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

May 11, 1992

Docket Nos. 50-352
and 50-353

Mr. George J. Beck
Manager-Licensing, MC 52A-5
Philadelphia Electric Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, Pennsylvania 19087-0195

Dear Mr. Beck:

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2, (TSCR 91-04-0), (TAC NOS. M82883 AND M82884)

The Commission has issued the enclosed Amendment No. 54 to Facility Operating License No. NPF-39 and Amendment No. 19 to Facility Operating License No. NPF-85 for the Limerick Generating Station, Units 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in partial response to your application dated March 3, 1992.

These amendments revise the Surveillance Requirements (SRs) and pertinent Bases of the TSs 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)." Specifically the changes 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, (FMG)" and 4) remove the "reject" line from the 37 plan (SR 4.7.4.e.2).

Your application had also requested that SR 4.7.4.e be changed to extend the snubber functional testing interval from 18 to 24 months (± 25%) to accommodate a 24 month refueling cycle. As discussed with your staff and in the enclosed safety evaluation, you need to provide additional data to support this change. Rather than delay approval of the other changes, by agreement with your staff, the TSs being issued by these amendments retain the 18 months in the present TSs. The requirements associated with extending the outage times will be resolved separately.

CP-1

NRC FILE CENTER COPY

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PDR ADOCK 05000352
P PDR

DF01

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

Sincerely,

Original signed by
Richard J. Clark

Richard J. Clark, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 54 to
License No. NPF-39
Amendment No. 19 to
License No. NPF-85
2. Safety Evaluation

cc w/enclosures:
See next page

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Docket File	MO'Brien(2)	CGrimes, 11E21	BRuland, RGN-I
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PDI-2 Reading	OGC	ACRS(10)	
SVarga	DHagan, 3206	GPA/PA	
JCalvo	GHill(4), P1-22	OC/LFMB	
CMiller	Wanda Jones, 7103	EWenzinger, RGN-I	

OFC	:PDI-2/LA	:PDI-2/PM	:C/EMEB	:OGC	:PDI-2/PD	:
NAME	:MO'Brien	:RClark:tlc	:JNorberg	:MYoBen	:CMiller	:
DATE	:4/30/92	:04/28/92	:4/29/92	:5/5/92	:5/11/92	:

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Subject to comment on Federal Register Notice (paperclipped pages)

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

Sincerely,

Richard J. Clark

Richard J. Clark, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 54 to
   License No. NPF-39
   Amendment No. 19 to
   License No. NPF-85
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. George J. Beck
Philadelphia Electric Company

Limerick Generating Station,
Units 1 & 2

cc:

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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 54
License No. NPF-39

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Philadelphia Electric Company (the licensee) dated March 3, 1992, 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 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-39 is hereby amended to read as follows:

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P PDR

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 54 , are hereby incorporated into this license. Philadelphia Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the
Technical Specifications

Date of Issuance: May 11, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 54

FACILITY OPERATING LICENSE NO. NPF-39

DOCKET NO. 50-352

Replace 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 overleaf page is provided to maintain document completeness.*

Remove	Insert
3/4 7-13	3/4 7-13
3/4 7-14	3/4 7-14
3/4 7-15	3/4 7-15
3/4 7-16	3/4 7-16
B 3/4 7-3	B 3/4 7-3
B 3/4 7-4	B 3/4 7-4*

e. Functional Tests

At least once per 18 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.

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.

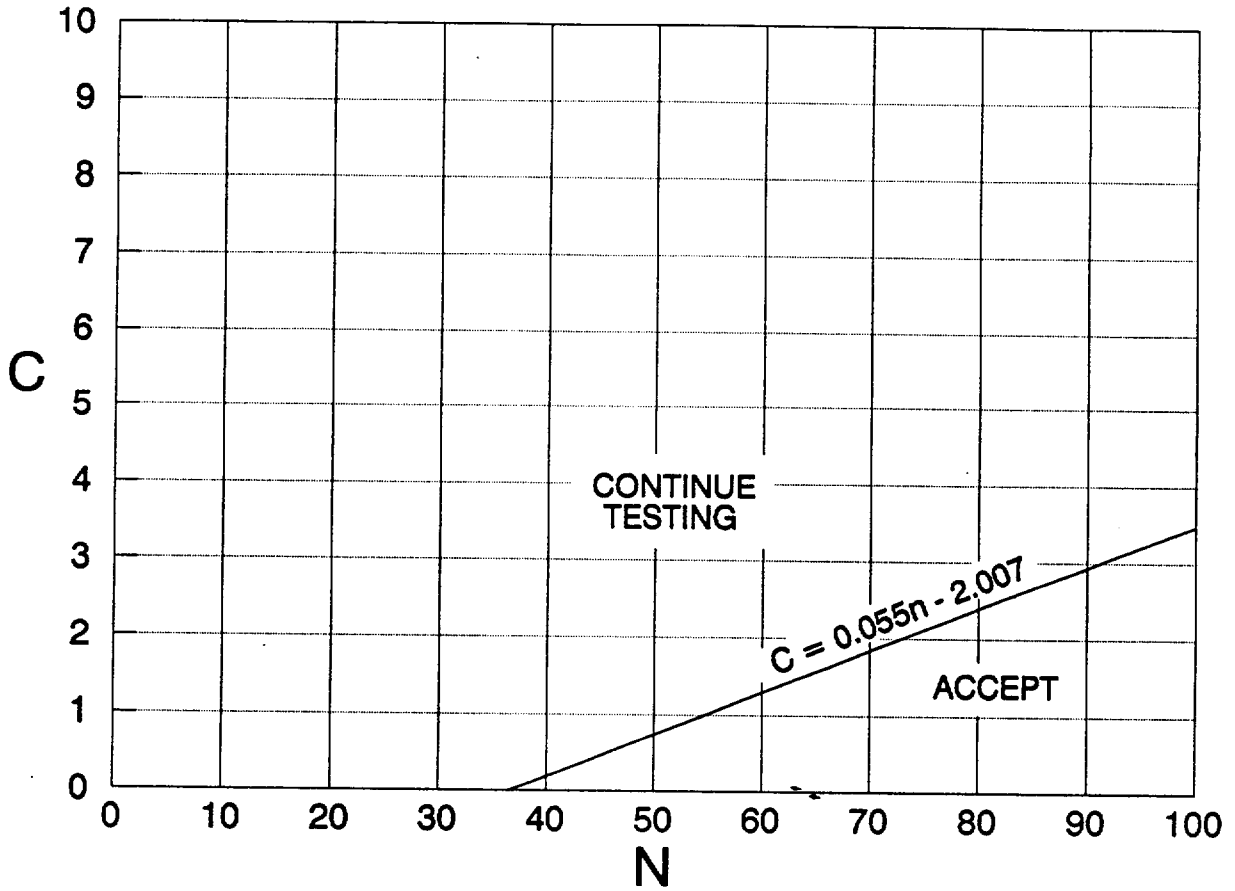

Figure 4.7.4-1

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.

3/4 7.6 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 sprinkler systems, CO_2 systems, Halon systems, 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 that 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. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire suppression systems are met. An allowance is made for ensuring a sufficient volume of Halon in the Halon storage tanks by verifying the weight and pressure of the tanks.

The source of water for the fire protection system is two cooling tower basins that have a capacity of 7,200,000 gallons each, for a total capacity of 14,400,000 gallons. For a system pumping capacity of 5000 gpm, this allows continuous operation of both fire pumps for 48 hours. If one cooling tower basin or supply line is not available, the remaining water source provides both fire pumps with a 24-hour supply of water. Water for the fire pumps is taken from either Unit 1 or Unit 2 cooling tower water basins through connections to the circulating water lines. One cooling tower will be out of service for up to 30 days each refueling outage on each unit, to remove the accumulated mud deposits.

The minimum contained volume of 311,000 gallons is based on the CMEB BTP 9.5-1 requirement of 500 gpm for manual hose streams plus the largest design demand of any sprinkler or deluge system for a period of 2 hours. The largest plant sprinkler system flow is 2090 gpm for the turbine condenser compartment.

The minimum fuel supply of 330 gallons for the diesel driven fire pump is based on providing fuel for 24 hours of full load operation.

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.

3/4.7.7 FIRE RATED ASSEMBLIES

The OPERABILITY of the fire barriers and barrier penetrations ensure that fire damage will be limited. These design features minimize the possibility of a single fire involving more than one fire area prior to detection and extinguishment. The fire barriers, fire barrier penetrations for conduits, cable trays and piping, fire windows, fire dampers, and fire doors are periodically inspected to verify their OPERABILITY.

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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-353

LIMERICK GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 19
License No. NPF-85

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Philadelphia Electric Company (the licensee) dated March 3, 1992, 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 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-85 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 19 , are hereby incorporated into this license. Philadelphia Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the
Technical Specifications

Date of Issuance: May 11, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 19

FACILITY OPERATING LICENSE NO. NPF-85

DOCKET NO. 50-353

Replace 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	Insert
3/4 7-13	3/4 7-13
3/4 7-14	3/4 7-14
3/4 7-15	3/4 7-15
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 18 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.

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 continue 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.

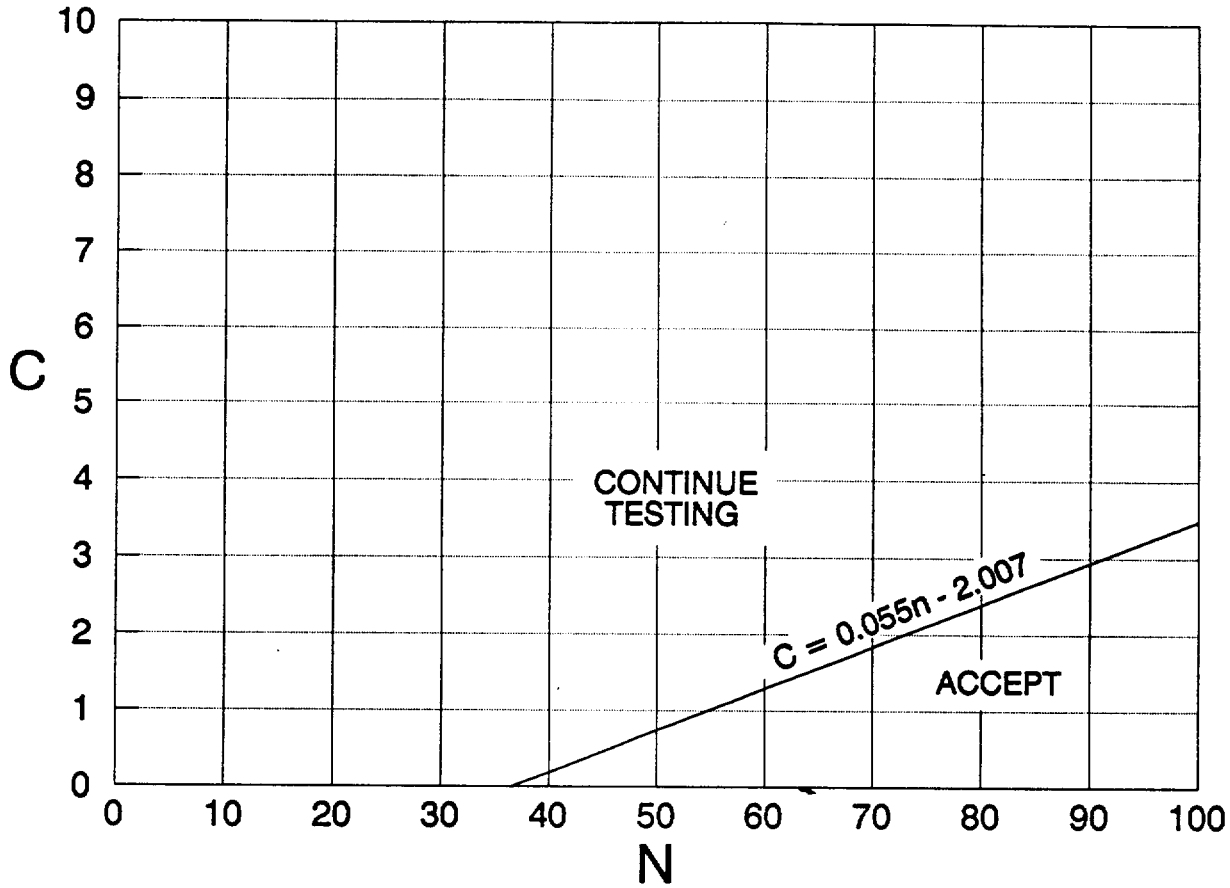

Figure 4.7.4-1

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.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 54 AND 19 TO FACILITY OPERATING

LICENSE NOS. NPF-39 AND NPF-85

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION, UNITS 1 AND 2

DOCKET NOS. 50-352 AND 50-353

1.0 INTRODUCTION

By letter dated March 3, 1992, the Philadelphia Electric Company (PECo or the licensee) submitted a request for changes to the Limerick Generating Station, Units 1 and 2, Technical Specifications (TS). The requested changes would revise the Surveillance Requirements (SRs) and pertinent Bases of the TSs 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)." Specifically, the changes would 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, (FMG)" 4) remove the "reject" line from the 37 plan (SR 4.7.4.e.2) and 5) change the snubber functional testing interval from 18 to 24 months (± %25) to accommodate a 24-month refueling cycle.

2.0 DISCUSSION

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 a 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.

On December 11, 1990, the Commission issued Generic Letter (GL) 90-09, "Alternate Requirements for Snubber Visual Inspection Intervals and Corrective Actions". The GL offered an alternate schedule for visual inspections as a line-item TS improvement. PECo elected to implement the new visual inspection program, which was approved for Limerick, Units 1 and 2, by Amendment Nos. 51 and 15 to Facility Operating License Nos. NPF-39 and NPF-85, respectively, on June 25, 1991. A visual inspection is the observation of the condition of

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installed snubbers to identify those that are damaged, degraded, or inoperable as caused by physical means, leakage, corrosion, or environmental exposure. To verify that a snubber can operate within specific performance limits, the licensees perform functional testing that typically involves removing the snubber and testing it on a specially-designed test stand. Functional testing provides a 95 percent confidence level that 90 percent to 100 percent of the snubbers operate within the specified acceptance limits. The changes proposed in the subject application involve revisions to the current TS SRs for snubber functional testing in accordance with the recommendations in ASME Standard OM4.

The ASME standard on snubber testing, OM-1990, Part 4 contains two sample plans for inservice functional testing of snubbers. The two sample plans, when compared to the three sample plans currently contained in Section 4.7.5.e of the Limerick TSs and the current BWR Standard TSs, provide reduced testing and a corresponding reduction in man-rem exposure, while still providing adequate assurance of snubber reliability.

3.0 EVALUATION

The first of three Technical Specification sampling plans, the "10 percent plan", described in Specification 4.7.5.e(1) requires 10% of the snubbers to be tested periodically. It requires testing of an additional 10% of the snubbers for each snubber not meeting the acceptance criteria of Specification 4.7.4.f. The proposed change modifies this plan to require only a 5% additional testing for each snubber that fails functional testing as opposed to 10% additional testing presently required. Reducing the percentage of snubbers to be retested does not undermine the effectiveness of this surveillance. The initial test sample remains the same and is sufficient to provide an adequate sampling of the snubbers. This change will reduce the amount of additional testing required and thus reduce man-rem exposure and safety concerns associated with unnecessary functional testing. This change is consistent with the ASME OMc-1990, Part 4 document.

The second sampling plan, the "37 plan", described in Specification 4.7.4.e(2) requires that a representative sample of snubbers be tested periodically in accordance with Figure 4.7.4-1. Figure 4.7.4-1 provides the acceptance criteria method for the functional test results and denotes a "reject" region and a "continue testing" region. If at any time the plotted test results fall within this "reject" region, then all snubbers are to be functionally tested. The proposed change revises surveillance requirement 4.7.4.e(2) and Figure 4.7.4-1 to delete the "reject" region and substitute an expanded "continue testing" region.

With the deletion of the "reject" line, plotting of results by lot or individual basis becomes a moot point because snubbers must continue to be tested until the point falls into the "accept" region or until all snubbers have been tested. The proposed change also deletes references to the "reject" region in the text of Specification 4.7.4.e(2).

Figure 4.7.4-1 as it appears in the TSs was developed using "Wald's Sequential Probability Ratio Plan". Statistical studies using Wald's sequential sampling plan indicate that a major change in the reject line caused an insignificant change in the accept line or in other words acceptance is independent of rejection. These studies also demonstrate that while the probability of false acceptance of a bad snubber population under the proposed amendment still exists, it is negligible. As long as the "reject" line remains in the sample plan there is some possibility of rejecting a good snubber population and consequently requiring an unnecessary 100% functional testing of snubbers with attendant ALARA and safety concerns, manpower utilization and outage extension. The proposed TS change will alleviate these problems and still ensure continued or additional testing if snubber quality of failed snubbers is equal to or greater than 5%. These changes have been previously evaluated by the NRC through ANSI/ASME OMc-1990, Part 4 participation and by granting similar TS changes.

The third sampling plan, the "55 plan", presently described in Specification 4.7.4.e(3) also requires that a representative sample of snubbers be periodically tested. Deleting the "reject" line from the "37 plan" makes the "55 plan" unnecessary. Moreover the "55 plan" is not a Wald sequential plan and as such has been deleted from the ANSI/ASME OMc-1990, Part 4 document.

The proposed changes clarify the additional functional testing requirements necessary due to failure of snubbers. TS 4.7.4.e states that if during the functional testing, additional sampling is required due to failure of only one type of snubber, the functional test 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. The proposed changes allow categorization of unacceptable snubbers into failure mode groups (FMG). A test failure mode group shall include all unacceptable snubbers that have a given failure mode and all other snubbers subject to the same failure mode. It allows independent testing of failure mode groups based on the number of unacceptable snubbers and requires one additional test sample from the general population for each failure mode group to provide assurance that failure mode groups have been properly established. This change is consistent with the ASME OMc-1990, Part 4 document.

The proposed change also addresses the functional test failure analysis of locked up snubbers. TS 4.7.4.g currently states that if the cause of the locked up snubbers is due to manufacturer or design deficiency, all snubbers of the same type subject to the same defect shall be functionally tested. PECo proposes to delete the last (third) paragraph currently in Section 4.7.4.g (top of page 3/4 7-15) as being redundant to the other requirements.

To reflect the above changes, the licensee is also revising the bases (page B 3/4 7-3) to note that functional testing of snubbers is based on the ASME/ANSI OMc Standard.

In the application of March 3, 1992, the licensee also proposed to change the snubber functional testing interval in SR 4.7.4.e from 18 months to 24 months (± 25%) to accommodate a 24 month refueling cycle. As noted previously, the licensee had proposed to retain the present requirement in SR 4.7.4.e.(1) that 10% of the total population of each snubber type be initially tested. The 10% minimum sample every 1.5 years (18 months) would mean that all snubbers in the plant are likely to be functionally tested at least once every 15 years. If there are significant failures which requires expansion of the initial sample size, the entire population of some types of snubbers could be tested in less than 15 years. From the test data available, it appears that 15 years may be a reasonable expected service life for most snubbers, particularly those exposed to a harsh environment. If the test period is extended to 24 months while retaining the 10% initial sample size, a particular snubber could be in service for 20 years before being tested.

One way of maintaining the 15-year testing cycle when increasing the time between testing (i.e., lengthening the fuel cycle) is to increase the initial sample size proportionately. If the test period is being increased from 18 to 24 months, increasing the initial sample size by a third, from 10% to 13.3%, would maintain the 15 year cycle.

On April 2, 1991, the Commission issued Generic Letter (GL) 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle." The GL stated that licensees proposing to increase surveillance intervals because of longer fuel cycles should confirm that historical plant maintenance and surveillance data support the conclusion that there is a small effect on safety. As an alternative to increasing the initial sample test size, a licensee could provide snubber test data demonstrating that all types of snubbers can be expected to perform reliably for more than 15 years (e.g., 20 years for a 2-year fuel cycle).

We discussed with the licensee's staff the issues related to the proposed change to extend the surveillance interval from 18 to 24 months. Limerick, Unit 1 shutdown March 21, 1992 for the fourth refueling outage. During this outage, the maintenance personnel are functionally testing snubbers in accordance with the present TSs. The changes addressed in this safety evaluation would somewhat reduce the number of snubbers to be tested and correspondingly reduce man hours of testing and radiation exposure. Resolution of the issues regarding extension of the surveillance interval may require collection of historical data by the licensee. The NRC staff proposed and the licensee agreed that this issue be resolved separately so as to not further delay issuance of the other TS changes in the application.

Accordingly, the TSs being issued with these amendments retain the 18 months in the present TSs (first line of page 3/4 7-13). Since there is no change being made in the surveillance interval, there is no change in the staff's no significant hazards consideration determination.

We have concluded, based on staff review and on considerations discussed above that the proposed changes to the TSs are acceptable. These changes would result in reduced testing and a corresponding reduction in man-rem exposure while providing adequate assurance of snubber reliability. They are also consistent with the ASME/ANSI OMc-1990, Part 4 document.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released off-site, and that 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 (57 FR 9452). 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.

6.0 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.

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