Progress Energy

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NOV 14 2006

SERIAL: HNP 06-0136
10 CFR 54

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

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / LICENSE NO. NPF-63

APPLICATION FOR RENEWAL OF OPERATING LICENSE

Ladies and Gentlemen:

Pursuant to 10 CFR Part 54, Carolina Power & Light (CP&L) Company, doing business as Progress Energy Carolinas, Inc., applies for the renewal of the operating license for the Shearon Harris Nuclear Power Plant, Unit No. 1, also known as the Harris Nuclear Plant (HNP), to extend the term of its operating license an additional 20 years beyond the current expiration date. Upon renewal in accordance with this request, the term of the operating license would be extended from midnight October 24, 2026, until midnight October 24, 2046.

The enclosed License Renewal Application contains the information required by 10 CFR Part 54 for filing an application. CP&L has utilized the guidance for license renewal application content provided in Regulatory Guide 1.188, Rev. 1, dated August 2005.

As required by 10CFR54.21(b), current licensing basis changes, which have a material effect on the content of this application, will be identified at least annually while the application is under review by the NRC staff and at least three months prior to the scheduled completion of the NRC review.

Enclosure 1 provides the list of regulatory commitments made in this application. Any other actions discussed should be considered intended or planned actions. They are included for informational purposes but are not considered regulatory commitments.

Enclosure 2 provides a single compact disc (CD), formatted in a manner that is consistent with "Guidance for Electronic Submissions to the Commission," published in the Federal Register on October 10, 2003 at 68 FR 58826. The CD contains the following files, suitable for entry into the NRC's record retrieval system, ADAMS.

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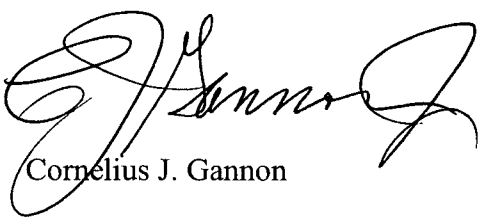
List of Electronic Files		
File Name	**Approximate File Size**	**Access**
001_Harris LR Application.pdf	26,350 Kb	Publicly Available
002_Harris ER Supplement.pdf	23,220 Kb	Publicly Available

To facilitate NRC review, the following information-only items are also provided:

- Eighty (80) CDs containing the HNP License Renewal Application in electronic format,
- One (1) CD with the HNP License Renewal Application in electronic format suitable for posting on the NRC web page, and
- Four (4) paper copies of the HNP License Renewal Application (three (3) copies sent to NRR and one (1) copy sent to Region II).

Please refer any questions regarding this submittal to Mr. Roger Stewart, Supervisor - License Renewal, at (843) 857-5375, e-mail at roger.stewart@pgnmail.com.

Sincerely,



Cornelius J. Gannon

MHF/mhf

Enclosures:

1. List of Regulatory Commitments
2. HNP License Renewal Application (CD-ROM)

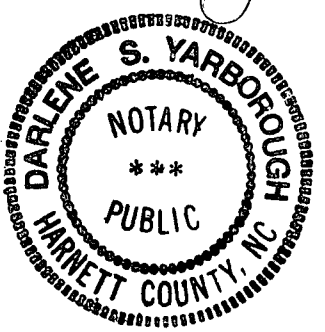
c (with enclosures):
Mr. P. O'Bryan, NRC Senior Resident Inspector
Mr. M. L. Heath, NRC License Renewal Project Manager
Dr. W. D. Travers, NRC Regional Administrator

c (without enclosures):
Mr. C. P. Patel, NRC Project Manager
Ms. B. O. Hall, Section Chief N.C. DENR

Cornelius J. Gannon, 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 officers, employees, and agents of Carolina Power & Light Company.

Darlene S. Yarborough
Notary (Seal)

My commission expires: 2-21-2010



HARRIS NUCLEAR PLANT LICENSE RENEWAL COMMITMENTS				
ITEM NO.	COMMITMENT	FINAL SAFETY ANALYSIS REPORT (FSAR) SUPPLEMENT LOCATION	PROGRAM IMPLEMENTATION SCHEDULE	LICENSE RENEWAL APPLICATION (LRA) SOURCE
1	In accordance with the guidance of NUREG-1801, Rev. 1, regarding aging management of reactor vessel internals components, HNP will: (1) participate in the industry programs for investigating and managing aging effects on reactor internals (such as Westinghouse Owner's Group and Electric Power Research Institute materials programs), (2) evaluate and implement the results of the industry programs as applicable to the reactor internals, and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.	A.1.1	As stated in the commitment	Reactor Vessel Internals Aging Management Activities LRA Section A.1.1
2	In accordance with the guidance of NUREG-1801, Rev. 1, regarding aging management of nickel alloy and nickel-clad components susceptible to primary water stress corrosion cracking, HNP will comply with applicable NRC Orders and will implement : (1) applicable Bulletins and Generic Letters, and (2) staff-accepted industry guidelines.	A.1.1	As stated in the commitment	Primary Water Stress Corrosion Cracking of Nickel Alloys LRA Section A.1.1
3	Program inspections are performed as augmented inspections in the HNP Inservice Inspection (ISI) Program. The ISI Program administrative controls will be enhanced to specifically identify the requirements of NRC Order EA-03-009.	A.1.1.5	Prior to the period of extended operation	Nickel-Alloy Penetration Nozzles Welded to the Upper Reactor Vessel Closure Heads of Pressurized Water Reactors Program LRA Section B.2.5
4	The Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program is a new program to be implemented.	A.1.1.6	Prior to the period of extended operation	Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program LRA Section B.2.6

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5	The Program will be enhanced to provide a consolidated exclusion bases document (i.e., a FAC susceptibility analysis). The exclusion bases document will include an evaluation of the Steam Generator Feedwater Nozzles to determine their susceptibility to FAC.	A.1.1.7	Prior to the period of extended operation	The Flow-Accelerated Corrosion (FAC) Program LRA Section B.2.7
6	A precautionary note will be added to plant bolting guidelines to prohibit the use of molybdenum disulfide lubricants.	A.1.1.8	Prior to the period of extended operation	Bolting Integrity Program LRA Section B.2.8
7	The Program implementing procedure will be enhanced to include a description of the instructions for implementing corrective actions if tube plugs or secondary-side components (e.g., tube supports) are found to be degraded.	A.1.1.9	Prior to the period of extended operation	Steam Generator Tube Integrity Program LRA Section B.2.9
8	The Program will be enhanced to: 1) include measurements of actual boron areal density using in-situ techniques, 2) include neutron attenuation testing ("blackness testing"), to determine gap formation in Boraflex panels, and 3) include the use of the EPRI RACKLIFE predictive code or its equivalent.	A.1.1.12	Prior to the period of extended operation, unless an approved analysis exists that eliminates credit for the Boraflex in the BWR fuel racks	Boraflex Monitoring Program LRA Section B.2.12
9	The Program will be enhanced to: (1) include in the Program all cranes within the scope of License Renewal; (2) require the responsible engineer to be notified of unsatisfactory crane inspection results; (3) specify an annual inspection frequency for the Fuel Cask Handling Crane, Fuel Handling Bridge Crane, and Fuel handling Building Auxiliary Crane, and every refuel cycle for the Polar Crane, Jib Cranes, and Reactor Cavity Manipulator Crane, (4) include a requirement to inspect for bent or damaged members, loose bolts/components, broken welds, abnormal wear of rails, and corrosion (other than minor surface corrosion) of steel members and connections, and (7) allow use of maintenance crane inspections as input for the condition monitoring of License Renewal cranes.	A.1.1.13	Prior to the period of extended operation	Inspection of Overhead Heavy Load and Light Load Handling Systems Program LRA Section B.2.13

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10	The program will be enhanced to: (1) include inspection criteria as described in NUREG-1801 for penetration seals, (2) provide specific procedural guidance for inspecting fire barrier walls, ceilings and floors, (3) include a visual inspection of the diesel-driven fire pump fuel oil supply piping for signs of leakage, and (4) include minimum qualification requirements for inspectors performing inspections required by this Program..	A.1.1.14	Prior to the period of extended operation	Fire Protection Program LRA Section B.2.14
11	The Program will be revised to: (1) perform non-intrusive baseline pipe thickness measurements at various locations prior to expiration of the current license with subsequent trending of measurements through the period of extended operation at intervals to be determined by engineering evaluation performed after each inspection, and (2) either replace the sprinkler heads prior to reaching their 50-year service life or revise site procedures to perform field service testing, by a recognized testing laboratory, of representative samples from one or more sample areas.	A.1.1.15	Prior to the period of extended operation	Fire Water System Program LRA Section B.2.15

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12	Program administrative controls will be enhanced to: (1) add requirements to enter an item into the corrective action program whenever an administrative value or control limit for parameters relevant to this program are exceeded or water is drained from a fuel oil tank in the scope of this program; (2) establish administrative values for fuel oil chemistry parameters relating to corrosion; (3) require Diesel Fuel Oil System chemistry controls to include semiannual monitoring and trending of water and sediment and particulates from an appropriate sample point for the day tanks and semiannual monitoring and trending of biological growth in the main storage tanks; (4) require Security Power System fuel oil chemistry controls to include semiannual monitoring and trending of biological growth in the fuel oil in the buried storage tank and periodic inspecting of the internal surfaces of the buried storage tank and the aboveground day tank or require UT or other NDE of the tanks if inspection proves inadequate or indeterminate; (5) require Site Fire Protection System fuel oil chemistry controls for the Diesel Driven Fire Pump fuel oil storage tank to include quarterly monitoring and trending of particulates and semiannual monitoring and trending of biological growth, to check and remove water quarterly, to periodically inspect the tank or require UT or other NDE of the tank if inspection proves inadequate or indeterminate; and to revise chemistry sampling procedures to address positive results for biological growth including as one option the use of biocides; and (6) verify the condition of the Diesel Fuel Oil Storage Tank Building Tank Liners by means of bottom thickness measurements under the One Time Inspection Program.	A.1.1.16	Prior to the period of extended operation	Fuel Oil Chemistry Program LRA Section B.2.16

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13	The Program will be enhanced to: (1) include a provision that tested and untested specimens from all capsules pulled from the reactor vessel must be kept in storage to permit future reconstitution use, and that the identity, traceability, and recovery of the capsule specimens shall be maintained throughout testing and storage, (2) include a provision that withdrawal of the next capsule will occur during Refueling Outage (RFO)-16, which is the outage immediately following the operating cycle in which the capsule fluence is equivalent to the 60-year maximum vessel fluence, (3) include a provision that the analysis of the capsule withdrawn during RFO-16 will be used to evaluate neutron exposure for the capsules remaining in the reactor vessel after RFO-16, so that the neutron exposure and withdrawal schedule for the remaining capsules will be optimized to provide meaningful metallurgical data for the monitoring of neutron exposure if additional license renewals are sought, and (4) include a provision that, if future plant operations exceed the limitations in Section 1.3 of Regulatory Guide 1.99, Revision 2, or the applicable bounds, e.g., cold leg operating temperature and neutron fluence, as applied to the surveillance capsules, the impact of these plant operation changes on the extent of reactor vessel embrittlement will be evaluated, and the NRC will be notified.	A.1.1.17	Prior to the period of extended operation	Reactor Vessel Surveillance Program LRA Section B.2.17
14	The One-Time Inspection Program is a new program to be implemented.	A.1.1.18	Prior to the period of extended operation	One-Time Inspection Program LRA Section B.2.18
15	The Selective Leaching of Materials Program is a new program to be implemented	A.1.1.19	Prior to the period of extended operation	Selective Leaching of Materials Program LRA Section B.2.19
16	The Buried Piping and Tanks Inspection Program is a new program to be implemented.	A.1.1.20	Prior to the period of extended operation	Buried Piping and Tanks Inspection Program LRA Section B.2.20

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17	The One-Time Inspection of ASME Code Class 1 Small-Bore Piping Program is a new program to be implemented.	A.1.1.21	Prior to the period of extended operation	One-Time Inspection of ASME Code Class 1 Small-Bore Piping Program LRA Section B.2.21
18	The program will be enhanced to: (1) include a specific list of systems managed by the program for License Renewal, (2) provide specific guidance for insulated/jacketed pipe and piping components to identify signs of leakage and provide criteria for determining whether the insulation/jacket should be removed to inspect for corrosion, (3) provide inspection criteria for components not readily accessible during plant operations or refueling outages, (4) provide specific guidance for visual inspections of elastomers for cracking, chafing, or changes in material properties due to wear, and (5) incorporate a checklist for evaluating inspection findings, with qualified dispositions.	A.1.1.22	Prior to the period of extended operation	External Surfaces Monitoring Program LRA Section B.2.22
19	The Program will be enhanced: (1) to require an evaluation of historic plant-specific test data in order to ensure that conservative wear rates are used so that a loss of intended function will not occur, (2) to provide guidance for treatment of flux thimbles that could not be inspected due to restriction, defect or other reason, and (3) to require test results and evaluations be formally documented as QA records.	A.1.1.23	Prior to the period of extended operation	Flux Thimble Tube Inspection Program LRA Section B.2.23
20	The Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program is a new program to be implemented.	A.1.1.24	Prior to the period of extended operation	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components Program LRA Section B.2.24

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21	The Program will be enhanced as follows: (1) a review and revision of work documents and analysis requirements will be performed to ensure that the used oil from appropriate component types in the scope of License Renewal is analyzed to determine particle count and moisture, and if oil is not changed in accordance with the manufacturer's recommendation, then additional analyses for viscosity, neutralization number, and flash point will be performed. This activity will ensure that used oil is visually checked for water; and (2) the program administrative controls will be enhanced to include a requirement to perform ferrography or elemental analysis to identify wear particles or products of corrosion when particle count exceeds an established level or when considered appropriate.	A.1.1.25	Prior to the period of extended operation	Lubricating Oil Analysis Program LRA Section B.2.25
22	The Program implementing procedure will be enhanced to: (1) include additional recordable conditions, (2) include moisture barrier and applicable aging effects, (3) include pressure retaining bolting and aging effects, and (4) include a discussion of augmented examinations.	A.1.1.26	Prior to the period of extended operation	ASME Section XI, Subsection IWE Program LRA Section B.2.26
23	The Program will be enhanced to describe in the implementing procedures the evaluation and corrective actions to be taken when leakage rates do not meet their specified acceptance criteria.	A.1.1.29	Prior to the period of extended operation	10 CFR Part 50, Appendix J Program LRA Section B.2.29
24	Program administrative controls will be enhanced to identify the structures that have masonry walls in the scope of License Renewal.	A.1.1.30	Prior to the period of extended operation	Masonry Wall Program LRA Section B.2.30

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25	The Program implementing procedures will be enhanced to: (1) identify the License Renewal structures and systems that credit the program for aging management, (2) require notification of the responsible engineer when below-grade concrete is exposed so an inspection may be performed prior to backfilling, (3) require periodic groundwater chemistry monitoring including consideration for potential seasonal variations., (4) define the term "structures of a system" in the system walkdown procedure and specify the condition monitoring parameters that apply to "structures of a system," (5) include the corporate structures monitoring procedure as a reference in the plant implementing procedures and specify that forms from the corporate procedure be used for inspections, (6) identify additional civil/structural commodities and associated inspection attributes required for License Renewal, and (7) require inspection of inaccessible surfaces of reinforced concrete pipe when exposed by removal of backfill.	A.1.1.31	Prior to the period of extended operation	Structures Monitoring Program LRA Section B.2.31
26	The Program will be enhanced to: (1) require an evaluation of any concrete deficiencies in accordance with the acceptance criteria provided in the corporate inspection procedure, (2) require initiation of a Nuclear Condition Report (NCR) for degraded plant conditions and require, as a minimum, the initiation of an NCR for any condition that constitutes an "unacceptable" condition based on the acceptance criteria specified, and (3) require documentation of a visual inspection of the miscellaneous steel at the Main Dam and Spillway.	A.1.1.32	Prior to the period of extended operation	RG 1.127, Inspection of Water-Control Structures Associated with Nuclear Power Plants Program LRA Section B.2.32
27	The Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program to be implemented.	A.1.1.33	Prior to the period of extended operation	Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program LRA Section B.2.33

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28	The Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program is a new program to be implemented.	A.1.1.34	Prior to the period of extended operation	Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program LRA Section B.2.34
29	The Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program to be implemented.	A.1.1.35	Prior to the period of extended operation	Inaccessible Medium Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program LRA Section B.2.35
30	The Metal Enclosed Bus Program is a new program to be implemented.	A.1.1.36	Prior to the period of extended operation	Metal Enclosed Bus Program LRA Section B.2.36
31	The Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program to be implemented.	A.1.1.37	Prior to the period of extended operation	Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program LRA Section B.2.37

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32	The Program will be enhanced to: (1) expand the program scope to include an evaluation of selected RCPB components beyond the reactor pressure vessel (including auxiliary system components such as the pressurizer lower head, pressurizer surge line, and CVCS piping and heat exchanger), and to include the NUREG/CR-6260 locations analyzed for environmental effects, (2) provide preventive actions to include, prior to a monitored location exceeding a cumulative usage factor limit of 1.0, evaluation of operational changes to reduce the number or severity of future transients, (3) include a provision to utilize online fatigue analysis software for the periodic updating of cumulative usage, (4) describe the acceptance criteria for maintaining fatigue usage below the design limit, and (5) address corrective actions for components approaching design limits, with options to include a revised fatigue analysis or repair or replacement of the component.	A.1.1.38	Prior to the period of extended operation	Reactor Coolant Pressure Boundary (RCPB) Fatigue Monitoring Program LRA Section B.3.1
33	The Low Temperature Overpressure (LTOP) setpoint analysis will be recalculated following removal of one of the remaining surveillance capsules from the reactor vessel.	A.1.2.1.4	After capsule fast neutron exposure comparable to the end of the period of extended operation	TLAA – Low temperature Over-Pressure Limits LRA Section 4.2.5