

C. Long 5/22
[Signature]

Docket No. 50-395

MAY 15 1972

South Carolina Electric & Gas Company
ATTN: E. H. Crews, Jr., Vice President
Engineering Services-Construction
and Engineering

P. O. Box 764
Columbia, South Carolina 29202

Gentlemen:

A site visit to the Virgil C. Summer Nuclear Station was made on April 11 and 12, 1972, by a team from the Directorate of Licensing and Battelle Memorial Institute-Pacific Northwest Laboratory, to review environmental factors related to the construction and operation of the Summer Plant.

As a result of this visit and our continued review of your plant, additional information will be required to complete our review. Accordingly, please submit by May 31, 1972, the information identified in the enclosure to this letter. If this date cannot be met, please provide an alternate date so we can plan the remainder of our review.

Your reply should consist of three signed originals and 297 additional copies as a sequentially numbered supplement to your Environmental Report.

Sincerely,

D. R. Miller, Assistant Director
for Environmental Projects
Directorate of Licensing

Enclosure:
Request for Additional
Information

cc (see attached sheet)

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PDR ADOCK 05000395
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South Carolina Electric
& Gas Company

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cc: Mr. H. T. Babb, Managing
Director, Nuclear Project
South Carolina Electric &
Gas Company
Post Office Box 764
Columbia, South Carolina 29202

G. H. Fischer
Vice President & General Counsel
South Carolina Electric &
Gas Company
Post Office Box 764
Columbia, South Carolina 29202

Troy B. Connor, Jr.
Reid & Priest
1701 K Street, N.W.
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V. Wilson, Licensing Asst, PWR #3, L
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SS	OFFICE	EP:PB #1:L	EP:PB#1:L	EP:ADDP:L		
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REQUEST FOR ADDITIONAL INFORMATION FOR ENVIRONMENTAL IMPACT REVIEW
VIRGIL C. SUMMER NUCLEAR STATION

A. HEAT DISSIPATION AND RELATED WATER SYSTEMS

1. Provide a design description of the present cooling water outlet structure for the Summer Station. Describe alternate plant outflow designs to eliminate the holdup time in the discharge basin and to control the dispersion of the thermal discharges from the once-through cooling system.
2. Provide information on the travel time through the condenser cooling system, particularly from the point of contact with the heated water until discharge from the outfall into the proposed Lake Monticello.
3. Provide representative data on the temperature differences between the Parr Reservoir and the proposed Lake Monticello, including the monthly maximum, minimum and average water temperatures. Include the expected equilibrium temperatures and surface depth isotherms in Lake Monticello.
4. Provide data on the monthly maximum, minimum and average stream flows between the two water bodies and indicate how the outflow between the lake and the reservoir contributes to surface circulation of the lake.
5. Describe the expected behavior of Lake Monticello during different times of the year, such as the turnover frequency and stratification formation. If lake stratification prevents turnover and becomes permanent, provide information on the areas of the lake where dissolved oxygen may differ between different lake strata. Supply data on this effect on the dissolved oxygen in the water discharged from the lake to the reservoir and in the reservoir itself.
6. The inlet and outlet flow into Parr Reservoir may be expected to give a backflow to the reservoir system. The Broad River is also turbid. Evaluate the anticipated extra turbidity of Lake Monticello and Parr Reservoir by the back and forth motion from operation of the pumped storage facility and from the possible erosion of the shorelines of the lake as the water elevation fluctuates. Describe precautions taken against excess turbidity from construction, particularly dredging activities and the extent of maintenance dredging anticipated.

7. Assess the significance of erosion of the shores on Lake Monticello and Parr Reservoir during the life of the Summer Station as the water elevation fluctuates. Provide information on stabilization of critical regions of the shoreline.
8. Provide calculations showing the rate and depth of silting fill-in of Lake Monticello due to the daily pumping of the turbid water of the Broad River. Supply the basis for calculations of the silting rate and re-entrainment. Provide data for measured values of turbidity of both ends of the Parr Reservoir and copies of records on how the silting has filled in the Parr Reservoir over the years. If available, provide data on silting from other nearby lakes for basis of comparison.
9. Describe the location and design of the baffle to be used in Lake Monticello.
10. Provide operating costs and descriptive data (dimensions and operational characteristics) of cooling towers or other cooling systems which could be alternatives to the Summer Station once-through cooling system and would be functional as an alternative to the Summer site.

B. SITE, METEOROLOGICAL, AND RADIOLOGICAL CONSIDERATIONS

1. Provide estimates of the downwind extent of possible steam fogs, including assumptions used and calculations made of the estimates.
2. Estimate the frequency and duration of temperatures below 32°, 25° and 20°F throughout the winter.
3. Provide information on the effect of the presence of Lake Monticello on the local humidity climatology. Include dewpoint data. Provide a joint frequency distribution of relative humidity, temperature, and wind speed.
4. Provide information on studies made on alternative sites in which economic and environmental considerations have been taken into account. Consider sites far from the present site and include updated information on the possibility of off-shore sites. Provide cost figures for site locations near the sea, near Charleston, James Island, Sullivan Island or other locations.
5. Provide a copy of the referenced material from Reference No. 2 of Appendix B.

6. To estimate radiation exposures to man, provide the extent of recreational use of the Broad River below the plant discharge.
7. For estimating the radiation dose from iodine-131, provide information on the direction and distance to the nearest dairy herds. Include data on the number density and location of milk cows that could be located closer to the site than the nearest commercial dairy farm.

C. CHEMICAL AND SEWAGE DISCHARGES

1. Provide information on the maximum, minimum, and average concentrations, the amounts discharged, and discharge rates of all chemicals discharged to the holdup basin and Lake Monticello during plant startup and operation.
2. Describe the sewage disposal system and its location including the location of the field tile.

D. ECOLOGY

1. Describe the details of the land tract with the U.S. Forest Service which will serve to improve or establish a wildlife habitat. Describe actions anticipated to improve the wildlife habitat for ducks, deer and turkeys.
2. Provide information on the present turkey population in the Frees Creek-Parr Reservoir area.
3. Provide the hunter success-ratio in Fairfield and Richland Counties for ducks, turkey, deer and varmints. Estimate the number of hunters in the area.
4. Large areas will be subject to daily drawdowns during operation, exposing the surface daily to both aquatic and terrestrial conditions. Describe the vegetation and estimate the area of the surface to be exposed during the daily drawdown in Lake Monticello and the Parr Reservoir.
5. Estimate the area in the proposed Lake Monticello impoundment that will be clearcut before filling.
7. Estimate the proportion of the increase in the area in hardwoods to be inundated by the expanded Parr Reservoir and the proportion of the area forested in hardwood by formation of the proposed Lake Monticello.

8. Through your consultant, provide a summary of the data on the ecology of Frees Creek.
9. Describe the effects of pumping of the hydroelectric pumped storage facility on the formation of aquatic ecosystems in Lake Monticello. Describe the formation of the fishing area in Lake Monticello, the factors affecting its size, and methods used to sort out the desirable fish from the undesirable fish. Describe your plans for stocking the lake. Include information on the effects of the once-through cooling system of the Summer Plant on the aquatic biota (i.e., entrainment of larvae and eggs), particularly when Lake Monticello is at its maximum and minimum water elevation.

E. POWER NEEDS AND COST-BENEFIT ANALYSIS ON CONSTRUCTION EFFECTS

1. Supply information on the reserve capacity during the summer peak period that the Southeast Electrical Reliability Council considers to be reasonable for the Virginia-Carolinas Subregion.
2. Provide information on a survey made to assess the impact of construction on the nearby communities.
3. Discuss the economic incentives, penalties, and tradeoffs for using the higher temperature differential of 25°F with 10⁶ gallons per minute of cooling water rather than a lower temperature differential, across the condenser, for example, 15°F. It was found that the early results from the Alden model tests suggested that a 25°F Δt across the condenser would result in water flowing at a lower temperature at the outfall of the Fairfield Hydroelectric Station than for the case when a 15°F Δt existed across the condenser, i.e., 1.6°F versus 4.1°F at the outfall. However, in the Alden Progress Report of December 1971, a temperature rise of 3.9°F at the Fairfield Hydroelectric Station outfall resulted under similar conditions for a 25°F temperature rise across the condenser. This represents an insignificant change from the early case of the 15°F Δt .

F. ENVIRONMENTAL APPROVALS AND CONSULTATIONS

1. Furnish a list of agencies from which required approvals or permits have been obtained or will be obtained and report the status of each permit. Include the status of the application for the permit under the Water Quality Improvement Act and that under Section 13 of the Refuse Act of 1899. Provide copies of these permits, if available.

2. Furnish a list of agencies which will approve the applicant's construction of dams, the formation of Lake Mancicello, and the pumped storage facility. Provide information as to the status of these approvals.

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FEDERAL GOVERNMENT
COMPLIANCE DIVISION
D. S. V. E. C.