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50-403
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RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. OFFICE OF NUCLEAR REACTOR REGULATION

SUBJECT: FORWARDS INFO & COMMITMENTS IN RESPONSE TO 790320 QUESTIONS RE STRENGTH OF WEATHERED ROCK FOUNDATIONS & IN-PLACE GRADUATION O RANDOM EMBANKMENT MATL.

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Carolina Power & Light Company

April 9, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, D. C. 20555

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NOS. 1, 2, 3, AND 4
DOCKET NOS. 50-400, 50-401, 50-402, AND 50-403
IN-PLACE TEST FILL PROGRAM

Dear Mr. Denton:

In response to your staff's questions of March 20, 1979, concerning the strength of the weathered rock foundations and in-place gradation of random rockfill embankment material for the Shearon Harris Nuclear Power Plant's (SHNPP) auxiliary dam and separating dike, the following information and commitments are provided:

1. Ebasco Specification CAR-SH-CH-4, Embankments, Dams, Dikes, and Channels," has been revised to require:

   a) The minimum allowable dry density of the in-situ residual soil where the dam and dike embankments will be placed on suitable soil shall be 98 lb/ft^3. The expected average dry density should be 109 lb/ft^3. (Design parameters - See PSAR Appendix 2E).

   b) The dam and dike residual soil foundation shall be proof rolled to identify wet or soft material. The proof rolling shall consist of slow travel with a loaded pan over 100 percent of the soil surface in both the longitudinal and transverse axis. In areas where the width is restrictive, the proof rolling will be completed only in the longitudinal direction. Any soft or wet material identified shall be removed and replaced with suitable material in accordance with Paragraph 104.

   c) The minimum dry density for the in-place random rock fill zone shall be 130 lb/ft^3. The average dry density for the in-place random rock fill zone shall be 135 lb/ft^3.

   d) A site geologist and soil engineer will map and classify the foundation in accordance with ASTM visual classification methods to verify that the foundation conditions conform to the boring data.

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411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

2. SHNPP Technical Procedure TP-08, "Soil Control Program - Class I Dams, Fill and Backfill," has been revised to require:

   a) After excavation of unsuitable material where the dam or dike embankment material will be placed on in-situ residual soil, field density tests shall be performed on the prepared surface at a frequency of one test every 5000 ft^2. The density tests shall be completed prior to proof rolling.

   b) Proof rolling of residual soil where embankment material will be placed shall be monitored by a qualified inspector to assure any wet or soft material zones are removed and replaced with suitable material in accordance with Ebasco Specification CAR-SH-CH-4.

   c) An in-place density test and gradation analysis of the rockfill and random rockfill material shall be performed for every 20,000 cubic yards of material placed. If the first two tests for both density and gradation indicate results consistent with test fill criteria, the frequency can be reduced to every 40,000 cubic yards.

Carolina Power & Light Company believes that the above information will allow your staff to approve the in-place test fill program for the SHNPP auxiliary dam and separating dike.

Yours very truly,

M. A. McDuffie
Senior Vice President
Engineering & Construction

RGB/mf

cc: Mr. J. C. Bryant