



SERIAL: HNP-11-073
10 CFR 50.90

AUG 03 2011

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400/RENEWED LICENSE NO. NPF-63
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REGARDING MEASUREMENT UNCERTAINTY RECAPTURE
POWER UPRATE LICENSE AMENDMENT REQUEST

- References:
1. Email from B. Mozafari, Nuclear Regulatory Commission, to J. Caves, "Draft RAI questions to support Harris MUR Review (ME6169)", dated June 29, 2011
 2. Letter from C. L. Burton to the Nuclear Regulatory Commission (Serial: HNP-11-001), "Shearon Harris Nuclear Power Plant, Unit 1, Docket No. 50-400/Renewed License No. NPF-63, Request for License Amendment, Measurement Uncertainty Recapture Power Uprate," dated April 28, 2011. (ADAMS Accession ML11124A180)

Ladies and Gentlemen:

On June 29, 2011, the Harris Nuclear Plant (HNP) received a request from the NRC (Reference 1) for additional information needed to facilitate the review of the License Amendment Request to increase the rated thermal power (RTP) level from 2900 megawatts thermal (MWt) to 2948 MWt, and make Technical Specification changes as necessary to support operation at the uprated power level. The proposed change is an increase in RTP of approximately 1.66%. The proposed uprate is characterized as a measurement uncertainty recapture using the Cameron Leading Edge Flow Meter CheckPlus System to improve plant calorimetric heat balance measurement accuracy. This original request was submitted as Serial: HNP-11-001 (Reference 2).

The Enclosure to this submittal contains HNP's response to the NRC's request for additional information.

This document contains no new Regulatory Commitment.

In accordance with 10 CFR 50.91(b), HNP is providing the state of North Carolina with a copy of this response.

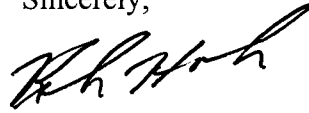
Please refer any questions regarding this submittal to Mr. Dave Corlett, Supervisor – HNP Licensing/Regulatory Programs, at (919) 362-3137.

Progress Energy Carolinas, Inc.
Harris Nuclear Plant
P. O. Box 165
New Hill, NC 27562

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NRK

I declare under penalty of perjury that the foregoing is true and correct. Executed on
[*August 3, 2011*].

Sincerely,



Keith Holbrook
Manager - Support Services
Harris Nuclear Plant

RKH/kab

Enclosure: Response to Request for Additional Information

cc: Mr. J. D. Austin, NRC Sr. Resident Inspector, HNP
Mr. W. L. Cox, III, Section Chief, N.C. DENR
Mrs. B. L. Mozafari, NRC Project Manager, HNP
Mr. V. M. McCree, NRC Regional Administrator, Region

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Summary

By letter dated April 28, 2011, (ADAMS Accession No. ML11124A180), Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., submitted a proposed amendment for the Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed amendment will increase the rated thermal power (RTP) level from 2900 megawatts thermal (MWt) to 2948 MWt, and make Technical Specification changes as necessary to support operation at the uprated power level. The proposed change is an increase in RTP of approximately 1.66%. The proposed uprate is characterized as a measurement uncertainty recapture (MUR) using the Cameron Leading Edge Flow Meter CheckPlus System to improve plant calorimetric heat balance measurement accuracy. The proposed change will revise Renewed Operating License NPF-63 Maximum Power Level; Appendix A, TS definition of RTP; Reactor Core Safety Limits; Reactor Trip System Instrumentation; Minimum Allowable Power Range Neutron Flux high setpoint with Inoperable Steam Line Safety Valves; and TS Bases Section 3/4.7.1 to reflect the uprated reactor core power level.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information submitted by the licensee, and based on this review determined the following information is required to complete the evaluation of the subject amendment request:

Request 1:

The NRC staff notes that Enclosure 2 to SERIAL: HNP-11-001, Section VII.1, "Operator Actions," states that "...*The safety analysis reviews determined that the existing required operator actions are not affected by the power uprate...*" The NRC staff requests that the licensee verify: (1) the measurement uncertainty recapture (MUR) power uprate will not require any change in procedures and resources necessary for systems required to achieve the nuclear safety performance criteria and are adequate for the MUR power uprate, and (2) any effects from additional heat in the plant environment from the increased power will not interfere with existing operator actions [referred to as recovery actions per National Fire Protection Association (NFPA) 805 licensing basis] being performed at their designated time and place as identified in the HNP fire protection program.

Response:

1. A review of the impact of the power uprate determined that there will be no changes in procedures and resources necessary for systems required to achieve the nuclear safety performance criteria. Existing procedures and resources are determined to be adequate for the MUR power uprate as currently written. The only nuclear safety performance resource identified as being impacted and requiring change was a recalculation of K_{eff}

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during cooldown. The impact of the MUR on K_{eff} shows that while the calculation required revision, the nuclear safety performance criteria is still met. Reference calculation HNP-F/NFSA-0171, "HNP Reactor Coolant System Cooldown Without Boration," for this analysis. The need for revision to this analysis because of MUR was addressed, and the calculation has already been revised.

2. The effects of the additional heat in the plant environment will have no impact on existing recovery actions. Fire Areas where the credited Hot Shutdown recovery actions are being taken are all in the Reactor Auxiliary Building where at least one of two safety related chillers have been analyzed to be available for all postulated fires. For areas where the fire is postulated, actions will not be taken until the area can be accessed, i.e., after the postulated fire is extinguished and the smoke has been ventilated.

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Request 2:

Some plants credit aspects of their fire protection system for other than fire protection activities, e. g., utilizing the fire water pumps and water supply as backup cooling or inventory for non-primary reactor systems. If HNP Unit 1 credits its fire protection system in this way, the MUR power uprate LAR should identify the specific situations and discuss to what extent, if any, the MUR power uprate affects these “non-fire-protection” aspects of the plant fire protection system. If HNP Unit 1 does not take such credit, the NRC staff requests that the licensee verify this, as well.

Response:

Water from the fire protection system is not normally used in the plant for non fire protection related functions; however, its use as a potential alternate source of water has been identified in specific off-normal conditions. Procedural guidance for the alternate uses is provided in:

Per HNP Operating Procedure, OP-149, Fire Protection, Section 4.0:

23. *Fire protection system water can only be used for non-fire related purposes when the following three conditions have been met:*
- a. *Control Room Supervisor approval is obtained and documented.*
 - b. *Controls or communications, or both, are in place to ensure the non-fire protection system water demand can be secured immediately if a fire occurs.*
 - c. *The non-fire protection system water demand must be less than 250 gallons per minute (gpm) total usage.*

HNP Abnormal Operating Procedure, AOP-041, Spent Fuel Pool Events, has a contingency for cooling the spent fuel pool (SFP) Heat Exchangers with Fire Protection water, in the event that normal cooling has failed and the Spent Fuel Pool temperature is rising.

Fire Water is identified in the Severe Accident Mitigation Strategies as a makeup source that can be used if needed for such activities as injecting into the Steam Generators. Fire Water is also identified as an alternate SFP makeup and cooling water source in the Incident Stabilization Guidelines used for implementation of HNP B.5.b mitigation strategies.

It is determined that the MUR power uprate has no impact on the probability of occurrence or the severity of these incidents. Therefore, the MUR power uprate has no adverse impact on these “non-fire-protection” aspects of the fire protection system.