UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 15 1979

Docket No. 50-395

Dr. Lamar Priester, Jr.
Deputy Commissioner for Environmental
Health and Safety
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Dear Dr. Priester:

As you may be aware, the Nuclear Regulatory Commission staff has in recent months been conducting the environmental impact review necessary for issuance of an operating license for the Virgil C. Summer Nuclear Station in Fairfield County, South Carolina. During this period, we have closely reviewed aquatic biological and water quality monitoring programs for the Summer plant as contained in the NPDES permit, and related study plans.

While we have determined that the environmental impacts of the Summer plant will be acceptable for licensing under the present limiting conditions of the NPDES permit and applicable study plans, we believe that certain aspects of the aquatic biological and water quality monitoring programs could bear reconsideration in order to assure that their objectives are met. Areas of special interest to us together with staff recommendations for modifications of the monitoring programs are included in Enclosure 1. These changes have been discussed with Messrs. Charles Jeter and Jack Preston of the South Carolina Department of Health and Environmental Control on several occasions.

We would appreciate your review and consideration of these suggested changes in the NPDES monitoring program. As noted, we feel that these modifications could substantially improve the effectiveness and efficiency of the monitoring program.

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We understand from our discussions with Mr. Preston that these matters of interest to the staff will be appropriately considered in the development of any revisions to the present NPDES permit.

Sincerely,

Ronald L. Ballard

Ronald L. Ballard, Chief
Environmental Projects Branch 1
Division of Site Safety
and Environmental Analysis

Enclosure:
As stated

cc: C. Kaplan,
EPA Region IV

Enclosure 1

NRC STAFF COMMENTS AND RECOMMENDATIONS ON AQUATIC BIOLOGICAL AND WATER QUALITY MONITORING PROGRAMS

Virgil C. Summer Nuclear Station
Richfield County, South Carolina

May, 1979

I. Aquatic Biological Monitoring

A. Staff Comment

1. In order to evaluate the future biological activity of Monticello Lake, and the extent and impact of presently unknown impingement/entrainment losses, the staff feels that some changes in the presently proposed aquatic monitoring program would be advisable. These additional monitoring requirements have particular importance in view of the present lack of baseline data, the complexity of the aquatic ecosystem to be established, and the unknown potential for entrainment impacts. High turbidity levels at some stations due to pumped storage operation should also provide strong consideration for use of alternative methods of phytoplankton biomass determination.

B. Recommendations for Modifications in Monitoring Program

1. Consideration should be given to alternative methods of phytoplankton biomass determination (such as pheophyton-corrected chlorophyll determination or ATP Analysis Ref: EIS, p. 5.8; NPDES Thermal Study Plant (TSP), p.4).

2. Ichthyoplankton simples should be taken on a monthly basis from October to January in addition to the proposed sampling schedule. (Ref: EIS, p. 5-8; NPDES TSP, p. 9, Table 2).

3. Fish sampling should be conducted on a monthly basis instead of quarterly. (Ref: EIS, 5-9; NPDES TSP, p.9-10, Table 2).

4. Impingement monitoring at the Virgil C. Summer cooling water intake should commence when the station achieves 3% of its rated thermal output (rather than 60 days after commercial operation begins). (Ref: EIS, p. 5-18; NPDES, p. 10).

5. Impingement monitoring should be conducted on a weekly basis (rather than biweekly) in order to detect impingement events which tend to be pulsed in nature. (Ref: EIS, p. 5-18; NPDES 316(b) Demonstration Plan p. 3).

6. Any riverine rotenoning that is conducted should be neutralized by the application of an appropriate oxidizing agent to avoid unintentional fish mortalities (Ref: EIS, p. 5-9; NPDES TSP, Table 2).

II. Water Quality Studies

A. Staff Comment

The staff believes after reviewing the applicant's monitoring program that the thermal monitoring procedure as proposed may not be adequate to consistently and reliably determine compliance with State temperature limits. Present State thermal criteria establishes monthly averaged excess temperature at Station 12 not to exceed 1.7°C (3.0°F). Two matters are of concern to the staff regarding compliance with the temperature criteria. These are:

1. The applicant's thermal analysis indicates that the ambient Station 17 may not be outside the influence of the thermal plume.

2. Natural surface water temperature in Monticello Reservoir is not likely to be homogeneous, as assumed in the thermal analysis. Impounded water often develops natural horizontal temperature gradients as a result of wind-driven flow, bathymetry, and selective withdrawal. An excess temperature based on a two-point difference will likely be non-zero (positive or negative) and of significant magnitude without the addition of artificial heat.

The staff, based on its review, has developed a revised methodology for excess temperature determination of Station 12. This revised methodology would be expected to offer a more realistic and workable approach to the temperature determination problem. This revised methodology consists of:

1. Installation of a continuously recording thermograph in the recreational area, Station 18, should be considered.

2. Redesignation of Station 17 and Station 18 as ambient control stations should be considered.

3. Regression analyses between Station 17 and Station 12, and between Station 18 and Station 12, using the preoperational monitoring data should be performed. Such analyses should be done on a monthly basis and as a function of the Fairfield pumped storage facility cycle. For instance, for each month and each pair of stations, four regression analyses would be performed to generate four algebraic expressions: one for each of the two slack periods.

4. For the operational monitoring program, ambient temperatures at Station 12 should be predicted hourly, using the observed temperature data from both control stations (17 and 18) and the algebraic regression equations developed in Recommendation 3 above. The station predicting the lower value for ambient temperature at Station 12 should be used as the control station. This predicted temperature may then be subtracted from the measured temperature at Station 12 to establish the "excess" temperature.