CATEGORY 1

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SUBJECT: Provides results of an audit conducted on 950124,of HNP auxiliary dam.Written response to recommendations was requested within 180 days & submits response to recommended actions.

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CP&L

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APR - 9 1998

SERIAL: HNP-98-047

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 LICENSEE ACTIONS NEEDED ON CATEGORY I AUXILIARY RESERVOIR DAM

Dear Sir or Madam:

By letter dated October 2, 1997, the NRC provided "Results of Dam Safety Audit Related to the Category I Auxiliary Reservoir Dam at the Shearon Harris Nuclear Power Plant." This letter, received by Carolina Power & Light Company (CP&L) on October 14, 1997, provided results of an audit conducted on January 24, 1995 of the Harris Nuclear Plant (HNP) Auxiliary Dam. Enclosure 1 of the letter contained a list of actions that should be taken by CP&L to ensure the continued safety of the Auxiliary Dam. A written response to these recommendations was requested within 180 days of the receipt of the letter. CP&L hereby submits a response to the recommended actions.

Please refer any questions regarding this submittal to Mr. J. H. Eads at (919) 362-2646.

Sincerely,

W R Robinson

AEC/aec

Enclosure

c: Mr. J. B. Brady (NRC Senior Resident Inspector)
Mr. L. A. Reyes (NRC Regional Administrator, Region II)
Mr. S. C. Flanders (NRR Project Manager, HNP)

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SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
RESPONSE TO LICENSEE ACTIONS NEEDED ON
CATEGORY I AUXILIARY RESERVOIR DAM

By letter dated October 2, 1997, the NRC recommended actions that should be taken by Carolina Power & Light Company (CP&L) to ensure the continued safety of the Harris Nuclear Plant (HNP) Auxiliary Dam. CP&L provides the response to the recommended actions below.

Recommended Action 1

During the audit it was noted that vegetation has been allowed to establish itself on the crest roadway and in the riprap. All vegetation should be removed from these areas and the areas should be maintained free of the vegetation to preclude root entry into the impervious core which, after the end of life of the individual plant, will leave entry paths of precipitation, etc. into the core. Subsequent freeze-thaw cycles can then begin to degrade the as-built integrity of the impervious core. This process repeated numerous times over the years can lead to an increasing depth of the degradation of the core as a progressive attack. The vegetal growth may also attract certain animals that will burrow into the dam elements. Such animal activity can also lead to degrading conditions at a dam. In addition, vegetal growth on the dam surfaces can mask subtle changes that may be occurring in the geometry of the dam surfaces and prevent adequate visual inspections and evaluations from being conducted.

Response to Recommended Action 1

In 1996, vegetation along the West Auxiliary Dam crest and riprap was sprayed with a post-emergent herbicide. Large vegetation was removed in 1997. By August 31, 1998, the dam crest and riprap will be sprayed again with a post-emergent herbicide and any new sapling and shrub growth will be removed. This includes the trees and brush that have become established along the downstream abutment groin and along the toe of the dam that is not permanently submerged in the Main Reservoir.

Recommended Action 2

The audit revealed that trees and brush have become established along the downstream abutment groin and along the toe of the dam that is not permanently submerged in the Main Reservoir. Additionally, the erosion process along the abutment groin has initiated, with some erosion channels up to 16 to 18 inches or more in depth, and the process continues to be active. The erosion process along a portion of the toe of the dam has been made more pronounced because the natural ground slopes toward the toe of the dam. This results in surface runoff being channeled toward the toe which in several years has resulted in erosion of materials from under the riprap at the toe. Areas were observed where the riprap appears to have settled as the underlying materials were eroded. These areas should be cleared of trees and brush, and regrading should be accomplished so that surface runoff is not directed toward the tow. It is suggested that a toe ditch be installed to adequately direct the runoff away from the toe of the

dam. All areas of regrading and those existing without adequated cover should be protected to prevent erosion.

Response to Recommended Action 2

A work ticket has been initiated to regrade and/or riprap areas at the downstream abutment groin of the dam. Regrading will redirect surface water runoff away from the toe of the dam to prevent further undercut of the dam embankment. Riprap will be placed in any drain ditches to stabilize the ditch. Disturbed soil will be seeded to prevent erosion. This work will be completed by September 30, 1998. The trees and brush that have become established along the downstream abutment groin and along the toe of the dam that is not permanently submerged in the Main Reservoir will be removed, as discussed in response to recommended action 1.

Recommended Action 3

During the audit it was noted that there was an area of spalled concrete on the right (west) spillway wall at the construction joint above the spillway crest. It also appeared that the area was part of a larger area that had been repaired previously. This spalled concrete should be repaired. Protection of the newly repaired area as well as the old repair area with a high quality concrete sealer/waterproofing may help in stabilizing the repaired area by retarding water entry into the concrete, thus reducing the weathering effects on the repair area.

Response to Recommended Action 3

The spalled concrete on the spillway wall was repaired in 1997 using an epoxy concrete patching material.

Recommended Action 4

A review of the periodic data collected an analyzed by CP&L personnel indicated that piezometer ADP-21A is included in the monitored instrumentation as defined in Engineering Periodic Test, EPT-811, "SHNPP Dam/Dike/Retaining Wall Monitoring Procedure," dated 7/22/91, with Rev. 2, 1/22/93. The as-built drawings do not reflect the existence of ADP-21A. The as-built drawings should be revised to accurately update the actual installation and should include information on the piezometer location, diameter, depth, depth to seal and the depth range of the slotted pipe section.

Response to Recommended Action 4

Plant drawing CAR-2167-G-6270, Revision 8, "Reservoir West Auxiliary Dam General Plan" is the as-built drawing that denotes location of piezometers at the West Auxiliary Dam. Piezometer ADP-21A is shown on this drawing under the Schedule of Piezometers. The piezometer's location is identified, but its depth, depth to top of seal, and slotted between depths data is not recorded. A field change request added piezometer ADP-21A to the drawing, but the piezometer depth, depth to top of seal, and slotted between depths data was not recorded, and is unknown.

The drawing will be revised to pictorially represent the location of ADP-21A, and the Schedule of Piezometers chart will have the piezometer depth, depth to top of seal, and slotted between depths columns indicated as "Not Recorded." Also, revision of this drawing will require revision of FSAR Figure 2.5.6-3. This will be completed by September 30, 1998.

Recommended Action 5

Records that were reviewed during the audit included data from the piezometers and survey monument movements that had been put into graphical form. It was noted that data plots were made for each year reflecting the quarterly data. In order to clearly reflect the historical data and to identify trends or anomalies, at least 4 or 5 years of data should be included on the plots and the scaling should be such as to readily highlight the changes. It is also suggested that the vertical movement/settlement of the survey monuments be plotted separately from the horizontal movement/deflection of the survey monuments and that an amplified scaling of the values be used. The data should be reflected on the plots at the same frequency the data are recorded from the field and not held until several new sets of data are available. Consider incorporating these suggestions into the existing procedures.

Response to Recommended Action 5

The recommendations for graphically recording historical data for piezometers and monument markers will be implemented. These changes will be completed by September 30, 1998.