



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 11, 2013

Mr. George Hamrick
Vice President
Shearon Harris Nuclear Power Plant
Progress Energy Carolinas, Inc.
Post Office Box 165, Mail Code: Zone 1
New Hill, NC 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - ISSUANCE OF AN AMENDMENT REGARDING TECHNICAL SPECIFICATIONS CHANGE FOR MISSED SURVEILLANCE REQUIREMENTS, TECHNICAL SPECIFICATION TASK FORCE NO. 358 "MISSED SURVEILLANCE REQUIREMENTS" (TAC NO. ME9826)

Dear Mr. Hamrick:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 141 to Renewed Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant Unit 1 (HNP). The amendment changes the HNP Technical Specifications (TSs) in response to your application dated October 22, 2012.

The amendment revises HNP TS surveillance requirements for addressing a missed surveillance, and is consistent with the NRC approved Revision 6 of Technical Specification Task Force (TSTF) Standard TSs Change Traveler TSTF-358, "Missed Surveillance Requirements."

A copy of the related safety evaluation is enclosed. A notice of issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

Araceli T. Billoch Colón

Araceli T. Billoch Colón, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:

1. Amendment No. 141 to NPF-63
2. Safety Evaluation

cc w/enclosures: Distribution via ListServ



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 141
Renewed License No. NPF-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company (the licensee), dated October 22, 2012, 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.

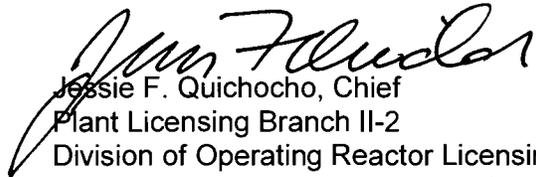
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-63 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 141 , are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION


Jessie F. Quichocho, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. NPF-63
and the Technical Specifications

Date of Issuance: April 11, 2013

ATTACHMENT TO LICENSE AMENDMENT NO. 141

RENEWED FACILITY OPERATING LICENSE NO. NPF-63

DOCKET NO. 50-400

Replace the following pages of the Renewed Facility Operating License and Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

Insert

License NPF-63
Page 4

License NPF-63
Page 4

TSs
3/4 0-2

TSs
3/4 0-2

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect, and is subject to the additional conditions specified or incorporated below.

(1) Maximum Power Level

Carolina Power & Light Company is authorized to operate the facility at reactor core power levels not in excess of 2948 megawatts thermal (100 percent rated core power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 141 are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Antitrust Conditions

Carolina Power & Light Company shall comply with the antitrust conditions delineated in Appendix C to this license.

(4) Initial Startup Test Program (Section 14)¹

Any changes to the Initial Test Program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(5) Steam Generator Tube Rupture (Section 15.6.3)

Prior to startup following the first refueling outage, Carolina Power & Light Company shall submit for NRC review and receive approval if a steam generator tube rupture analysis, including the assumed operator actions, which demonstrates that the consequences of the design basis steam generator tube rupture event for the Shearon Harris Nuclear Power Plant are less than the acceptance criteria specified in the Standard Review Plan, NUREG-0800, at 15.6.3 Subparts II(1) and (2) for calculated doses from radiological releases. In preparing their analysis Carolina Power & Light Company will not assume that operators will complete corrective actions within the first thirty minutes after a steam generator tube rupture.

¹ The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

APPLICABILITY

SURVEILLANCE REQUIREMENTS

- 4.0.1 Surveillance Requirements shall be met during the OPERATIONAL MODES or other conditions specified for individual Limiting Conditions for Operation, unless otherwise stated in an individual Surveillance Requirement. Failure to meet a Surveillance Requirement, whether such failure is experienced during the performance of the surveillance or between performances of the surveillance, shall be failure to meet the LCO. Failure to perform a surveillance within the specified surveillance interval shall be failure to meet the LCO except as provided in SR 4.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
- 4.0.2 Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25% of the specified surveillance interval.
- 4.0.3 If it is discovered that a surveillance was not performed within its specified surveillance interval, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified surveillance interval, whichever is greater. This delay period is permitted to allow performance of the surveillance. A risk evaluation shall be performed for any surveillance delayed greater than 24 hours and the risk impact shall be managed.
- If the surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable ACTION requirements must be met.
- When the surveillance is performed within the delay period and the surveillance criteria are not met, the LCO must immediately be declared not met, and the applicable ACTION requirements must be met.
- 4.0.4 Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation has been performed within the stated surveillance interval or as otherwise specified. This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements.
- 4.0.5 Deleted



UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO TECHNICAL SPECIFICATION CHANGE FOR MISSED SURVEILLANCE
REQUIREMENTS, TECHNICAL SPECIFICATION TASK FORCE NO. 358
"MISSED SURVEILLANCE REQUIREMENTS," AMENDMENT NO. 141 TO
RENEWED FACILITY OPERATING LICENSE NO. NPF-63
CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1
DOCKET NO. 50-400

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC, the Commission) dated October 22, 2012 (Agencywide Documents Access and Management System Accession No. ML12296A419), Carolina Power & Light Company (the licensee), doing business as Duke Energy, requested changes to the Technical Specifications (TSs) for the Shearon Harris Nuclear Power Plant, Unit 1 (HNP).

The amendment revises HNP TS Surveillance Requirements (SRs) for addressing missed surveillances and is consistent with the NRC approved Revision 6 of Industry/Technical Specification Task Force (TSTF) Standard Technical Specifications (STSs) Change Traveler TSTF-358, "Missed Surveillance Requirements." The application for TS changes using the consolidated line item improvement process (CLIIP) would modify TS requirements for missed surveillances in SR 4.0.3 and for consistency with the CLIIP model safety evaluation would change TS SR 4.0.1 to address how an SR is met. SR 4.0.3 would be modified to allow a delay period for a missed SR of 24 hours or up to the surveillance frequency, whichever is longer. The SR 4.0.3 Bases would be modified to assess and manage risk required by Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.65(a)(4), and to avoid the misperception that 10 CFR 50.65(a)(4) requires monitoring at times other than before maintenance activities.

In a letter dated November 17, 1999, the TSTF proposed several changes to the STSs (NUREGs 1430 - 1434) on behalf of the industry. One of the proposed changes, identified as TSTF-358, is a change to STS SR 3.0.3 regarding missed SRs. The proposed change modifies SR 3.0.3 to allow a delay period for a missed SR of 24 hours or up to the surveillance frequency, whichever is longer. This proposal is one of the industry's initiatives under the risk-informed TSs program. STS SR 3.0.3 is equivalent to HNP TS 4.0.3.

Enclosure

In response to NRC staff comments of February 14, 2000, the TSTF submitted Revision 5 to TSTF-358 for review on September 15, 2000 (Revisions 2 - 4 were only reviewed by the industry and were never submitted for NRC review). In response to public comments resulting from the request for public comments in *Federal Register* Notice (66 FR 32400) published June 14, 2001, the TSTF submitted Revision 6 to TSTF-358 for review on September 14, 2001, and it was approved by the NRC staff on October 1, 2001.

To ensure consistent implementation of TSTF-358, the licensee is revising HNP TSs 4.0.1 and 4.0.3 and their associated bases for consistency with the corresponding improved STS Sections 3.0.1 and 3.0.3, respectively. Minor deviations from the TS terminology used in TSTF-358 are required because HNP TSs are not derived from improved STSs.

2.0 BACKGROUND

The regulations contained in 10 CFR 50.36, "Technical Specifications," require that TSs include SRs. SRs are requirements relating to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation (LCO) will be met. TSs require surveillance tests to be performed periodically (e.g., weekly or monthly). The periodic test interval defined in the TSs is called the surveillance frequency or surveillance interval. The majority of surveillance tests included in the TSs is designed to ensure that standby safety systems will be operable when they are needed to mitigate an accident. By testing these components, failures that may have occurred since the previous test can be detected and corrected.

Included in the set of general requirements applied to all Specifications is "SR 3.0, Surveillance Requirement Applicability." Requirement SR 3.0.1 of this section requires in part, that failure to perform an SR within the specified frequency is failure to meet the LCO, except as provided in SR 3.0.3. SR 3.0.3 specifies, in pertinent part, that the requirement to declare an associated LCO not met may be delayed if a missed surveillance test is successfully completed within 24 hours or within the limit of the specified frequency, whichever is *less* [emphasis added], from the time it was discovered that the test was not performed. This SR 3.0.3 allowance to delay declaring an LCO not met when an SR is missed is based on NRC Generic Letter (GL) 87-09, "Sections 3.0 and 4.0 of the Standard Technical Specifications (STS) of the Applicability of Limiting Conditions for Operation and Surveillance Requirements." GL 87-09 addressed specific issues with the application of TSs. In regards to SR 3.0.3 the GL states:

It is overly conservative to assume that systems or components are inoperable when a surveillance requirement has not been performed. The opposite is in fact the case; the vast majority of surveillances demonstrate that systems or components are in fact operable. When a surveillance is missed, it is primarily a question of operability that has not been verified by the performance of the required surveillance. Because the allowable outage time limits of some Action Requirements do not provide an appropriate time for performing a missed surveillance before Shutdown Requirements apply, *the TSs should include a time limit that would allow a delay of the required actions to permit the performance of the missed surveillance.*

The time limit should be based on consideration of plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, and, of course, the safety significance of the delay in completing the surveillance. *After reviewing possible limits, the staff has concluded that, based on these considerations, 24 hours would be an acceptable time limit for completing a missed surveillance when the allowable outage times of the Action Requirements are less than this time limit or when shutdown Action Requirements apply.* [emphasis added]

The basis for establishing the changes to requirements for missed surveillances in GL 87-09 continues to apply to the current proposed change to SR 4.0.3. As evidenced by the discussion in GL 87-09, the intent of the change proposed in the GL was to reduce the impact on plant risk resulting from the performance of a missed surveillance test by allowing some flexibility in the performance of missed tests. The delay time of 24 hours was selected using engineering judgment in the absence of suitable tools to determine a delay period on a case-by-case basis. In addition, the NRC staff recognized in GL 87-09 that even a 24-hour delay period would not be sufficient in some cases and the licensees would need to seek regulatory relief in those cases.

The recent revision to the Maintenance Rule to establish the requirement in 10 CFR 50.65(a)(4) to assess and manage the increase in risk that may result from maintenance activities provides a framework to allow a more risk-informed approach to addressing missed surveillances. This approach is consistent with the NRC's policy to increase the use of probabilistic risk assessment (PRA) technology in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data, and continues to support the objectives outlined by the NRC staff in GL 87-09.

The licensee's proposed change to apply TSTF-358 to HNP TSs extends the 24-hour delay time of GL 87-09 for declaring the LCO not met by allowing more time than current TSs to perform the missed surveillance test. This will be achieved by modifying SR 4.0.3 to allow a delay period from 24 hours or up to the surveillance frequency, *whichever is greater* [emphasis added], to perform a missed surveillance prior to having to declare the LCO not met. The change will add a sentence to SR 4.0.3 that states, "A risk evaluation shall be performed for any surveillance delayed greater than 24 hours, and the risk impact shall be managed."

The proposed change would also revise SR 4.0.1 to reflect the current STS SR 3.0.1. The proposed change also modifies the SR 4.0.3 exception for missing surveillance tests. There are minor differences in the wording because HNP TSs are not derived from improved STSs.

The objective of the licensee's proposed change is to minimize the impact on plant risk resulting from the performance of a missed surveillance test by allowing flexibility in considering the plant conditions and other plant activities without compromising plant safety. In addition, implementation of the proposed change would reduce the need for the licensee to apply for regulatory relief to delay the performance of missed surveillances.

3.0 TECHNICAL EVALUATION

The proposed change modifies SR 4.0.3 to allow a delay period from 24 hours up to the surveillance frequency, whichever is greater, to perform a missed surveillance prior to having to

declare the LCO not met. The change will add a sentence to SR 4.0.3 that states, "A risk evaluation shall be performed for any surveillance delayed greater than 24 hours, and the risk impact shall be managed." The proposed change will not allow equipment known to be inoperable to be considered operable until the missed surveillance is performed. If it is known that the missed surveillance could not be met, the proposed SR 4.0.1 would require that the LCO be declared not met and the appropriate condition(s) entered. In addition, the Bases for SR 4.0.3 state that the use of the delay period established by SR 4.0.3 is a flexibility that is not intended to be used as an operational convenience to extend surveillance intervals, but only for the performance of inadvertently missed surveillances.

The modification will also include changes to the Bases for SR 4.0.3 that provide details on how to implement the new requirements. The Bases changes provide guidance for surveillance frequencies that are not based on time intervals but are based on specified unit conditions, operating situations, or requirements of regulations. In addition, the Bases changes state that the licensee is expected to perform any missed surveillance test at the first reasonable opportunity, taking into account appropriate considerations, such as the impact on plant risk and accident analysis assumptions, consideration of unit conditions, planning, availability of personnel, and the time required to perform the surveillance. The Bases also state that the risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide (RG) 1.182, "Assessing and Managing Risks Before Maintenance Activities at Nuclear Power Plants," and that the missed surveillance should be treated as an emergent condition as discussed in RG 1.182. In addition, the Bases state that the degree of depth and rigor of the evaluation should be commensurate with the importance of the component and that missed surveillances for important components should be analyzed quantitatively. The Bases also state that, if the results of the risk evaluation determine that the risk increase is significant, the evaluation should be used to determine the safest course of action. Finally, the Bases state that all missed surveillances will be placed in the licensee's Corrective Action Program.

The following key elements were provided by the licensee to justify the proposed TS change. These elements were built into the process to ensure that every time a surveillance is missed the risk will be properly assessed and managed. In addition, such elements facilitate regulatory oversight:

- A risk evaluation shall be performed for any surveillance test delayed longer than 24 hours and the risk impact shall be managed.
- Although the proposed change to SR 4.0.3 allows an increase of the delay time, the missed surveillance test should be performed at the "first reasonable opportunity."
- The "first reasonable opportunity" will be determined by taking into consideration the risk impact from delaying the surveillance test (including risk from changing plant configurations or shutting the plant down to perform the surveillance, whenever applicable) as well as the impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the surveillance.

- A missed surveillance will be treated as an emergent condition in the same fashion as other unplanned maintenance activities. The risk impact of the condition will be managed through the program in place to implement 10 CFR 50.65 (a)(4) and its implementation guidance, RG 1.182.
- A missed surveillance will be placed in the licensee's corrective action program, thus providing the NRC staff with a means to verify that the number of missed surveillances continues to be very low.
- The NRC's operating reactor oversight process will provide the framework for inspectors and other NRC staff to review missed surveillances and assess the licensee's actions and performance.

The NRC staff finds that a process containing these key elements is appropriate in this case for the following reasons:

- Section 50.65(a)(4) of 10 CFR requires licensees to implement programs to assess and manage increases in risk that may result from planned maintenance activities. This program is suitable to assess and manage the risk impact of missed surveillances because missed surveillances can be treated as emergent conditions and their risk impact will be assessed and managed in an integrated fashion with concurrent maintenance activities.
- Inspection procedures are in place that will allow NRC staff to oversee the implementation of Maintenance Rule requirements, including the adequacy of risk assessments performed by licensees for maintenance configurations.
- The number of missed surveillance tests is a very small fraction of the total number of such tests performed at a nuclear plant each year. The proposed change is not intended to be used as an operational convenience to extend surveillance frequencies.
- This process is similar to other improvements that have been made to the TSs that allow the use of a controlled decision-making process by licensees when the process has some high-level regulatory oversight. Two examples of this are the adoption of the Core Operating Limits Report and the Pressure/Temperature Limits Report. In each of these cases, the NRC staff approved the methodology behind the calculation of certain TS parameter limits and then allowed the specific limits to be removed from the TSs and controlled by the licensee using the approved methodology. Similarly, for this proposed change, the NRC staff has already approved guidance that outlines a process for complying with 10 CFR 50.65(a)(4) and, therefore, can allow the licensee to use that guidance to determine the most prudent course of action in the case of a missed surveillance.

The guidance outlining an acceptable process for licensees to assess and manage increases in risk that may result from planned maintenance activities is found in RG 1.182. RG 1.182 endorses a revised Section 11 to NUMARC 93-01 "Industry Guideline for Monitoring the

Effectiveness of Maintenance at Nuclear Power Plants," Revision 2, updated by the Nuclear Energy Institute.

Section 11 of NUMARC 93-01, dated February 22, 2000, provides guidance for assessing and managing risk impact resulting from performance of maintenance activities, including guidance for establishing action thresholds based on qualitative and quantitative considerations as well as risk management actions. The objective of risk management is to control the temporary and aggregate risk increases from maintenance activities such that the plant's average baseline risk is maintained within a minimal range. This is accomplished by using the results of the risk assessment to plan and schedule maintenance such that the risk increases are limited, and to take additional actions beyond routine work controls to address situations where the temporary risk increase is above a certain threshold.

In order to gain additional insights into the proposed change, the staff referred to the regulatory guidance provided in RG 1.174 entitled "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis, and in RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," although these RGs do not specifically address the type of change in this proposal. RG 1.177 provides the staff's recommendations for utilizing risk information to evaluate changes to nuclear power plant TSs by assessing the impact of such proposed changes on the risk associated with plant operation. The approach documented in RG 1.177 was taken into consideration by the staff in evaluating the risk information provided in support of the proposed changes in SR 4.0.3 to increase the time allowed to perform a missed surveillance.

One portion of the guidance in RG 1.177 includes the assessment of the risk impact of the proposed change for comparison to acceptance guidelines consistent with the Commission's Safety Goal Policy Statement, as documented in RG 1.174. In addition, the approach outlined in the guidance aims at ensuring that the plant risk does not increase unacceptably at any time during the implementation of the proposed change (i.e., during the extended surveillance interval).

Another portion of the guidance addresses the need for identifying risk significant configurations resulting from maintenance or other operational activities and taking appropriate compensatory measures to avoid such configurations. This type of evaluation is directly addressed by the requirement to perform a risk assessment for missed surveillances delayed longer than 24 hours.

The NRC staff believes that insights from the guidance provided in RGs 1.174 and 1.177 can be used to show how the proposed change is expected to result in, at most, an increase in risk that is small and consistent with the NRC's Safety Goal Policy Statement. The NRC staff believes that in the majority of the cases of missed surveillances, implementation of the proposed change will result in a risk benefit due to the proposed requirement for the licensee to evaluate the risk impact for missed surveillances that would require a delay of longer than 24 hours.

3.1 Risk Impact of the Proposed Change

The NRC staff made a qualitative assessment of the risk impact of the proposed change for comparison with the intent of the acceptance guidelines documented in RG 1.174, consistent with the NRC's Safety Goal Policy Statement. Such risk impact is measured by the average (yearly) risk change. In addition, the NRC staff took into consideration guidance in RG 1.177 aimed at ensuring that the plant risk does not increase unacceptably at any time during the implementation of the proposed change (i.e., during an extended surveillance interval in this case). The NRC staff's qualitative assessment is summarized below.

3.1.1 Average Risk Impact

The probability that a standby active component, such as a pump or a circuit breaker, will fail when demanded during an accident is based on the assumption that the component fails due to "standby" stresses (i.e., stresses that are present while the component is in standby, such as corrosion, dirt, lack of lubrication). This probability, also called the component's average "unavailability," is used in PRA and is most frequently calculated by the following equation:

$$q = \frac{1}{2} * \lambda * T$$

where:

- q = the component's average unavailability,
- λ = the component's failure rate (assumed constant) while in standby, and
- T = the interval at which the component is tested for operability.

The average unavailability of a structure, system, or component (SSC), calculated by using the above equation, reflects the potential vulnerability of the component to "standby" stresses. Such vulnerability increases with time between operability checks (tests) assuming corrective action is taken to restore failed components identified by the test. Thus, the risk impact of a missed surveillance is reflected by the increased unavailability of the related SSCs due to the increase of the interval between surveillance tests. If the missed surveillance affects two or more components, some "standby" stresses may impact multiple components. In such a case, the missed surveillance would also increase the average common cause failure (CCF) unavailability of two or more components and this should be addressed in the risk assessment (CCF unavailability's are calculated by adjusting the single component failure unavailability using standard PRA techniques, such as the beta factor or the Multiple Greek Letter method).

The thresholds of the aggregate risk impacts are based on the permanent change guidelines discussed in RG 1.174. The licensee will be expected to manage the risk from the proposed TS change in conjunction with the risk from other concurrent plant activities to ensure that any risk increase, in terms of core damage frequency (CDF) and large early release frequency (LERF), will be small and consistent with the NRC's Safety Goal Policy Statement.

Risk insights from existing PRAs and the low frequency of missed surveillances indicate that the proposed TS change is highly unlikely to lead to a significant increase in the average (yearly) risk, in terms of CDF or LERF. Significant risk increases can occur only under the following conditions:

- The number of missed surveillances is allowed to increase significantly.
- High risk configurations are allowed (e.g., by allowing certain combinations of multiple missed surveillances and/or outages).
- Poor risk management of plant operational activities is allowed.

Any of these conditions would be in violation of the intent of proposed SR 4.0.3 and could trigger a review by NRC of the licensee's actions and performance. The implementation guidance found in the proposed SR 4.0.3 Bases is intended to ensure that such conditions would not occur. Licensees are already required to manage risk associated with online maintenance activities. Furthermore, the addition of missed surveillances (rather rare plant conditions) to the maintenance activities is not expected to increase risk. On the contrary, insights from existing risk assessments indicate that there are plant conditions during which it is preferable and safer not to have to complete missed surveillance tests for some SSCs. Therefore, the proposed TS change will allow the licensee to make informed decisions and take appropriate actions to control risk.

3.1.2 Temporary Risk Impact

In addition to changes in the mean values of CDF and LERF, the incremental conditional core damage probability and the incremental conditional large early release probability are proposed by RG 1.177 as appropriate measures of the increase in probability of core damage and large early release, respectively, during the period of implementation of a proposed TS change (i.e., during the extended surveillance period in the case of a missed surveillance). RG 1.182 provides guidance for controlling temporary risk increases resulting from maintenance activities. Such guidance, which is consistent with guidance provided in RG 1.177, establishes action thresholds based on qualitative and quantitative considerations as well as risk management actions. The NRC staff expects that the licensee will implement this guidance for assessing temporary risk increases from missed surveillances concurrently with maintenance and other operational activities.

Instantaneous and temporary risk increases from a missed surveillance are assessed by considering the time-dependent unavailability, most often calculated by the following equation:

$$q(t) = \lambda * t$$

where:

$q(t)$ = the component's unavailability at time t

λ = the component's failure rate (assumed constant) while in standby, and

t = time from end of surveillance frequency of a missed surveillance test.

If the missed surveillance affects two or more components, some “standby” stresses may impact multiple components. In such a case, the missed surveillance would also increase the time-dependent CCF unavailability of two or more components and this should be addressed in the risk assessment.

Significant temporary risk increases following a missed surveillance can occur only under the following conditions:

- High-risk configurations are allowed (e.g., by allowing certain combinations of multiple missed surveillances and/or outages), and
- Poor risk management of plant operation activities is allowed.

Any of these conditions would be in violation of the intent of proposed SR 4.0.3 and could trigger an NRC review of the licensee’s actions and performance. The requirements associated with the proposed change are intended to ensure that such conditions would not occur. Thus, the proposed TS change is not expected to lead to significant temporary risk increases. Following the discovery of an unintentionally missed surveillance, the licensee will have to assess temporary risk increases, qualitatively or quantitatively depending on the importance of the component affected by the missed surveillance, if the surveillance cannot be performed within 24 hours from the time it has been discovered.

3.2 Risk-Informed Configuration Risk Management

RG 1.177 addressed the need for identifying risk significant configurations resulting from maintenance or other operational activities and taking appropriate compensatory measures to avoid such configurations. The objective of such guidance for this review is to ensure that plant safety will be maintained and monitored during the period of an extended surveillance testing interval (associated with an unintentionally missed surveillance). The licensee proposes to use the program in place to implement the Maintenance Rule to identify “high-risk” configurations resulting from missed surveillance tests in conjunction with outages associated with maintenance activities. It is worth noting that the guidance provided in RG 1.177 with regard to the Configuration Risk Management Program was used as the basis for developing the guidance contained in RG 1.182 for the 10 CFR 50.65(a)(4) provisions of the Maintenance Rule. This provides additional assurance that the proposed process for evaluating the risk impact of missed surveillances is consistent with guidance provided in RG 1.177.

3.3 Quality of PRA

Once a missed surveillance is discovered and the licensee determines that the surveillance cannot be performed within 24 hours, the licensee will have to use a risk assessment to determine the most prudent course of action. The risk assessment can be done qualitatively or quantitatively depending on the importance of the component affected by the missed surveillance (missed surveillances for risk-important components should be analyzed quantitatively). Such a risk assessment will be consistent with the program to implement the Maintenance Rule guidance to assess and account for both aggregate and temporary risk increases associated with “emergent” plant conditions as well as before undertaking online maintenance or other operational activities.

All licensees must have the capability to assess and manage increases in risk from maintenance activities as required by the Maintenance Rule. Risk assessments performed pursuant to 10 CFR 50.65(a)(4) may use qualitative, quantitative or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the complexity of the proposed configuration to be assessed. Section 11 of NUMARC 93-01 provides guidance for using qualitative, quantitative or blended methods to assess risk. Current inspection programs allow the NRC staff to oversee licensee implementation of 10 CFR 50.65(a)(4) requirements, including the adequacy of pre-maintenance risk assessments performed by licensees.

For the reasons listed below, the NRC staff finds that the same “quality” of PRA or PRA insights used to perform risk assessments pursuant to 10 CFR 50.65(a)(4) is also appropriate when assessing the impact of missed surveillances:

- A missed surveillance is equivalent to a one-time surveillance frequency extension. Therefore, the risk exposure is limited to the duration of the surveillance frequency extension. Risk increases are small compared to similar increases associated with equipment failures. The average (conditional) risk increase, given a missed surveillance, may be comparable to the risk increase from equipment failures. However, due to the rarity of missed surveillances, the average (yearly) risk increase from missed surveillances is expected to be small compared to the risk increase from equipment failures.
- PRA insights indicate that the risk impact from missed surveillances is significant only for a relatively small set of standby equipment. This equipment, such as auxiliary feedwater, high pressure injection pumps, and emergency diesel generators, is located outside containment and generally can be easily tested in a short time, if necessary.
- NRC inspection programs allow NRC staff to oversee the implementation of 10 CFR 50.65(a)(4) requirements, including the adequacy of pre-maintenance risk assessments performed by licensees.

3.4 Summary

The NRC staff’s review finds that the process proposed by the licensee for addressing missed SRs meets Commission guidance for allowing TS changes. Key elements of the proposed change are listed below:

- A risk evaluation shall be performed for any surveillance delayed longer than 24 hours, and the risk impact shall be managed.
- The missed surveillance test should be performed at “the first reasonable opportunity.”
- The “first reasonable opportunity” will be determined by taking into consideration the risk impact from delaying the surveillance test as well as the impact on any analysis

assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the surveillance.

- A missed surveillance will be treated as an “emergent” condition in the same fashion as other unplanned maintenance activities. The risk impact of the condition will be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance (NRC RG 1.182). Rescheduling of missed surveillances pursuant to RG 1.182 will ensure the necessary provisions for managing the risk impact of performing the surveillance in conjunction with other ongoing plant configuration changes.
- The NRC’s operating reactor oversight process will provide the framework for inspectors and other NRC staff to review missed surveillances and assess the licensee’s actions and performance. Inspection procedures are in place that will allow NRC staff to oversee the implementation of Maintenance Rule requirements, including the adequacy of pre-maintenance risk assessments performed by licensees.
- A missed surveillance will be placed in the licensee’s corrective action program, thus providing the NRC staff with a means to verify that the number of missed surveillances continues to be very low.
- The number of missed surveillance tests is a very small fraction of the total number of such tests performed at a nuclear plant each year. The proposed change is not intended to be used as an operational convenience to extend surveillance frequencies.
- This process is similar to other improvements that have been made to the TSs that allow the use of a controlled decision-making process by licensees when the process has some high-level regulatory oversight. Two examples of this are the adoption of the Core Operating Limits Report and the Pressure/Temperature Limits Report. In each of these cases, the NRC staff approved the methodology behind the calculation of certain TS parameter limits and then allowed the specific limits to be removed from the TSs and controlled by the licensee using the approved methodology. Similarly, for this proposed change, the NRC staff has already approved guidance that outlines a process for complying with 10 CFR 50.65(a)(4) and, therefore, can allow the licensee to use that guidance to determine the most prudent course of action in the case of a missed surveillance.

For these reasons, the NRC staff finds that the proposed TS change, to be implemented in accordance with the above listed key elements, is acceptable.

4.0 REGULATORY REQUIREMENTS

In its license amendment request dated October 22, 2012, the licensee made the following regulatory commitment:

HNP will establish the Technical Specification Bases for SRs 4.0.1 and 4.0.3 as adopted with the applicable license amendment.

5.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (November 27, 2012; 77 FR 70839). Accordingly, the amendment meets 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 amendment.

6.0 CONCLUSION

The NRC 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) there is reasonable assurance that such activities will be conducted in compliance with the NRC's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Carl Schulten

Date: April 11, 2013

April 11, 2013

Mr. George Hamrick
Vice President
Shearon Harris Nuclear Power Plant
Progress Energy Carolinas, Inc.
Post Office Box 165, Mail Code: Zone 1
New Hill, NC 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - ISSUANCE OF AN AMENDMENT REGARDING TECHNICAL SPECIFICATIONS CHANGE FOR MISSED SURVEILLANCE REQUIREMENTS, TECHNICAL SPECIFICATION TASK FORCE NO. 358 "MISSED SURVEILLANCE REQUIREMENTS" (TAC NO. ME9826)

Dear Mr. Hamrick:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No. 141 to Renewed Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant Unit 1 (HNP). The amendment changes the HNP Technical Specifications (TSs) in response to your application dated October 22, 2012.

The amendment revises HNP TS surveillance requirements for addressing a missed surveillance, and is consistent with the NRC approved Revision 6 of Technical Specification Task Force (TSTF) Standard TSs Change Traveler TSTF-358, "Missed Surveillance Requirements."

A copy of the related safety evaluation is enclosed. A notice of issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Araceli T. Billoch Colón, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:

1. Amendment No. 141 to NPF-63
2. Safety Evaluation

cc w/enclosures: Distribution via ListServ

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ADAMS Accession No.: ML13064A411

***Via memo**

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DATE	03/5/13	03/8 /13	03/4/13	09/28/01	04/10/13	04/11/13

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