Progress Energy

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SERIAL: HNP-08-050
10 CFR 50.59(d)(2)

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

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REPORT OF CHANGES PURSUANT TO 10 CFR 50.59

Ladies and Gentlemen:

In accordance with 10 CFR 50.59(d)(2), Carolina Power & Light Company (doing business as Progress Energy Carolinas, Inc.) submits the attached report for the Harris Nuclear Plant (HNP). The report provides a brief description of changes to the facility and a summary of the evaluations required per 10 CFR 50.59 for those items, regardless of implementation status, between September 16, 2006, and February 29, 2008.

This letter also informs the NRC that there have been no unreported changes in commitments made during the period from September 16, 2006, through February 29, 2008.

This letter contains no new regulatory commitments. Please contact me if you have any questions regarding this submittal at (919) 362-3137.

Sincerely,

D. H. Corlett
Supervisor, Licensing/Regulatory Programs
Harris Nuclear Plant

DHC/wrk

Attachment: 1. Report of Changes Pursuant to 10 CFR 50.59

c: Mr. P. B. O'Bryan, NRC Sr. Resident Inspector
Ms. M. G. Vaaler, NRC Project Manager
Mr. L. A. Reyes, NRC Regional Administrator, Region II

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**SHEARON HARRIS NUCLEAR POWER PLANT**
**REPORT OF CHANGES PURSUANT TO 10 CFR 50.59**

| Log Number / Implementing Document | Description of Change | Evaluation Summary |
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| 00195126<br>EC 64213, Rev. 0 | The minimum required incore detector thimbles were reduced from 38 to 25 for Cycle 14. Engineering Change (EC) 64213 made the supporting changes for this thimble reduction to the Core Operating Limits Report (COLR) and Plant Program Procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report," Attachment 9, in accordance with step 9.5.2 of the Nuclear Generation Group Common Documents NFP-NGGC-0018, "Core Operating Limits Report Generation for HNP, RNP and CR3." | There were 38 operating incore detector thimbles at the start of Cycle 14. However, the Movable Incore Detector System (MIDS) experienced several hardware problems. Therefore, the minimum number of detector thimbles was reduced from 38 to 25 for the duration of Cycle 14. This reduction of active detector thimbles increased the calculated error band for the peaking factors. Therefore, the peaking factor limits were decreased and the minimum number of operable detector thimbles per quadrant was increased from two to three as compensatory measures. This ensured that the peaking factors assumed as initial conditions in the safety analysis were not exceeded. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of structures, systems, and components (SSC) important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |

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| 00209005<br>PLP-715, Rev. 4 | The silica concentration guidance for the reactor coolant was changed to the fuel manufacturer recommendations in the Plant Program Procedure PLP-715, "System Chemistry Strategic Plan," Rev. 4. | This activity resulted in an increase to the silica concentration limit in the Reactor Coolant System (RCS) from 2000 ppb to 3000 ppb. Silica concentration in the RCS is a diagnostic parameter, and allowance is being made in PLP-715 for a concentration of 3000 ppb to be consistent with Fuel Vendor and EPRI Guideline allowances for operation above 3000 ppb silica during the first 30 days of power operation. AREVA and the EPRI Guidelines identify that zeolite forming elements required in combination with silica are controlled in the make-up sources to prevent zeolite formation. The procedural controlled chemistry target value for silica of 2000 ppb will remain to provide additional evaluation of the effect of silica and potential influence on the RCS system. The increase in silica concentration from 2000 ppb to 3000 ppb has been reviewed and the increase has been found not to increase the probability of zeolite induced fuel failures. The EPRI Primary Water Guidelines have identified that plant experience with operation at 2000 to 3000 ppb for the first two months of operations for several cycles has had no effect on fuel cladding corrosion. The limits that are in place for the cation species (Calcium, Magnesium, and Aluminum) have not changed in this revision, and as a result, the incidence of zeolite formation (which may result in fuel clad damage) is not increased. Therefore, it is determined that the increase in silica concentration does not pose an increase in the probability of fuel cladding damage or an increase in radiological consequences. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |

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| 00256415<br>CRC-001, Rev. 47 | The silica concentration guidance for the reactor coolant was changed to the fuel manufacturer recommendations in the Chemistry and Radiochemistry Procedure CRC-001, "HNP Environmental and Chemistry Sampling and Analysis Program," Rev. 47. | This activity resulted in an increase to the silica concentration limit in the RCS from 2000 ppb to 3000 ppb. Silica concentration in the RCS is a diagnostic parameter, and allowance is being made in CRC-001 for a concentration of 3000 ppb to be consistent with the Fuel Vendor and EPRI Guideline allowances for operation above 3000 ppb silica during the first 30 days of power operation. AREVA and the EPRI Guidelines identify that zeolite forming elements required in combination with silica are controlled in the make-up sources to prevent zeolite formation. The only credible accident associated with an increase in silica concentration from 2000 ppb to 3000 ppb is fuel failure as a result of increased fuel clad corrosion. Operating with the higher silica concentration has been reviewed and experienced by several plants and this increase has been found not to increase the probability of zeolite induced fuel failures. The limits that are in place for the cation species (Calcium, Magnesium, and Aluminum) have not changed in this revision, and as a result, the incidence of zeolite formation (which may result in fuel clad damage) is not increased. These conditions have been documented in the EPRI Primary Water Guidelines as well as the fuel vendor's recommendations. The EPRI Primary Water Guidelines have identified that plant experience with operation at 2000 to 3000 ppb for the first two months of operations for several cycles has had no effect on fuel cladding corrosion. Therefore, it is determined that the increase in silica concentration does not pose an increase in the probability of fuel cladding damage or an increase in radiological consequences. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |

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| 00211239<br>OP-120.02.39, Rev. 22 | A new method of backflushing the Reactor Coolant Filter was added to Section 8.8 of Operating Procedure OP-120.02.39, "Fuel Handling Building and Reactor Auxiliary Building Filter Backflush," Rev. 22. This method will be used when the plant is in acid reducing conditions during the cooldown cycle after shutdown for RCS cleanup. | During Refueling Outage 13 the use of the Chemical and Volume Control System (CVCS) Demineralizers was lost when the Nitrogen Inlet Valve (1NI-119) for the Reactor Coolant Filter backwash system failed in the closed position. This procedure change will allow the CVCS Demineralizers to remain in service while the Reactor Coolant Filter is being backflushed to protect the Volume Control Tank from corrosion products. The Reactor Coolant Filter is a 25 micron filter. The Reactor Coolant Pump (RCP) seals are protected by the Seal Water Injection Filters which contain 5 micron filters. Therefore, the Seal Water Injection Filters will protect the RCP when the Reactor Coolant Filter is being backflushed. This change is expected to reduce total dose for outage personnel. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |
| 00216674<br>EC 64030, Rev. 0 | EC 64030 was the design documentation for Cycle 15 that supported the fuel loading pattern and other plant configuration changes including acceptance test criteria, Final Safety Analysis Report (FSAR) changes, procedure changes, key performance parameters, and cycle specific operational data. | The Cycle 15 fuel design and neutronic design made changes to the core operating limits that affected the local power peaking factors and the Axial Flux Difference (AFD) which were documented in the COLR. The safety analyses support Cycle 15 operation at a nominal core power level of 2900 MWt for up to 527 effective full-power days (EFPD). The analyses results including the Large Break Loss of Coolant Accident (LBLOCA) and Non-Loss of Coolant Accidents (NON-LOCA) Safety Analyses of Cycle 15 core design satisfied the requirements and acceptance criteria defined in the FSAR. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |

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| 00221554<br>EC 64893, Rev. 0 | EC 64893 modified the Boron Recycle System (BRS) piping and removed the internals of valve 3BR-260 to facilitate the transfer of pre-batched concentrated boric acid solution from the Recycle Monitor Tanks (RMT) to the Boric Acid Storage Tank (BAT). It also added a normally open isolation valve to the BRS system piping. | The removal of the internals of 3BR-260 disabled the backflow restriction of the valve. This change allows the transfer of boric acid from the RMTs to the BAT without using the temporary hoses that were required before the change. This simplifies transferring boric acid to the BAT and reduces possible operational errors. The operator actions required to perform the new acid transfer evolution are within the normal skills of operators, for example, manipulation of valves. The operator actions will not replace any automatic plant functions. These activities will be procedurally controlled. These activities do not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, do not create a possibility for an accident of a different type or a malfunction with a different result, do not result in a design basis limit being exceeded or altered, and do not depart from a method of evaluation. |
| 00236905<br>EC 67112, Rev. 0 | EC 67112 revised two analyses, Large Break Loss of Coolant Accident (LBLOCA) and Axial Flux Difference (AFD) that provide additional steady state $F_Q$ margin for flux maps to be used after 15,000 MWd/MTU for Cycle 14. | The Movable Incore Detector System (MIDS) was experiencing hardware problems during Cycle 14. Therefore, LBLOCA and AFD analyses were performed for safely operating with less than 38 flux traces. The AFD operating region was reduced, the Peak Clad Temperature limit was reduced and several other changes were made to provide additional steady state $F_Q$ margin. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |

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| 00243150<br>EC 67430, Rev. 0 | EC 67430 relocated the Emergency Core Cooling System (ECCS) recirculation sump level instruments LE-01CT-716ASA and LE-01CT-716BSB from the upstream side of the screens to the downstream side of the strainers, due to physical interferences with the new sump strainers that were installed by EC 64377 (discussed below in Log Number 00246460). The old location of the instruments allowed for monitoring of the strainers to determine if flow was being restricted, which cannot be accomplished by the new design. The new strainers are designed for operation in debris-laden water and eliminate flow restriction problems. Therefore, monitoring for flow restrictions is not a concern with the new design. | New containment recirculation sump screens were installed to resolve NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors." This required the relocation of the ECCS recirculation sump level instruments. The instrumentation was designed with perforated plate to protect the operation of each instrument's float from debris-laden water. The instrument ranges and setpoints are the same as the original design. These level instruments are still used for the detection of an accident and accomplishment/verification of accident mitigation. Only the monitoring for flow restriction function of these instruments was eliminated, since the new strainers were designed for operation in debris laden water. The FSAR and emergency operating procedures were reviewed and revised to assure that all regulatory criteria were met and the descriptions were up to date. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |
| 00246460<br>EC 64377, Rev. 1 | EC 64377 replaced the containment recirculation sump screens to resolve NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors." The new strainers were designed to improve long-term Residual Heat Removal and Containment Spray sump recirculation capabilities with debris-laden post-accident water. | The new strainers were installed to resolve NRC Generic Letter 2004-02. The new design utilized approved industry analytical methods that were consistent with current regulatory guidance to demonstrate adequate Net Positive Suction Head (NPSH) with up to 50% blockage and resistance to air entraining vortices. This was a change in the FSAR described methodology for the old design that used scale model testing coupled with analysis to demonstrate that under the worst case design basis conditions, adequate NPSH is always available to all ECCS pumps. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |

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| 00256968<br>EC 54865, Rev. 0 | EC 54865, Rev. 0 identified postulated fires that presented design concerns that were not addressed in the original fire protection design of the safe shutdown components. Therefore, compensatory measures that require additional manual actions were established in accordance with the approved HNP fire protection program (FPP-013) to correct the design concerns. These compensatory measures were placed in effect until EC 54865, Rev. 1 can be developed and approved to make the physical changes required to correct the design deficiencies. EC 54865, Rev. 0 also described the revisions to calculations, analyses, procedures, and other plant documents as necessary to implement these compensatory measures and satisfy the concerns of the Safe Shutdown Analysis (SSA). No physical plant changes were authorized with EC 54865, Rev. 0. | HNP implemented a safe shutdown re-validation program to validate aspects of the fire safe shutdown analysis, identify deficiencies, and determine corrective actions. In the safe shutdown re-validation, additional components were incorporated into the analysis to evaluate the impact of postulated spurious operations on the capability of safe shutdown systems to perform their safe shutdown functions. New circuit analysis criteria have added failure modes not evaluated in the previous analysis. The result is that new manual actions must be credited in several plant fire areas in order to achieve safe shutdown. The addition/revision of new manual actions has resulted in the need to add or revise post fire plant operating procedures. EC 54865, Rev 1 will make any required physical plant changes and update the post fire plant operating procedures. Compensatory measures, in accordance with the approved HNP fire protection program (FPP-013), have been established for each proposed operator manual action. These compensatory measures were established as a condition of turnover of the new safe shutdown program. The compensatory measures have been evaluated and verified as feasible. This feasibility evaluation was performed using licensed or certified Senior Reactor Operators and qualified Safe Shutdown Auxiliary Operators. The safe shutdown re-validation demonstrated that safe shutdown can be achieved and maintained using compensatory measures. This was accomplished by achieving each of the individual safe shutdown functions of RCS inventory and pressure control, decay heat removal, required support functions, and monitoring critical plant parameters as specified in applicable NRC guidance documents. The safe shutdown re-validation did not affect the frequency of postulated fires, since it does not change the combustible inventory or fire loading of any plant fire areas. No new ignition sources or new activities that may contribute to the occurrence of fires were introduced. No physical changes to plant equipment were made. This activity does not increase the frequency, likelihood of occurrence or consequences of an accident or a malfunction of an SSC important to safety more than minimally, does not create a possibility for an accident of a different type or a malfunction with a different result, does not result in a design basis limit being exceeded or altered, and does not depart from a method of evaluation. |