



James Scarola
Vice President
Harris Nuclear Plant

MAR 08 2001

SERIAL: HNP-01-036
10CFR50.4

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REGARDING THE POWER UPRATE LICENSE AMENDMENT REQUEST

Dear Sir or Madam:

By letter dated December 14, 2000, Carolina Power & Light Company (CP&L) submitted a license amendment request to allow operation of the Harris Nuclear Plant (HNP) at an increased reactor core power level of 2900 megawatts thermal (Mwt). NRC letter dated February 7, 2001 requested additional information to support staff review of the proposed license amendment request. The requested information is provided by the enclosure to this letter.

The enclosed information is provided as a supplement to our December 14, 2000 submittal and does not change the purpose or scope of the submittal, nor does it change our initial determination that the proposed license amendment represents a no significant hazards consideration.

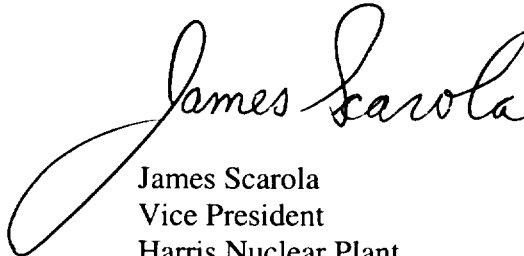
Please refer any questions regarding the enclosed information to Mr. Eric McCartney at (919) 362-2661.

PO Box 185
New Hill, NC 27567

Tel: 919 362 2602
Fax: 919 362 2095

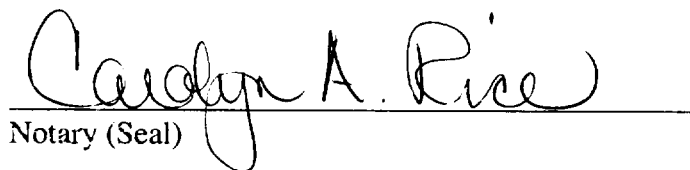
AU01

Sincerely,

A handwritten signature in cursive script that reads "James Scarola". The signature is written in black ink and is positioned above the printed name and title.

James Scarola
Vice President
Harris Nuclear Plant

James Scarola, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge, and belief, and the sources of his information are employees, contractors, and agents of Carolina Power & Light Company.

A handwritten signature in cursive script that reads "Carolyn A. Rice". The signature is written in black ink and is positioned above a horizontal line. Below the line, the text "Notary (Seal)" is printed.

My commission Expires: JUNE 21, 2004

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KWS/kws

Enclosure

c: Mr. J. B. Brady, NRC Senior Resident Inspector
Mr. Mel Fry, NCDENR
Mr. R. J. Laufer, NRC Project Manager
Mr. L. A. Reyes, NRC Regional Administrator

bc:

Ms. D. B. Alexander
Mr. G. E. Attarian
Mr. R. H. Bazemore
Mr. L. R. Beller (BNP)
Mr. C. L. Burton
Mr. J. R. Caves
Mr. H. K. Chernoff (RNP)
Mr. W. F. Conway
Mr. G. W. Davis
Mr. J. W. Donahue
Mr. R. J. Duncan II
Mr. R. J. Field
Mr. W. J. Flanagan

Mr. K. N. Harris
Ms. L. N. Hartz
Mr. W. J. Hindman
Mr. C. S. Hinnant
Mr. J. W. Holt
Mr. W. D. Johnson
Ms. T. A. Hardy (PE&RAS File)
Mr. R. D. Martin
Mr. T. C. Morton
Mr. W. M. Peavyhouse
Mr. J. M. Taylor
Nuclear Records
Harris Licensing File (s) (2 copies)

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REGARDING THE POWER UPRATE LICENSE AMENDMENT REQUEST
HUMAN FACTORS ASSESSMENT BRANCH QUESTIONS

NRC Question No. 1 - Changes in Emergency and Abnormal Operating Procedures

Describe how the proposed power uprate will change the plant emergency and abnormal procedures.

CP&L Response No. 1

The basic structure of the Harris Emergency Operating Procedures (EOPs) is not changed by the proposed power uprate (PUR). The type and nature of operator actions needed for accident mitigation will not change, and no new operator actions will be required for the proposed PUR.

The proposed PUR does, however, change several of the Emergency Response Guideline (ERG) Footnote Values associated with the operator actions specified in the EOPs. In support of PUR, evaluations and analyses were performed to identify the affected ERG Footnote Values applicable to PUR. The emergency operating procedure revisions will incorporate these new ERG Footnote Values prior to implementation of PUR.

PUR does not change the structure or content of abnormal operating procedures.

NRC Question No. 2 - Changes to Risk-Important Operator Actions Sensitive to Power Uprate

Describe any new risk-important operator actions required as a result of the proposed power uprate. Describe changes to any current risk-important operator actions that will occur as a result of the power uprate. Explain any changes in plant risk that result from changes in risk-important operator actions.

(e.g., identify operator actions that will require additional response time or will have reduced time available. Identify any operator actions that are being automated as a result of the power uprate. Provide justification for the acceptability of these changes).

CP&L Response No. 2

The analyses and evaluations performed for the FSAR Chapter 15 accidents and transients are described in Section 6.0 of the NSSS Licensing Report (Enclosure 6 of HNP-00-142, dated October 4, 2000). The current Harris PRA model indicates that the following actions are risk-important:

RRW	RAW	Description
1.006	4.38	FAILURE TO IMPLEMENT FEED-AND-BLEED COOLING
1.016	11.26	FAILURE TO INITIATE RCS COOLDOWN TO USE LPSI/RHR
1.005	4.36	FAILURE TO ESTABLISH RECIRCULATION (HHSI)
1.006	2.54	FAILURE TO ESTABLISH SHUTDOWN COOLING
1.005	5.50	FAILURE TO MANUALLY START AFW PUMP
1.005	4.74	FAILURE TO INITIATE RCS COOLDOWN TO USE LPSI/RHR (SGTR)
1.030	2.51	FAILURE TO LOCALLY ALIGN OFFSITE AC BREAKERS
1.007	1.87	FAILURE TO ALIGN MFW AFTER TRIP
1.082	1.68	FAILURE TO ISOLATE LIMITING RAB 236' SW PIPE BREAK
1.029	6.62	FAILURE TO ISOLATE LARGE SW PIPE BREAKS PRIOR TO FIRST CRITICAL DEPTH (1.5 FT)
1.021	1.02	FAILURE TO ISOLATE LARGE SW PIPE BREAKS PRIOR TO SECOND CRITICAL DEPTH (3 FT)

RRW – Risk Reduction Worth

RAW – Risk Achievement Worth

PUR did not add any new risk-important operator actions. However, as a result of PUR, the time available to initiate RCS cooldown to use LPSI/RHR during a SGTR has changed. The operator’s ability to complete SGTR mitigating actions within the time requirements specified by the accident analysis for PUR has been demonstrated using draft procedure changes. The operator action times for design basis SGTR analysis is shown in NSSS Licensing Report Section 6.3, Table 6.3.1-1 (Enclosure 6 of HNP-00-142, dated October 4, 2000). Any changes to plant risk that result from changes in risk-important operator actions will be determined when the plant PRA model is revised to reflect the changes resulting from the proposed power uprate.

No automation of current manual operator actions is planned as a result of the power uprate.

NRC Question No. 3 - Changes to Control Room Controls, Displays and Alarms

Describe any changes the proposed power uprate will have on the operator interfaces for control room controls, displays and alarms. For example, what zone markings (e.g. normal, marginal and out-of-tolerance ranges) on meters will change? What set points will change? How will the operators know of the change? Describe any controls, displays, alarms that will be upgraded from analog to digital instruments as a result of the proposed power uprate and how operators were tested to determine they could use the instruments reliably.

CP&L Response No. 3

The proposed power uprate will have very limited impact on the operator interfaces for control room controls, displays and alarms. The HNP plant modification process will assure that implementation of minor scaling and setpoint differences are addressed through programmatic reviews, which include those for human factors, operational/training considerations, process computer [ERFIS/SPDS] database changes, and simulator configuration control.

Zone markings are not currently used on the HNP main control board (MCB) or auxiliary control panel (ACP) meters, although the site human factors evaluation procedure does not preclude their use; as such, zone marking changes are not required for PUR design configuration changes. At HNP, operator information regarding marginal or out-of-tolerance ranges is annotated within the ERFIS data acquisition system through the use of "quality codes" and "status codes."

PUR implementation will lead to minor changes in several plant parameters. These parameters include, but are not limited to, the 100% (normalized) value for Rated Thermal Power, Reactor Coolant System (RCS) Delta Temperature, RCS Flow, Main Turbine Impulse Pressure, Main Steam Flow, and Main Feedwater Flow. For these parameters, the instrumentation channel rescaling will result in renormalizing the channel outputs as a function of the uprated power operation. Except as noted below, such renormalization will generally be "transparent" to the operator (on the MCB meter), since the MCB indication is represented in normalized units (e.g., 0 – 120% RCS Flow) rather than engineering units (e.g., 0 – 122,640 gpm RCS Flow). MCB meters for Steam Flow and Feedwater Flow will remain as 0 - 5.0 MPPH, since this range will envelop 100% nominal design flow requirements for both current and PUR operation (at 4.067 MPPH and 4.24 MPPH, respectively). Turbine Impulse Chamber Pressure MCB meters will remain as 0 - 820 psig, since the nominal (100% RTP equivalent) pressure for current and PUR conditions of 620 psig and 636 psig, respectively, remains within its currently installed meter range.

Each normalized parameter generally retains its respective pre-PUR setpoint/allowance. Therefore, the operator's response to an applicable RTS/ESFAS protective trip, or to corresponding control-grade annunciation, would be based upon the normalized

conditions (consistent with existing procedure guidance). Operators become knowledgeable of, and are tested on, plant (and simulator) design configuration changes through operator re-qualification training. Specific site milestones for completing these operations-oriented training/simulator modifications prior to uprated power ascension are addressed by the RAI Question 5 response (see below).

No specific analog-to-digital equipment upgrades will be performed to implement PUR operation. The above-noted types of setpoint changes are made, as necessary, by rescaling of process instrument channel electronics (e.g., Westinghouse 7300 series racks) and/or by recalibration (or replacement) of process transmitters.

NRC Question No. 4 - Changes on the Safety Parameter Display System

Describe any changes the proposed power uprate will have on the Safety Parameter Display System. How will the operators know of the changes?

CP&L Response No. 4

As noted in the above RAI Question 3 response, the plant modification development and review process is used to identify any required changes to SPDS, site procedures, simulator configuration control, and operator training modules. The plant staff has reviewed the Safety Parameter Display System (SPDS) computer point list to identify any PUR-related changes. The result of the review is that no SPDS setpoint changes are anticipated as a result of the power uprate.

NRC Question No. 5 - Changes to the Operator Training Program and the Control Room Simulator

Describe any changes the proposed power uprate will have on the operator training program and the plant reference control room simulator, and provide the implementation schedule for making the changes.

CP&L Response No. 5

The plant specific simulator will be modified during two simulator outage periods to implement Power Urate (PUR) changes. The first simulator outage period, scheduled for the third quarter of 2001, will incorporate Feedwater, Reactor Coolant System, Steam Generator, and Turbine model software changes. The second simulator outage period, scheduled for early in the fourth quarter of 2001, will incorporate the required hardware modifications. The changes will be treated in a manner consistent with other plant modifications that impact simulator fidelity, and will be tested and documented in accordance with ANSI/ANS 3.5 – 1985. One additional simulator outage period following the Refueling Outage will be used to make any software or hardware

adjustments resulting from the actual plant operating data gathered during the Startup Testing associated with PUR.

The Harris Operations Training Unit will conduct classroom and simulator training as part of the Licensed Operator Re-qualification and Non-licensed Operator Training Programs to address Power Uprate changes. Simulator training for Licensed Operators will be provided just prior to the Refueling Outage as well as during the outage. Additional training will be conducted following the Refueling Outage to address any training issues relating to Startup Testing associated with PUR.