Georgia Power Company
Route 2, Box 299A
Waynesboro, Georgia 30830
Telephone 404 554-9961
404 724-8114

Southern Company Services, Inc.
Post Office Box 2625
Birmingham, Alabama 35202
Telephone 205 870-6011

Vogtle Project

November 15, 1985

Director of Nuclear Reactor Regulation
Attention: Ms. Elinor G. Adensam, Chief
Licensing Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

File: X7BC35
Log: GN-745

REF: ADENSAM TO FOSTER DATED 10/10/85

NRC DOCKET NUMBERS 50-424 AND 50-425
CONSTRUCTION PERMIT NUMBERS CPPR-108 AND CPPR-109
VOGTLE ELECTRIC GENERATING PLANT - UNITS 1 AND 2
SER CONFIRMATORY 5: GROUNDWATER AND SETTLEMENT MONITORING PROGRAM

Dear Mr. Denton:

Attached for your staff's review is our response to the referenced letter. We feel that this response to your staff's concerns is adequate to resolve SER Confirmatory Item 5.

If your staff requires any additional information, please do not hesitate to contact me.

Sincerely,

J. A. Bailey

J. A. Bailey
Project Licensing Manager

JAB/sm
Attachment
xc: R. E. Conway
R. A. Thomas
J. E. Joiner, Esquire
B. W. Churchill, Esquire
M. A. Miller (2)
B. Jones
L. T. Gucwa
G. Bockhold, Jr.
T. Johnson
D. C. Teper
L. Fowler
W. C. Ramsey
Vogtle Project File

0053V

A001
1/1

Response to NRC Staff comments on ground-water monitoring program, transmitted October 10, 1985, (Confirmatory Item 5 on p. 2-33 of the Safety Evaluation Report; "SER").

The NRC requested two recording wells in the water table (unconfined) aquifer; one in the Category I backfill that contains the critical structures for which the design-basis ground-water level is determined, and one in the undisturbed Barnwell sediments. The compacted backfill material is select borrow from Barnwell sands. In the SER it was stated that the wells should be located "...relative to a rain gauge, previously measured high groundwater levels, critical structures, and open ground surfaces... so that correlation between rainfall and groundwater level can be determined". In addition, NRC personnel requested in a telecon, May 20, 1986, that the recording well in the undisturbed Barnwell sediments be located in the area of limestone cavities that were encountered on the north slope of the powerblock excavation.

Well 808 monitors with a continuous recorder, water levels in undisturbed Barnwell sediments in the area of the limestone cavities. It is in an area of open ground, and is 6500 feet north of the meteorlogical tower rain gauge. The second observation well recording water levels continuously, LT-13, is located adjacent to the critical structures in the backfill material. It is on the upgradient side of those structures (the side on which the higher water levels, relative to the structures, can be expected), and is 5,000 feet in a north, northeasterly direction from the meteorlogical tower.

The rain gauge at the meteorlogical tower is sufficiently near both of the recorder wells to closely represent the storm rainfall affecting the water level they are monitoring. A correlation of water-table response to rainfall at the site can be established with each observation well record. Although immediate response to individual storms is unlikely (the time-lag between storm infiltration and percolation to the water table will be relatively long), the water-level recorders are sufficiently sensitive to identify such a response. The continuous recorders have been in operation now for over three months, and sensitivity has been sufficient to detect earth tide effects on the water level. Although several storms have occurred during that period, there is no discernible response to an individual event. A more likely discernible response in relation to recharge from rainfall will be a result of a series of storms (water table rise), or lack of rain (drop in water table). The period of record is not sufficient yet to determine this possibility.

Clarification is needed as to what is implied by "previously measured high ground-water levels". During discussions with the NRC personnel in developing the current monitoring program, reference to previously measured high ground-water levels were those measured in October 1973. It is the time of previously measured highest water levels in nearly all observation wells. The elevation of the water table at the critical structures at that time must be interpolated from the levels in the wells.

The water table beneath the site can be described as a somewhat irregular plane that slopes slightly downward to the north and west. The orientation of that plane remains essentially constant, but it will tend to rise or fall (fluctuate) from year to year, or season to season, primarily in response to variation in rates of recharge. At any one time, the water level in an observation well south, or upgradient of the power block structures will always be higher relative to the level in an observation well at the structures. Thus, although the highest measured water-level in any one observation well will normally reflect when the water table is highest, it will represent the elevation of the water table only at that well. The elevation at any point elsewhere must be estimated by extrapolation, or interpolation, from observation wells in the plane of the water table.

Measurement of water levels in observation wells located adjacent to the critical structures will provide the most direct assessment of the viability of the design-basis water level. Additional observation wells have been installed adjacent to the structures for that purpose. The continuous record of LT-13 will be most significant, along with the measured levels in the other wells adjacent to the critical structures; LT-12, LT-7A and LT-1B. Observation well LT-13 is on the upgradient side of the structures, so that it will provide a direct correlation of the highest water level at the structures to variations in precipitation.

The NRC staff, in suggesting wells 803A and 804 are more appropriately situated in respect to high water levels, appears to be defining "high" as the highest level measured, regardless of its proximity to the structures, or its location in the sloping water table plane. These

wells are upgradient, and over 1000 feet from the critical structures. The water levels in these wells can be expected to always be higher than the water level at the critical structures. They would, of course, provide a basis for correlation with rainfall, but the water table elevation, and correlation at the critical structures, would have to be extrapolated. The continuous record developed at well LT-13 will serve equally well in establishing a correlation with rainfall, and will provide a direct measure of the water level at the structures. Well 808 record will provide a second correlation to rainfall in an area of open ground, away from the structures, for comparison.