ATTACHMENT 1

LIMERICK GENERATING STATION
UNITS 1 and 2

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

TECHNICAL SPECIFICATIONS CHANGE REQUEST

No. 91-04-0

"Revision of Snubber Functional Testing
Surveillance Requirements"

Supporting Information for Cha. es - 7 pages

Philadelphia Electric Company (PECo), Licensee under Facility Operating License Nos. NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2 respectively, requests that the Technical Specifications (TS) contained in Appendix A of the Operating License Nos. NPF-39 and NPF-85 be amended as proposed herein to incorporate the most recent recommendations contained in the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) standard for snubber testing, ASME/ANSI OM-1990 Addenda to ASME/ANSI OM-1987, Part 4, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)" (i.e., ASME OM4). Specifically, we are requesting that the TS Surveillance Requirements (SRs) for snubber functional testing be modified to 1) revise the 10% functional testing sampling plan (SR 4.7.4.e.1), 2) delete the 55 plan (SR 4.7.4.e.3), 3) incorporate the concept of "Failure Mode Grouping," and 4) remove the "reject" line from the 37 plan (SR 4.7.4.e.2). In addition, we are requesting that the snubber functional testing interval be changed from 18 months to 24 months (± 25%) to accommodate a 24 month refueling cycle. These proposed changes are the result of utility industry efforts to make snubber TS more realistic and easier to implement, and have been previously approved by the NRC by letter dated July 13, 1990, for Nine Mile Point Nuclear Station, Unit 2. The proposed changes to the LGS, Units 1 and 2, TS are indicated by vertical bars in the margin of the affected TS pages. The proposed TS change pages are contained in Attachment 2.

This Change Request for LGS, Units 1 and 2, provides a discussion and description of the proposed TS changes, a safety assessment of the proposed TS changes, information supporting a finding of No Significant Hazards Consideration, and information supporting an Environmental Assessment.

We request, that if approved, the Amendments to the LGS, Units 1 and 2, TS be effective upon issuance.

In addition, LGS Unit 1 is scheduled to begin the fourth refueling outage on March 21, 1992, during which snubber functional testing will be conducted. Currently, we have selected to perform snubber testing in accordance with the present TS "55 plan." However, if these proposed TS changes are approved and we are still peforming snubber functional testing, we will then implement the "37 plan."

Discussion and Description of the Proposed Changes

Snubbers are required 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 that initiates dynamic loads.

The proposed changes are result of utility industry efforts to make snubber TS more realistic and easier to implement. These efforts were performed by the ASME Working Group and has the support of the Snubber Utility Group. A portion of this effort has resulted in previous changes to the visual inspection portion of the snubber testing TS. Those changes were made in accordance with NRC Generic Letter 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The proposed changes herein involve revising the TS SRs for snubber functional testing in accordance with the recommendations specified in ASME Standard OM4, which is currently endorsed by the NRC.

We propose revising the LGS, Units 1 and 2, TS SRs and pertinent Bases as described below.

- Revise the 10% functional testing sample plan to require subsequent sample lot sizes to be at least 5% of the total population of a snubber type for each snubber test failure instead of 10% (SR 4.7.4.e.1).

- Remove the "reject" line from the 37 plan (SR 4.7.4.e.2).

- Delete the 55 plan (SR 4.7.4.e.3).

- In addition, we propose to change the snubber functional testing interval from 18 months to 24 months (± 25%) to accommodate a 24 month refueling cycle (SR 4.7.4.e).

- Incorporate the concept of "Failure Mode Grouping (FMG)" (i.e., focusing on the specific failure mechanism) when selecting additional snubbers to meet functional testing requirements (SR 4.7.4.e.3).

The 10% sample plan is used for smaller sample populations (i.e., less than about 400 snubbers) and will be primarily used for FMG rather than testing of the general population. The difference in the quantity of snubbers in subsequent sample groups between the 37 plan and the 10% plan becomes greater with smaller general sample populations. Note that for a group of 370 snubbers, both plans require the same number of tests.

The 37 plan (i.e., SR 4.7.4.e.2) uses TS Figure 4.7.4-1 to determine the need to continue testing. The "accept" line of this figure is based on the equation $C = 0.055N-2.007$ where 'N' is the number of snubbers of a type that is tested, and 'C' is the total number of snubbers of a type not meeting the TS acceptance requirements. This equation was developed using "Wald's Sequential Probability Ratio Plan," as described in "Quality Control and Industrial Statistics," by Acheson J. Duncan. The equation used in ASME OM4 has the same basis except it has been rearranged for clarity. The revised 10% plan exactly matches the 37 plan at a population of 370 snubbers which gives the 10% plan statistical significance in its revised form. The original form of the 10% plan was not based on statistics so adaptation of the revised form will allow this plan to be consistent with current industry practices.

Removal of the "reject" line from the 37 plan is justified for the following reason. The FMG eliminates the need to test all snubbers of a certain type and allows normal testing to continue with added focus on the specific mechanisms causing failures. Also, removal of the "reject" line does not preclude the possibility that all snubbers of a given type will be tested as an FMG, if required by the test results.

Deletion of the 55 plan is acceptable because other acceptable plans will still remain in the TS. Use of the 55 plan results in more snubbers being tested than if the 37 plan was used. This additional testing would result in additional outage times, maintenance costs, and unnecessary worker radiation exposure.

FMG is a concept that has always been a part of the LGS Units 1 and 2 TS; however, it was never specifically identified or discussed separately. Specifically, the visual inspection surveillance test allows inoperable snubbers to be classified as operable if the cause of the rejection is identified for that snubber and those requirements allow snubbers to be grouped and tested by type which increases the probability that failure mechanisms related to specific types of snubbers will be discovered and corrected. FMG is the next logical step which permits not only the correction of deficiencies related to specific types, but also other deficiencies related to location, environment, service, etc. regardless of the type of snubber.

Extension of the snubber functional testing interval to 24 months is justified for the following reason. This change is necessary to support the change to a 24 month refueling cycle for LGS, Units 1 and 2. Such changes were discussed in NRC Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle." If this change is not approved, then snubber functional testing would be required to be performed at a mid-cycle (i.e., 12 month $\pm$ 25%) interval which results in more testing than is currently required. As previously discussed, the more snubber activity (i.e., testing, construction, etc.), the greater the chance snubbers will be damaged. Also, past functional test results have not indicated any failure mechanism that would be more severe given an additional service interval between functional test programs of 6 months + 25%.

Safety Assessment

Snubbers are installed on piping systems and components to mitigate the effects of earthquakes and other dynamic transients, but are not used to mitigate the direct effects of a Loss of Coolant Accident (LOCA) or any pipe break accident. The following events (accidents) may be considered as producing loads that could affect snubbers.

- Seismic Events
  - Operating Basis Earthquake
  - Safe Shutdown Earthquake
- Safety-Relief Valve Lift
- Main Turbine Trip (i.e., Main Turbine Stop Valve Closure)
- Loss of Coolant Induced Loads
  - Pool Swell
  - Chugging
  - Condensation Oscillation
  - Drag Loads
  - Annulus Pressurization

These proposed TS changes for LGS, Units 1 and 2, TS involve revising the snubber TS SRs in accordance with the recommendations specified in ASME Standard OM4, which has been endorsed by the NRC. In addition, we are requesting that the snubber functional testing interval be changed from 18 months to 24 months (± 25%) to accommodate a 24 month refuel cycle.

The proposed TS changes will reduce the amount of additional snubber testing required, and therefore, reduce man-rem exposure and safety concerns associated with unnecessary snubber functional testing.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed TS changes to the LGS, Units 1 and 2 TS, which involve revising the snubber functional testing SRs, do not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three (3) standards set forth in 10CFR50.92 is provided below.

1) The proposed TS changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The probability of occurrence of an accident previously evaluated is not increased by the proposed TS changes because snubber operability, snubber failure rate, snubber testing format or the interval between snubber functional tests are not postulated as a cause for the occurrence of any accident, transient, or other event that has been previously evaluated. All snubbers will continue to function as previously assumed and the probability of occurrence of an accident remains unchanged.

The consequences of an accident previously evaluated is not increased by the proposed TS changes to the snubber functional testing SRs. Physical changes are not being made to the plant. The snubbers role in mitigating the consequences of an accident are to permit the slow movement of piping and components during heatup and cooldown, and provide restraint during seismic or other dynamic events. The proposed TS changes will not affect the snubbers ability to continue to perform this role for the following reasons.

a. Revising the 10% snubber functional testing sample plan to require subsequent lot sizes to be at least 5% of the total population of a snubber type for each snubber test failure, instead of 10%, is in accordance with the ASME OM4 Code. Normandatory Appendix D to ASME OM4 further states that the two sampling plans that are permitted (i.e., 10% plan and 37 plan) provide the required protection. The ability of the 10% plan to assure a sound snubber population is not comprised by using smaller subsequent sample lot sizes because the 10% plan compares well to the statically based and accepted 37 plan. When the revised 10% plan for a total population of 370 snubbers is plotted with the 37 plan, it

can be shown that both plans require the same number of tests and have the same size "accept" region. For sample populations greater than 370 snubbers, the revised 10% plan has a smaller "accept" region than the 37 plan, and therefore, is more conservative. For sample populations less than 370 snubbers, the 10% plan has a larger "accept" region than the 37 plan, but is still acceptable based on the fact that it is the recommended plan for smaller populations.

Since snubber operability is confirmed through testing, components that utilize snubbers in their design will continue to function as previously assumed. Therefore, the consequences of accidents will remain as previously evaluated, and the onsite or offsite radiological effects will not increase above those previously evaluated.

b. Removal of the "reject" line from the 37 plan, which results in an expanded "continue testing" region, will not reduce the effectiveness of the plan to detect failed or degraded snubbers. Snubber testing must still continue until the test results fall within the "accept" region or until all snubbers are tested, thus providing the same statistical confidence in the completed test.

Since snubber operability will be confirmed as before, components that utilize snubbers in their design will continue to function as previously assumed. Therefore, the consequences of accidents will remain as previously evaluated and the onsite or offsite radiological effects will not increase above those previously evaluated.

c. Deletion of the 55 plan from the TS will not reduce the ability of the snubber functional testing program to confirm the operability of the snubber population because two other approved plans will remain in the TS. The current TS requirements permit selection of any of these plans for snubber testing. Since the 37 plan is acceptable and should result in fewer snubbers being tested, the 55 plan is no longer needed. This change will therefore not increase the consequences of an accident previously evaluated.

d. Implementation of the concept of FMG when selecting additional snubbers to meet functional testing requirements will not reduce the ability of the snubber functional testing program to confirm the operability of the snubber population. The failure mode group will count as one (1) failure for additional testing in the general population according to the previously selected sample plan. FMG increases the focus on problem areas by directing testing towards specific failure mechanisms, while maintaining testing of the sample population. This will increase the ability of the program to detect and correct degraded snubbers. The use of FMG will not increase the consequences of an accident for the same reasons as stated in item 'b' above, and is consistent with the referenced ASME OM4 Code.

The proposed changes to the TS do not change plant design, hardware or system operations. Any changes to plant procedures as a result of the proposed changes will only affect the format of snubber functional testing and not plant operations or maintenance.

e. Changing the inspection cycle to 24 months (± 25%) will not reduce the ability of the functional testing program to confirm the operability of the snubber population. The original interval of 18 months (± 25%) was selected to accommodate the need to test snubbers that were inaccessible during normal operation. Since snubbers do not require preventive maintenance, the additional time added by a 24 month cycle has no consequences on snubber operability. Snubber functional testing has shown no failure mechanism which would be aggravated by an extension of the test interval to 24 months (± 25%). The requirement to monitor service life remains a part of the TS, and operational conditions which contribute to snubber degradation will still be monitored and corrected. Additionally, some snubber damage may result from maintenance and other work activities during outages. Fewer interruptions that could cause snubber degradations will result in a more reliable snubber population. This change will not increase the consequences of an accident for the same reasons as stated in item 'b' above.

As discussed above, the proposed TS changes will not effect the operability of the snubber population. Therefore, equipment important to safety that use snubbers will continue to meet all of the applicable design requirements. The proposed changes only affect the format used during the snubber functional testing and not the actual test itself. Also, these changes do not permit any physical modifications to snubbers or other equipment. Accordingly, the consequences of a malfunction of equipment important to safety is not affected.

2) <u>The proposed TS changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.</u>

As previously stated above, the proposed TS changes do not involve operational procedures or physical changes to the plant. The snubbers will continue to meet their design basis of protecting piping and equipment during dynamic events. The proposed TS changes will not affect the operation of snubbers; therefore, equipment that incorporate the use of snubbers in its design will continue to function as previously evaluated. These proposed changes, as discussed above will maintain the previous level of assurance of snubber operability because the basic requirements for snubber functional testing are unchanged. Therefore, the proposed TS changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3) The proposed TS changes do not involve a significant reduction in a margin of safety.

The bases for the TS require that all snubbers whose failure could have an adverse effect on any safety-related system, be operable. This ensures 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. The bases also discuss classification and grouping of the general snubber population, snubber listing requirements, visual inspection frequency, and visual acceptance criteria. The proposed TS changes maintain the same confidence level as that currently provided by the TS for determining snubber operability. Accordingly, the existing margin of safety will be maintained. Therefore, the proposed TS changes do not involve a reduction in a margin of safety.

Information Supporting an Environmental Assessment

An environmental assessment is not required for the changes proposed by this Change Request because the requested changes to the LGS, Units 1 and 2, TS conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22(c)(9). The requested changes will have no impact on the environment. The proposed changes do not involve a significant hazards consideration as discussed in the preceding section. The proposed changes do not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. In addition, the proposed changes do not involve an increase in individual or cumulative occupational radiation exposure.

Conclusion

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes to the LGS, Units 1 and 2 TS, and have concluded that it does not involve an unreviewed safety question, or a significant hazards consideration, and will not endanger the health and safety of the public.

ATTACHMENT 2

LIMERICK GENERATING STATION
UNITS 1 AND 2

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

PROPOSED TECHNICAL SPECIFICATIONS CHANGE

No. 91-04-0

List of Attached Page Changes

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3/4 7-16	3/4 7-16
B 3/4 7-3	B 3/4 7-3

SURVEILLANCE REQUIREMENTS (Continued)

e. Functional Tests

At least once per 24 months a representative sample of each type of snubber shall be tested using the following sample plans. The sample plan(s) shall be selected for each type 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(s) selected for each type prior to the test period or the sample plan(s) used in the prior test period shall be implemented:

1) At least 10% of the total population of a snubber type shall be functionally tested. For each snubber of that type that does not meet the functional test acceptance criteria of Specification 4.7.4f., an additional sample of at least 1/2 the size of the initial sample shall be tested until the total number tested is equal to the initial sample multiplied by the factor, 1+C/2, where C is the total number of unacceptable snubbers or until all the snubbers of that type have been tested; or

2) A representative sample of 37 snubbers of a snubber type shall be functionally tested in accordance with Figure 4.7.4-1. "C" is the total number of snubbers of that type found not meeting the acceptance requirements of Specification 4.7.4f. The cumulative number of snubbers of the type tested is denoted by "N". If at any time the point plotted falls in the "Accept" region, testing of 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 all the snubbers of that type have been tested.

SURVEILLANCE REQUIREMENTS (Continued)

The representative sample selected for the function 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 that type. Snubbers placed in the same locations as snubbers which failed in the previous functional test period shall be retested at the time of the next functional test period but shall not be included in the sample plan, and failure of this functional test shall not be the sole cause for increasing the sample size under the sample plan. Testing equipment failure during functional testing may invalidate the day's testing and allow that day's testing to resume anew at a later time provided all snubbers tested with the failed equipment during the day of equipment failure are retested.

If during the functional testing, additional testing is required due to failure of snubbers, the unacceptable snubbers may be catergorized into failure mode group(s). A failure mode group shall include all unacceptable snubbers that have a given failure mode and all other snubbers subject to the same failure mode. Once a failure mode group has been established, it can be separated for continued testing apart from the general population of snubbers. However, all unacceptable snubbers in the failure mode group shall be counted as one unacceptable snubber for additional testing in the general population. Testing in the failure mode group shall be based on the number of unacceptable snubbers and shall continue in accordance with the sample plan selected for the type or until all snubbers in the failure mode group have been tested. Any additional unacceptable snubbers found in the failure mode group shall be counted for continued testing only for that test failure mode group. In the event that a snubber(s) becomes included in more than one test failure mode group, it shall be counted in each failure mode group and shall be subject to the corrective action of each test failure mode group.

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 (hydraulic snubbers only);

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.

SURVEILLANCE REQUIREMENTS (Continued)

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.

h. Functional Testing of Repaired and Replaced Snubbers

Snubbers which fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced. Replacement snubbers and snubbers which have repairs which 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 Replacement 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 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 Specification 6.10.3.

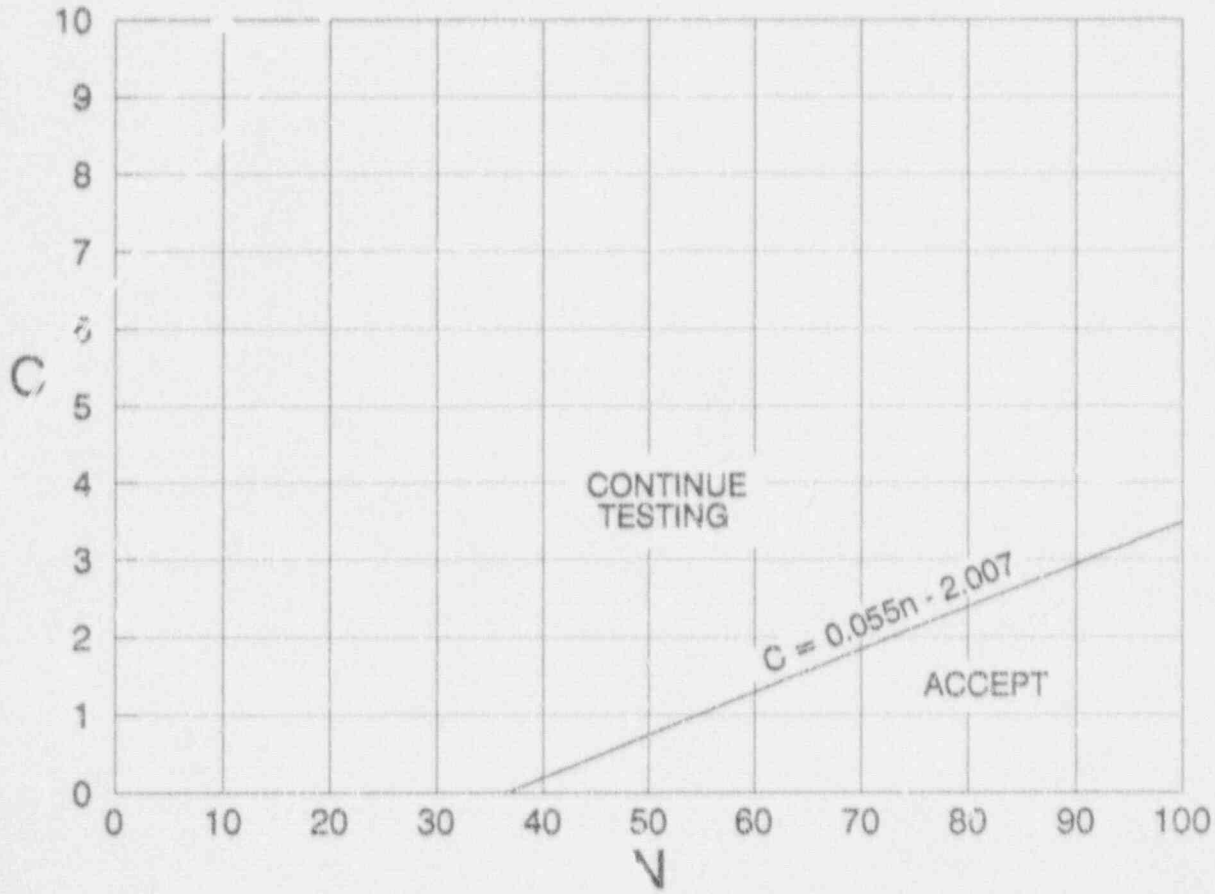

Figure 4.7.4-1

SAMPLE PLAN 2) FOR SNUBBER FUNCTIONAL TEST

SNUBBERS (Continued)

To provide assurance of snubber functional reliability one of two functional testing methods is used with the stated acceptance criteria:

1. Functionally test 10% sample of a type of snubber with an additional 1/2 sample tested for each functional testing failure, or

2. Functionally test 37 snubbers and determine sample acceptance using Figure 4.7.4-1.

Functional Testing sample plans are based on ASME/ANSI OMc-1990 Addenda to ASME/ANSI OM-1987, Part 4.

Figure 4.7.4-1 was developed using "Wald's Sequential Probability Ratio Plan" as described in "Quality Control and Industrial Statistics" by Acheson J. Duncan.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

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 evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life.

3/4.7.5 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. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism, i.e., sealed sources within radiation monitoring devices, are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

SURVEILLANCE REQUIREMENTS (Continued)

e. Functional Tests

At least once per 24 months a representative sample of each type of snubber shall be tested using the following sample plans. The sample plan(s) shall be selected for each type 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(s) selected for each type prior to the test period or the sample plan(s) used in the prior test period shall be implemented:

1) At least 10% of the total population of a snubber type shall be functionally tested. For each snubber of that type that does not meet the functional test acceptance criteria of Specification 4.7.4f., an additional sample of at least 1/2 the size of the initial sample shall be tested until the total number tested is equal to the initial sample multiplied by the factor, 1+C/2, where C is the total number of unacceptable snubbers or until all the snubbers of that type have been tested; or

2) A representative sample of 37 snubbers of a snubber type shall be functionally tested in accordance with Figure 4.7.4-1. "C" is the total number of snubbers of that type found not meeting the acceptance requirements of Specification 4.7.4f. The cumulative number of snubbers of the type tested is denoted by "N". If at any time the point plotted falls in the "Accept" region, testing of 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 all the snubbers of that type have been tested.

SURVEILLANCE REQUIREMENTS (Continued)

The representative sample selected for the function 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 that type. Snubbers placed in the same locations as snubbers which failed in the previous functional test period shall be retested at the time of the next functional test period but shall not be included in the sample plan, and failure of this functional test shall not be the sole cause for increasing the sample size under the sample plan. Testing equipment failure during functional testing may invalidate the day's testing and allow that day's testing to resume anew at a later time provided all snubbers tested with the failed equipment during the day of equipment failure are retested.

If during the functional testing, additional testing is required due to failure of snubbers, the unacceptable snubbers may be catergorized into failure mode group(s). A failure mode group shall include all unacceptable snubbers that have a given failure mode and all other snubbers subject to the same failure mode. Once a failure mode group has been established, it can be separated for continued testing apart from the general population of snubbers. However, all unacceptable snubbers in the failure mode group shall be counted as one unacceptable snubber for additional testing in the general population. Testing in the failure mode group shall be based on the number of unacceptable snubbers and shall continue in accordance with the sample plan selected for the type or until all snubbers in the failure mode group have been tested. Any additional unacceptable snubbers found in the failure mode group shall be counted for continued testing only for that test failure mode group. In the event that a snubber(s) becomes included in more than one test failure mode group, it shall be counted in each failure mode group and shall be subject to the corrective action of each test failure mode group.

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 (hydraulic snubbers only);

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.

SURVEILLANCE REQUIREMENTS (Continued)

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.

h. Functional Testing of Repaired and Replaced Snubbers

Snubbers which fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced. Replacement snubbers and snubbers which have repairs which 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 Replacement 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 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 Specification 6.10.3.

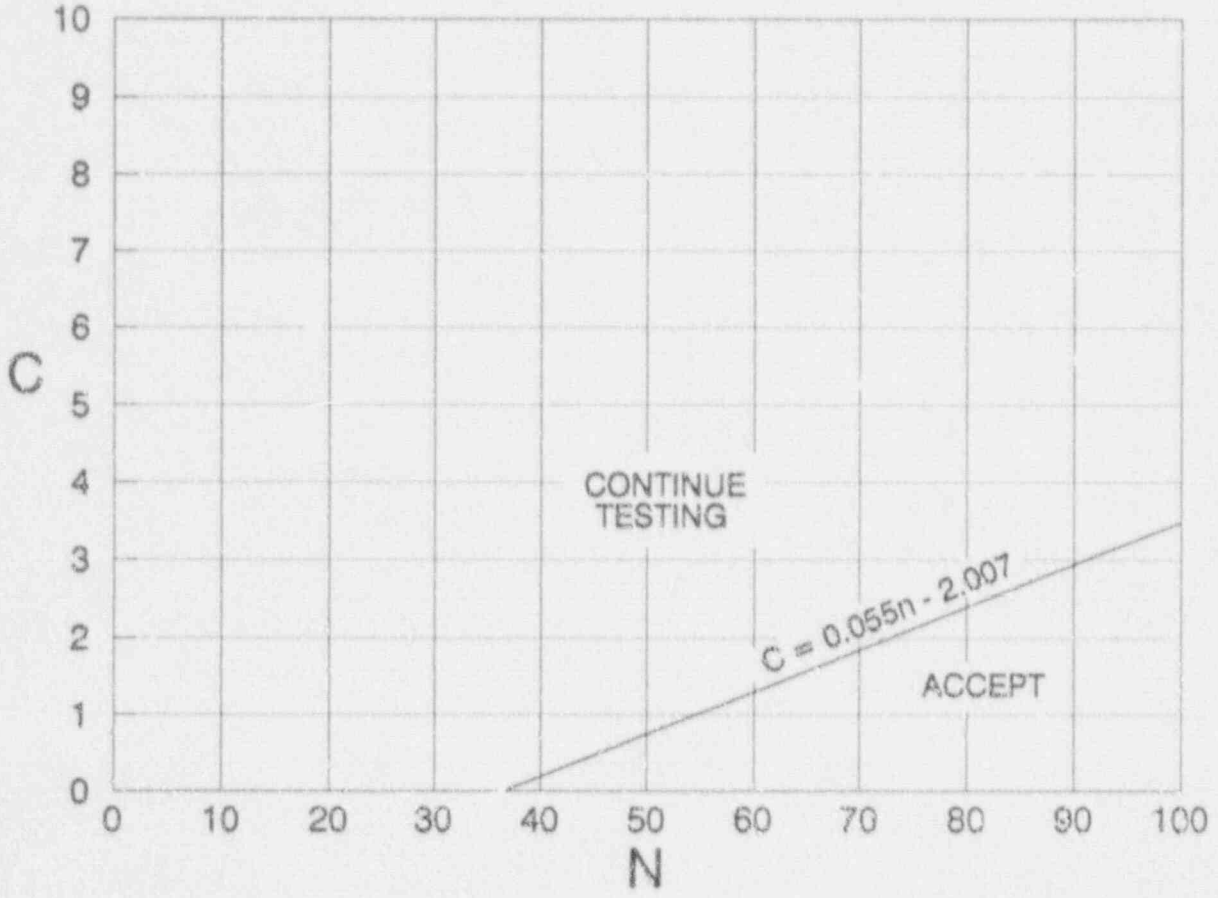

Figure 4.7.4-1

SAMPLE PLAN 2) FOR SNUBBER FUNCTIONAL TEST

SNUBBERS (Continued)

To provide assurance of snubber functional reliability one of two functional testing methods is used with the stated acceptance criteria:

1. Functionally test 10% sample of a type of snubber with an additional 1/2 sample tested for each functional testing failure, or

2. Functionally test 37 snubbers and determine sample acceptance using Figure 4.7.4-1.

Functional Testing sample plans are based on ASME/ANSI OMc-1990 Addenda to ASME/ANSI OM-1987, Part 4.

Figure 4.7.4-1 was developed using "Wald's Sequential Probability Ratio Plan" as described in "Quality Control and Industrial Statistics" by Acheson J. Duncan.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

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 evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life.

3/4.7.5 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. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism, i.e., sealed sources within radiation monitoring devices, are considered to be stored and need not be tested unless they are removed from the shielded mechanism.