997, CPS submitted its program for the second 120-month Inservice Inspection (ISI) interval. As part of that submittal, CPS adopted ASME Section XI, 1989 Edition, no Addenda, Subsection IWF-5000, which specifies use of the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988). The guidance of ASME/ANSI OM-1987, Part 4, conflicts with and contradicts the intent of GL 90-09 and Amendment 61.

As described above, CPS snubber examinations and tests are currently completed in accordance with the requirements delineated in the ORM and CPS implementing procedures including repair/replacement activities. Specifically, ORM Section 4.4.1b and ORM Table 4.4.1-1 are used for determining snubber visual inspection intervals, and the snubber visual inspection acceptance criteria are given in ORM Section 4.4.1c. Sections 4.4.1.e through 4.4.1.l are used for determining snubber testing requirements.

The requirements set forth in the above ORM sections are based on the guidance provided in GL 90-09. The stated purpose of GL 90-09 was to provide alternative guidance for snubber visual inspections (i.e., an alternate inspection schedule) that maintains the same confidence level as that which existed prior to GL 90-09. The alternative was provided to alleviate the expenditure of unnecessary resources and reduce radiological exposure associated with the over-restrictive examination schedule.

BASIS FOR RELIEF

Continued implementation of the Snubber Program, as defined by the ORM, allows continued use of the inspection schedule recommended by GL 90-09 (thus maintaining reduced radiological exposure and burden associated with snubber inspections). Therefore, the current program provides for a level of quality and safety equal to or greater than that of OM-1987, Part 4. OM-1987 provides for failure mode grouping of snubbers that fail visual examination, meaning only those snubbers identified as being in that group would require shortened examination intervals. Under the existing ORM program all snubbers in the population would be placed in a shortened inspection interval. The ORM requirements are generally more comprehensive than the Code requirements in that the ORM covers both ASME and non-ASME snubbers. Tracking the completion of both ASME Code and ORM requirements creates additional administrative burden without significant benefit in snubber reliability. On this basis, the existing ORM program is more conservative than OM-1987 in its implementation of corrective action.

The existing ORM was approved through the Technical Specifications that existed prior to Amendment 95. With the implementation of improved TS, those requirements were transferred to licensee-controlled documents. The alternative examination criteria is based on GL 90-09. The examinations and tests conducted per the ORM and CPS procedures provide an equal or greater level of quality and safety than examinations and tests performed under ASME Section XI IWF-5000, specifically OM-1987, Part 4.

ALTERNATE EXAMINATIONS

ASME Section XI 1989 Edition, no Addenda, specifies the use of the first Addenda to ASME/ANSI OM-1987, Part 4, for the examination, testing and repair/replacement of snubbers. Alternatively, CPS will perform these activities per ORM 2.4.1 and the governing CPS snubber examination and testing and procedures.

IMPLEMENTATION SCHEDULE

This relief request will be implemented during the second 120-month inspection interval.

Current Operational Requirements Manual Section 2.4.1

2.4 PLANT SYSTEMS

2.4.1 SNUBBERS

OPERATIONAL REQUIREMENTS

All snubbers shall be OPERABLE. The only snubbers excluded from the requirements are those installed on non-safety 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, and 3. MODES 4 and 5 for snubbers located on systems required OPERABLE in those MODES.

ACTION:

3.4.1 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 Testing Requirements 4.4.1f and 4.4.1g on the attached component or declare the attached system inoperable and follow the appropriate Technical Specification and/or ORM ACTION statement(s) for that system.

TESTING REQUIREMENTS

4.4.1 Each snubber shall be demonstrated OPERABLE by the performance of the following augmented inservice inspection program in addition to the requirements of Operational Requirement 1.3.5.

a. Inspection Types

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

2.4.1 SNUBBERS (continued)

b. Visual Inspections

Snubbers are 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 4.4.1-1. The visual inspection interval for each type of snubber shall be determined based upon the criteria provided in Table 4.4.1-1, and the first inspection interval determined using this criteria shall be based upon the previous inspection interval as established by the requirements in effect prior to issuance of this amendment.

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that (1) the snubber has no visible indications of damage or impaired OPERABILITY, (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 unacceptable and may be reclassified acceptable 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, irrespective of type, that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Testing Requirement 4.4.1f. All snubbers found connected to an inoperable common hydraulic fluid reservoir shall be counted as unacceptable for determining the next inspection interval. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and the ACTION requirements shall be met.

2.4.1 SNUBBERS (continued)

d. Transient Event Inspection

An inspection shall be performed of all snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients, as determined from a review of operational data or a visual inspection of the systems, within 72 hours for accessible areas and within 6 months for inaccessible areas following this determination. In addition to satisfying the visual inspection acceptance criteria, freedom-of-motion of mechanical snubbers shall be verified using at least one of the following: (1) manually induced snubber movement; or (2) evaluation of in-place snubber piston setting; or (3) stroking the mechanical snubber through its full range of travel.

e. Functional Tests

During the first refueling shutdown and at least once per refueling interval thereafter during shutdown, a representative sample of snubbers shall be tested using one of the following sample plans for each type of snubber. The sample plan shall be selected prior to the test period and cannot be changed during the test period. The NRC Regional Administrator shall be notified in writing of the sample plan selected prior to the test period or the sample plan used in the prior test period shall be implemented:

1. At least 10% of the total of each type of snubber shall be functionally tested either in-place or in a bench test. For each snubber of a type that does not meet the functional test acceptance criteria of Testing Requirement 4.4.1f, an additional 5% of that type of snubber shall be functionally tested until no more failures are found or until all snubbers of that type have been functionally tested; or

2. A representative sample of each type of snubber shall be functionally tested in accordance with Figure 4.4.1-1. "C" is the total number of snubbers of a type found not meeting the acceptance requirements of Testing Requirement 4.4.1f. The cumulative number of snubbers of a type tested is denoted by "N". At the end of each day's testing, the new values of "N" and "C" (previous day's total plus current day's increments) shall be plotted on Figure 4.4.1-1. If at any time the point plotted falls in the "Reject" region all snubbers of that type shall be functionally tested. If at any time the point plotted falls in the "Accept" region, testing of

2.4.1 SNUBBERS (continued)

snubbers of that type may be terminated. When the point plotted lies in the "Continue Testing" region, additional snubbers of that type shall be tested until the point falls in the "Accept" region or the "Reject" region, or all the snubbers of that type have been tested; or

3. An initial representative sample of 55 snubbers of each type shall be functionally tested. For each snubber type which does not meet the functional test acceptance criteria, another sample of at least one-half the size of the initial sample shall be tested until the total number tested is equal to the initial sample size multiplied by the factor, 1 + C/2, where "C" is the number of snubbers found which do not meet the functional test acceptance criteria. The results from this sample plan shall be plotted using an "Accept" line which follows the equation N = 55(1 + C/2). Each snubber point should be plotted as soon as the snubber is tested. If the point plotted falls on or below the "Accept" line, testing of that type of snubber may be terminated. If the point plotted falls above the "Accept" line, testing must continue until the point falls in the "Accept" region or all the snubbers of that type have been tested.

Testing equipment failure during functional testing may invalidate that day's testing and allow that day's testing to resume anew at a later time, providing all snubbers tested with the failed equipment during the day of equipment failure are retested. The representative sample selected for the functional test sample plans shall be randomly selected from the snubbers of each type 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 size, and capacity of snubbers of each type. 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 the time to determine if additional samples should be limited to the type of snubber which has failed the functional testing.

2.4.1 SNUBBERS (continued)

f. 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;

2. Snubber bleed, or release rate where required, is present in both tension and compression, within the specified range;

3. For mechanical snubbers, 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.

g. Functional Test Failure Analysis

An engineering 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 which 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 snubbers in order to ensure that the component remains capable of meeting the designed service.

2.4.1 SNUBBERS (continued)

If any snubber selected for functional testing either fails to lock up 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 functionally tested. This testing requirement shall be independent of the requirements stated in Testing Requirement 4.4.1e for snubbers not meeting the functional test acceptance criteria.

h. Functional Testing of Repaired and Replaced Snubbers

Snubbers that fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced. Replacement snubbers and snubbers that have repairs that might affect the functional test result shall be tested to meet the functional test criteria before installation in the unit. Mechanical snubbers shall have met the acceptance criteria subsequent to their most recent service, and the freedom-of-motion test must have been performed within 12 months before being installed in the unit.

i. Snubber Service Life Program

The service life of all snubbers shall be monitored to ensure that the service life is not exceeded between surveillance inspections. The maximum expected service life for various seals, springs, and other critical parts shall be determined and established based on engineering information and shall be extended or shortened based on monitored test results and failure history. Critical parts shall be replaced so that the maximum service life will not be exceeded during a period when the snubber is required to be OPERABLE. The parts replacements shall be documented and the documentation shall be retained in accordance with Operational Requirement 6.10.3.

2.4.1 SNUBBERS (continued)

TABLE 4.4.1-1

SNUBBER VISUAL INSPECTION INTERVAL

Population or Category (Notes 1 and 2)	Number of Unacceptable Snubbers		
	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 population or category size shall be determined based upon the previous inspection interval and the number of unacceptable 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, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

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

Note 3: If the number of unacceptable 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 unacceptable 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 unacceptable 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 unacceptable 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 unacceptable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.

Note 6: The provisions of Operational Requirement 1.3.2 are applicable for all inspection intervals up to and including 48 months.

2.4.1 SNUBBERS (continued)

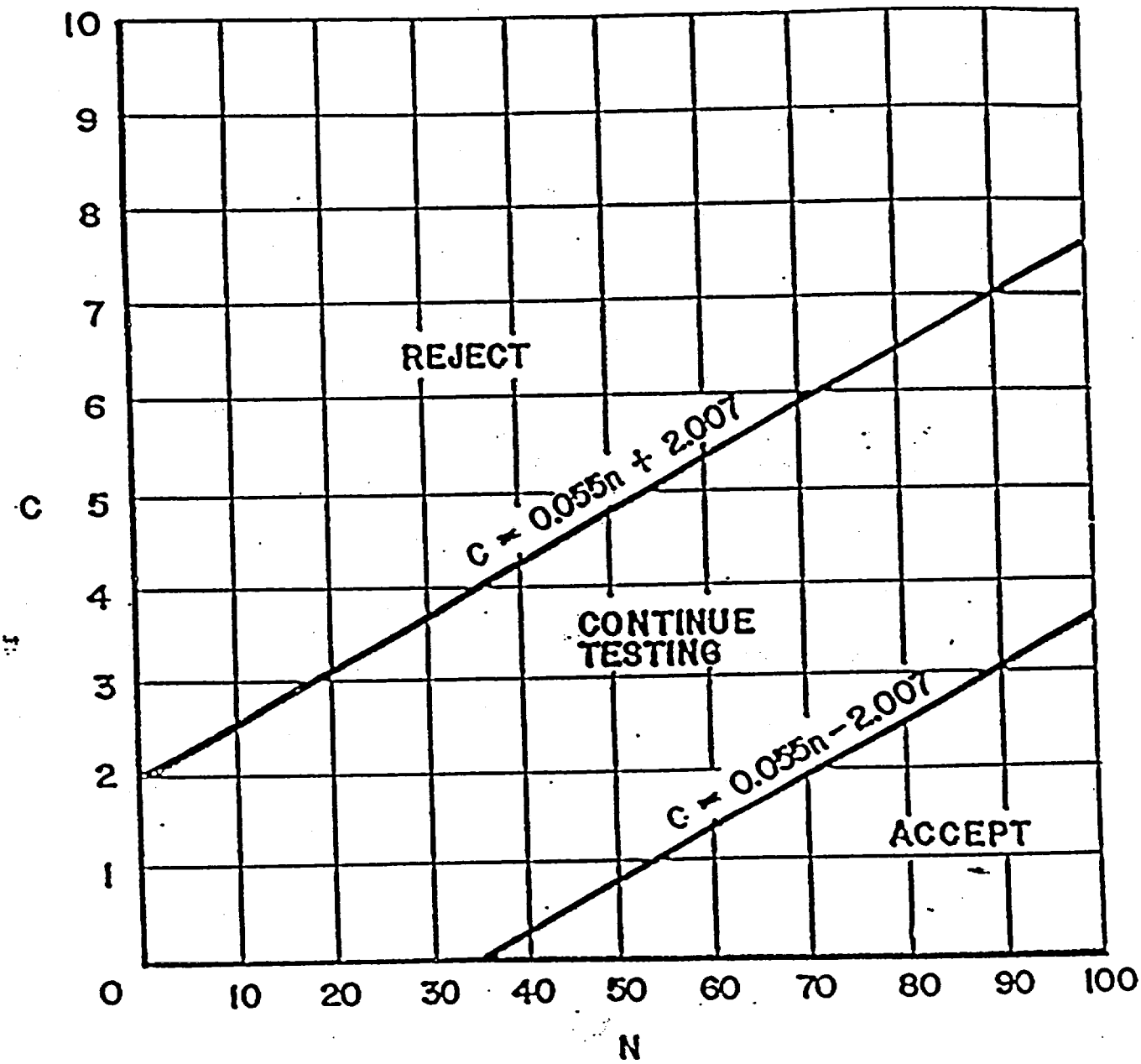

Figure 4.4.1-1 Sample Plan for Snubber Functional Test

2.4.1 SNUBBERS (continued)

BASES

5.4.1 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 are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip, and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location, size and system affected shall be available at the plant. The accessibility of each snubber shall be determined and reviewed by the Facility Review Group and approved by the Manager, Clinton Power Station. The determination shall be based upon the accessibility of the snubber during plant operations (e.g., radiation level, temperature, atmosphere, location, etc.). The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

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 shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

A representative sample of the installed snubbers will be functionally tested during plant shutdowns at least once per refueling interval. Observed failures of these sample snubbers will require functional testing of additional units. To provide further assurance of snubber reliability, snubbers are visually inspected at the frequencies recommended in NRC Generic Letter 90-09.

Hydraulic snubbers and mechanical snubbers may each be treated as a different entity for the above surveillance programs. The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records, i.e., newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc. The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance

2.4.1 SNUBBERS (continued)

evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.