Progress Energy

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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
ANNUAL ENVIRONMENTAL (NON-RADIOLOGICAL) OPERATING REPORT

Ladies and Gentlemen:

In accordance with Section 5.4.1 of the Environmental Protection Plan issued as Appendix B to the Operating License (NPF-63) for the Harris Nuclear Plant, Carolina Power & Light Company, doing business as Progress Energy Carolinas, Inc., provides the enclosed Annual Environmental (Non-Radiological) Operating Report for 2005.

If you have any questions regarding this information, please contact me at (919) 362-3137.

Sincerely,

for DHC

JOHN P. YARNSLEY

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

DHC/mgw

Enclosure

c: Mr. R. A. Musser (NRC Senior Resident Inspector, HNP)
Mr. C. P. Patel (NRR Project Manager, HNP)
Dr. W. D. Travers (NRC Regional Administrator, Region II)

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

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SHEARON HARRIS NUCLEAR POWER PLANT

UNIT 1

ANNUAL ENVIRONMENTAL (NONRADIOLOGICAL) OPERATING REPORT

January 1- December 31, 2005

CAROLINA POWER & LIGHT COMPANY,
DOING BUSINESS AS PROGRESS ENERGY CAROLINAS, INC.

Docket No. 50-400

Facility Operating License No. NPF-63
Appendix B

1.0 INTRODUCTION

Carolina Power & Light Company (CP&L) received a low-power Facility Operating License (No. NPF-53) and full-power Facility Operating License (No. NPF-63) for the Shearon Harris Nuclear Power Plant, Unit 1, from the U.S. Nuclear Regulatory Commission (NRC) on October 24, 1986, and January 12, 1987, respectively. Appendix B (the Environmental Protection Plan [nonradiological]) of the full-power license requires submittal of an Annual Environmental (nonradiological) Operating Report to the NRC describing the implementation of the plan during the previous year. The purpose of this document is to fulfill the requirement for the period January 1-December 31, 2005.

On January 1, 2003, Carolina Power & Light Company adopted the brand name Progress Energy Carolinas, Inc.

2.0 PLANT CONSISTENCY REQUIREMENTS [EPP Section 3.0]

2.1 Plant Design and Operation

During 2004, the Harris Nuclear Plant (HNP) received authorization from the North Carolina Division of Water Quality (NCDWQ) to construct improvements to its wastewater treatment facility. Plans included adding a smaller treatment facility, refurbishing the two existing facility's tanks, and replacing the existing lab and office building. These facilities were completed in 2005.

During 2004, HNP began upgrades to its potable water and demineralization make-up water treatment systems. This system became operational in January 2005.

See Section 6.2 for additional details on the changes mentioned in Section 2.1.

There were no changes in plant design or operation and there were no tests or experiments performed which involved a potentially significant unreviewed environmental question during the reporting period.

2.2 Reporting Related to the NPDES Permit

Required NPDES monitoring data were submitted to the NCDWQ via monthly discharge monitoring reports and separate correspondence as warranted.

3.0 UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS [EPP Section 4.1]

No occurrence of an unusual environmental event that would indicate or could result in a significant environmental impact causally related to plant operations occurred during the reporting period. No releases or exceedances of permit conditions caused any significant environmental impact. The existence of biofouling organisms (Asiatic clams, *Corbicula fluminea)* and the presence of troublesome aquatic vegetation (hydrilla, *Hydrilla verticillata*) in Harris Reservoir were considered important topics worthy of inclusion in this report.

3.1 Aquatic Biological Monitoring

A. Inspections for Asiatic clams (*Corbicula fluminea*) in the Harris Nuclear Plant Emergency Service Water System (e.g., intake structures)

The frequency for inspecting the Emergency Service Water (ESW) intake structure was changed to once every 3 years during 2003. The change was based on an engineering evaluation (Engineering Change 49074) of HNP's Generic Letter 89-13 Testing and Inspection Program. No formal inspections of the ESW intake bays or the Cooling Tower Makeup (CTMU) bay occurred during 2005.

No clogging events of HNP cooling water systems occurred during 2005 as a result of Asiatic clam infestation.

B. Monitoring for hydrilla (*Hydrilla verticillata*), a nonnative aquatic weed.

On November 30, 2005, an intensive, visual survey of the shoreline was conducted in the Thomas Creek arm of the Harris Reservoir and in the HNP intake canal. Similar to previous years, the dominant aquatic vegetation was hydrilla and water primrose (*Ludwigia* spp.). The area coverage of both aquatic weeds was approximately 25% less than observed in 2004. No additional habitat colonized by either species was observed.

The shoreline of the HNP auxiliary cooling reservoir intake canal was surveyed on November 30, 2005, and no hydrilla was found. Neither was hydrilla found at other locations in the auxiliary cooling reservoir including the back portions of the reservoir. Small amounts of the native aquatic plants *Eleocharis* spp. and *Typha* spp. were observed. Also, small amounts of water primrose stems were observed floating in the auxiliary cooling reservoir. The population size of grass carp (*Ctenopharyngodon idella*) was sufficient to prevent the infestation and spread of hydrilla in the auxiliary cooling reservoir in 2005.

No impacts to HNP operations from aquatic vegetation occurred in 2005.

4.0 ENVIRONMENTAL MONITORING [EPP Section 4.2]

4.1 Aquatic Monitoring [EPP Section 4.2.1]

Under the authority of the Clean Water Act, the state of North Carolina issued a National Pollutant Discharge Elimination System (NPDES) permit (NC0039586) for HNP on May 1, 2002, that remains in effect until July 31, 2006. This permit includes the Harris Energy & Environmental Center (HE&EC) sewage treatment plant discharge as an outfall (007).

This permit requires that a state-certified laboratory perform the laboratory analyses performed on all non-field parameters analyzed for effluent samples. In accordance with this requirement, the HNP Environmental & Chemistry Laboratory was certified by the NCDWQ as a Wastewater Laboratory, effective January 1, 2005, and valid through December 31, 2005. In addition, during 2005 the Progress Energy Chemistry Laboratory at the HE&EC contracted with two NCDWQ-certified private laboratories, Tri-Test Laboratories and Environmental Testing Solutions, Inc., to perform analyses.

On December 21, 2005, a maintenance inspection was conducted at the Harris Power Plant Laboratory (Certificate Number 398) by the NCDWQ. As a result of the inspection, three deficiencies and several comments were identified which are being addressed by the laboratory. These comments and deficiencies had no adverse impact on previous lab results nor prevent or limit continued lab use.

4.1.1 Effluent Monitoring

Routine effluent monitoring was conducted and reported to the NCDWQ as required by the NPDES permit. Three reportable NPDES noncompliances occurred during 2005. The following is a summary of each noncompliance reported to the NCDWQ.

Harris Nuclear Plant, October 2005 Discharge Monitoring Report /DMR) For Outfall 002, Permit Number NC 0039586

On October 24, 2005, the operator in responsible charge (ORC) sampled Outfall 002 for Total Suspended Residue (TSR) as required under the NPDES permit. The sample analysis results were 69.5 mg/l, exceeding the daily maximum permit limit of 45 mg/l for TSR. This exceedance did not cause an exceedance of the monthly average for TSR.

The week of October 24, 2005, excessive foaming was noted at the Sewage Treatment Plant. Settleability samples of the influent, aeration tank and the effluent exhibited a suspended cloudy layer. Possible causes of the cloudy suspended material were cleaners and wax, kitchen grease and polymers. The colder ambient temperatures may have contributed to the upset. Interviews with plant personnel did not reveal any changes in chemical usage for the week. The investigation revealed an excessive amount of polymer in the sample.

The BOD and Fecal Coliform samples taken that day were less than 2 mg/l, which is consistent with normal BOD and Fecal Coliform results for Outfall 002. The next TSR sample taken from the Outfall on November 1, 2005, was 24.4 mg/l.

Harris Energy & Environmental Center, October 2005 Discharge Monitoring Report (DMR) For Outfall 007, Permit Number NC 0039586

On October 26, 2005, the ORC sampled Outfall 007 for Biological Oxygen Demand (BOD) as required under the NPDES permit. The sample analysis results were 35 mg/l, exceeding the daily maximum permit limit of 22.5 mg/l for BOD and also causing an exceedance of the monthly average for BOD.

On the day of sampling no system abnormalities were noted in the log book by the ORC and the system was functioning normally. The ammonia sample taken on that day was less than 0.02 mg/l. The other BOD sample taken that month on October 12th had a result of less than 2 mg/l, which is consistent with normal BOD results for Outfall 007. The next sample taken from the Outfall was on November 9, 2005, with a subsequent result of less than 2 mg/l.

The ORC could find no operational reason for the high BOD result. The high BOD result was inconsistent with the samples taken 2 weeks prior and 2 weeks after the October 26th result, and inconsistent with historical results from the system. The system has a residence time of approximately 20 to 25 days, and gave no indication of a potential BOD issue with the October 12th sample, nor did it give any indication of a past issue with BOD on the November 9th sample result.

Therefore, the scenario of an upset condition in existence at the plant during those two weeks is unlikely; given no prior or post sample indication of high BOD, which should have been detected given the amount of residence time in the system. The only conclusion available was a sample bottle contamination either during sample collection or during the seeding of the sample before analysis.

Harris Nuclear Plant, December 2005 Discharge Monitoring Report (DMR) For Outfall 002, Permit Number NC 0039586

On December 13, 2005, the operator sampled Outfall 002 for Total Suspended Residue (TSR) as required under the NPDES permit. The sample analysis result was 47.0 mg/l, exceeding the daily maximum permit limit of 45 mg/l for TSR. The monthly average was 32.6 mg/l which caused an exceedance of the monthly average (30.0 mg/l). The daily TSRs were elevated. Inadequate polymer feed was determined to be the apparent cause of the elevated TSR.

All other parameters for Outfall 002 were in specification.

NPDES Inspection

On April 29, 2005, a compliance evaluation inspection was conducted at the Harris Nuclear Plant by the NCDWQ. No deficiencies were identified as a result of the inspection. The inspector documented several comments which required no response.

4.2 Terrestrial Monitoring [EPP Section 4.2.2]

Terrestrial monitoring is not required.

4.3 Noise Monitoring [EPP Section 4.2.3]

Noise monitoring is not required.

5.0 EPP AUDIT [EPP Section 5.1]

An audit conducted by an independent corporate entity was performed to verify the completeness and accuracy of the conditions and activities described in this annual environmental operating report. The results of the audit are on file and available for inspection.

6.0 PLANT REPORTING REQUIREMENTS [EPP Section 5.4]

6.1 EPP Noncompliances

There were no EPP noncompliances identified during the reporting period. Three reportable NPDES noncompliances (Section 4.1.1) occurred during 2005.

6.2 Changes in Station Design

In February 2004, HNP received authorization from the NCDWQ to construct improvements to its wastewater treatment facility. HNP constructed one 15,000 gpd treatment facility to replace the existing two treatment facilities. The existing treatment facilities tanks were refurbished for storage use. In addition, the existing lab/office building was demolished and replaced with a new one and a new sodium hypochlorite chemical feed and bulk storage system was constructed. HNP requested that the NPDES Permit (NC0039586) be modified by reducing the monthly flow average from 0.05 to 0.025 million gallons per day. This project was completed in 2005.

During 2004, HNP began upgrades to its potable water and demineralization make-up water treatment systems. The new system consists of a dual-train, dual-barrier membrane treatment process. In support of the upgrades, the NCDWQ issued a minor modification to the NPDES Permit (NC0039586) to include membrane backwash water as a low-volume waste and allow discharge of said

water through internal Outfall 004. This project was completed in January 2005.

6.3 Non-routine Reports

There were no non-routine reports submitted in accordance with EPP Section 5.4.2. There was three NPDES reportable events (Sec. 4.1.1) identified during the reporting period.

6.4 Other Reporting Requirements

There were no other EPP reportable events during 2005.