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To: "Christian Araguas" <CJA2@nrc.gov>,"Mark Notich" <mdn@nrc.gov>,<michael.sackschewsky@pnl.gov>
Date: 12/11/2006 6:15:53 PM
Subject: Part 2 - NRC Submittal
cc: "Tom C. Moorer" <TCMOORER@southernco.com>

<<Final_Part_2.pdf>>

Merry Christmas!

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From: "Williams, Dana M." <X2DANAWI@southernco.com>

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Priority: Standard
Reply Requested: No
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None

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Security: Standard

impact.

Hydrological and Water Use

As with the existing units, some plant systems will use groundwater. VEGP is currently permitted to withdraw an annual average 5.5 MGD and actually withdraws approximately 1.44 MGD from the Tertiary and Cretaceous aquifers, combined. The new units are anticipated to require an additional 1.08 MGD, approaching half the current permit's limits. While the withdrawals will be within the permit limits imposed by the Georgia EPD, this groundwater will not be available for other uses. Most of the groundwater wells in the area are for domestic or small agricultural uses and do not withdraw large volumes of water so no water use conflicts are expected. Mitigation could include encouraging plant staff to conserve water, but because most of the water is for plant systems, mitigation will do little to reduce total volumes extracted. SNC does not believe that the adverse impact of increased groundwater use will affect other local groundwater users and therefore additional mitigation is not warranted. This will be a short term impact.

Evaporative water losses from the Savannah River will increase. SNC estimates that maximum surface water losses from two new units will be less than 2 percent of the 7Q10. This loss will not be noticeable in the Savannah River, but, as with groundwater, the water will not be available for other users. Downstream of VEGP, the Savannah River is used for some industrial purposes, but the majority of the consumptive losses are to South Carolina and Georgia municipal water supplies. SNC knows of no ways to decrease the consumptive use of Savannah River water or of any mitigation strategies. This will be a short term impact.

Atmospheric and Meteorological

Air emissions would occur from the emergency diesel generators and the auxiliary boilers when these are in use. Because the generators and auxiliary boiler are operated intermittently and for short periods of time, the equipment is permitted for duration of use, rather than contaminants introduced to the air. All equipment is regularly maintained to ensure that emissions are as low as possible. Additional mitigation measures are not warranted. This will be a short term impact.

Radiological

Nuclear power plants emit small amounts of radionuclides to the air and surface water during normal operations. The releases are monitored to ensure that they remain below limits imposed by regulations. The regulatory limit is 25 mrem a year to the maximally exposed individual. SNC estimates that the hypothetical maximally exposed individual

would receive a total body dose of approximately 0.21 mrem per year from VEGP with four operating nuclear reactors. Radiation exposure is unavoidable, because the earth is constantly bombarded with cosmic radiation and because the earth itself emits radiation. The National Council on Radiation Protection estimates that a person living in the United States receives a dose of approximately 27 mrem per year (100 times the dose from VEGP) from cosmic radiation and an additional 200 mrem per year from indoor radon (1000 times the dose from VEGP). SNC monitors the radioactivity in local farm products and water regularly, and provides the results to Georgia EPD and interested members of the public. The small amounts of radioactivity released by VEGP do not warrant further mitigation. The impacts will be short term.

Socioeconomic

Local traffic during shift change will approximately double with the addition of two new units at VEGP. The capacity of River Road as established by the Georgia Department of Transportation is 3,200 cars per hours. Using conservative assumptions regarding size of shifts, SNC estimated that with two additional units, the number of cars on the road during the busiest shift change would be approximately 1,800 vehicles, less than the road capacity. During the month-long outages that will occur one or two times per year, SNC estimates that approximately 2,800 cars per hour could be on River Road if outage and operations shifts changed at once. This is below the capacity of River Road. SNC could mitigate for increased traffic by encouraging carpooling, staggering work shifts, or by purchasing land along Rt 56 for a remote parking lot and bussing workers to the site.

Two new units at VEGP would require two new cooling towers that would be visible from offsite. The plumes would be more noticeable as well. People in the area are accustomed to seeing the towers and plumes and have not voiced concerns, so SNC does not anticipate that the additional towers will generate complaints from local residents. The Augusta area has numerous manufacturing facilities, many with stacks and plumes. From vantage points in the area, the VEGP towers are no more prominent than other towers, and often less so. Landscaping could be used to hide the base of the towers from observers close to the plant. Mitigation is not warranted for views of the towers on the horizon.

Because all identifiable unavoidable adverse impacts will be small, no disproportionate adverse unavoidable impacts to environmental justice populations will occur.

Table 10.1-2 Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
Land Use	Operating the new units will generate radioactive and non-radioactive wastes that are required to be disposed in permitted disposal facilities or permitted landfills	Practice waste minimization to minimize the volume of wastes.	Some land will be dedicated to permitted landfills or licensed disposal facilities and will not be available for other uses.
Hydrological and Water Use	Operations will result in discharge of small amounts of chemicals to the Savannah River	All discharges will comply with Georgia NPDES permit and applicable water quality standards. Revise the existing VEGP Storm Water Pollution Prevention Plan or prepare and implement a new one to avoid/minimize releases of contaminated storm water. Revise the existing VEGP Spill Prevention Countermeasures and Control Plan or prepare and implement a new one to avoid/minimize contamination from spills.	Small unavoidable adverse impacts
	Water for some systems will be provided by groundwater	Maximum normal groundwater use will be within existing permit limits	Water withdrawn from groundwater will not be available for other uses. In the unlikely event of off-normal pumping by more than one unit, the groundwater withdrawal limits could be exceeded and the aquifer drawdown could be accelerated
	Maintenance activities at the site and along the transmission line could result in small petroleum spills	Revise the existing VEGP Spill Prevention Countermeasures and Control Plan or prepare and implement a new one to avoid/minimize contamination from spills. Adhere to the GPC SPCC plan when working on transmission lines	Small unavoidable adverse impacts

Table 10.1-2 (cont.) Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Maximum surface water consumptive use will be less that 2 percent of 7Q10.	No mitigation required.	Water lost through evaporation will not be available for other uses
	Operations will result in a small thermal plume discharged to the Savannah River	The differences between plume temperature and ambient water temperature will be maintained within limits set in the NPDES permit	Small unavoidable adverse impacts
Aquatic Ecology	Operations will result in discharge of small amounts of chemicals to the Savannah River	The NPDES permit limits are set to ensure that discharges do not significantly affect aquatic populations or water quality.	Small unavoidable adverse impacts
	Routine maintenance activities could result in petroleum spills near water	Revise the existing VEGP Spill Prevention Control and Countermeasures Plan or prepare and implement a new one to avoid/minimize contamination from spills.	Small unavoidable adverse impacts
	Impingement, entrainment and thermal discharges	Cooling towers	Small unavoidable impacts
Terrestrial Ecology	Some birds will collide with the cooling towers or the transmission line	This is not a problem with the existing cooling towers and is not expected to be a problem with the new towers. Bird collisions with transmission lines are so rare that none have been reported to GPC. No mitigation is necessary	Small unavoidable adverse impacts
	Salt drift will be distributed in a 3,300 foot radius around each tower.	The rate of deposition will be less than that expected to cause leaf damage. No mitigation is necessary.	Small unavoidable adverse impacts

Table 10.1-2 (cont.) Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Episodic loud noises at the site or along transmission line could frighten animals.	None necessary	Small unavoidable adverse impacts
Socioeconomic	The plants emit low noise	Noise levels would normally not be above background at the site boundary. No mitigation is necessary.	Small unavoidable adverse impacts
	Episodic loud noises could annoy nearby residents	Handle incidents on a case-by-case basis.	
	New transmission line has potential to induce electric shock in people standing near the line	Build transmission line to NESC code to minimize noise and electric shock	Small unavoidable adverse impacts
	Additional cooling towers and plumes would impact existing viewscape.	Consider landscaping to hide towers from boaters on the river	Small unavoidable adverse impacts
	Two additional units will double the traffic on local roads during shift change. More frequent outages at VEGP will increase traffic even further.	Consider staggering outage shifts to reduce plant-associated traffic on local roads during shift changes	Small unavoidable adverse impacts
	Emissions from diesel generators and the auxiliary boilers	No mitigation needed. Emission would be within limits established in certificates of operation	Small unavoidable adverse impacts
	Population in the region may increase by 2,600 people	No mitigation required. The increased tax revenues from construction will support upgrades to additional infrastructure. Housing availability is adequate in the region.	Small unavoidable adverse impacts

Table 10.1-2 (cont.) Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
Radiological	Potential doses to members of the public from releases to air and surface water.	All releases will be well below regulatory limits. No mitigation required.	Small unavoidable adverse impacts
Atmospheric and Meteorological	Median plume from cooling towers will be about 0.5 miles long with a maximum plume length of 6.2 miles expected 3.5 percent of the time	No mitigation required	Small unavoidable adverse impacts
	Diesels and the auxiliary boiler would contribute to air emissions	Comply with permit limits and regulations for installing and operating air emission sources.	Small unavoidable adverse impacts
Environmental Justice	No disproportionately high or adverse impacts on minority or low-income populations resulting from operation of the proposed new units have been identified.	None required.	Small unavoidable adverse impacts

AR-06-2684

Enclosure

Attachment A-7 #45

45	The section on unavoidable adverse environmental impacts discusses social issues without specificity and never identifies any particular environmental concern. Clarify this discussion to include specific environmental adverse impacts for construction and operations, including an assessment of the before- and after-mitigation value of those impacts? Include the EJ effects of both construction and operations for each alternative site. Provide a table that displays all of the adverse environmental impacts of construction and operations (including human health effects); a description of each impact; all mitigation strategies to be undertaken by the applicant for that impact, the cost of mitigation, and the expected value of the unavoidable portion of that impact.

Response:

SNC drafted this response based on additional guidance from NRC the week of December 4, 2006.

The text of ER Section 10.1 summarizes the unavoidable adverse impacts of construction and operation of the new units. Tables 10.1-1 for construction and 10.1-2 for operations provide greater detail about the impacts, potential mitigation and the unavoidable adverse impacts after mitigation has been considered.

The costs of mitigation are not easy to determine at this time. Many would be built into the project design (e.g., scheduling to ensure that construction of the barge and intake are completed in the shortest possible time; using construction best management practices to limit erosion, fugitive dust, runoff, spills and air emissions; providing first aid stations at the construction site, etc.). Others would rely on a communication plan of early/frequent communication between SNC and the affected communities, and thus the costs would be minimal.

Tables 10.1-1 and 10.1-2 are provided below. They have been slightly modified from the environmental report to expand on mitigation options.

Table 10.1-1 Construction-Related Unavoidable Adverse Environmental Impacts

Category	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
Land Use	Approximately 500 acres of land will be cleared during construction, with the potential for erosion. Land will not be available for other uses.	Comply with requirements of applicable federal, state and local construction permits/approvals and local ordinances.	310 acres of land occupied on a long-term basis by nuclear plant and associated infrastructure.
		Clear only areas necessary for installation of the power plant/infrastructure.	
		Restrict construction activities to the construction footprint.	
		Use adequate erosion controls and stabilization measures, such as those provided in the Georgia Stormwater Manual.	
		Restrict activities to actual construction site and access ways.	
		Locate soil stockpiles near the construction site.	
		Revegetate all affected temporary-use areas after completion of construction	
	Construction of transmission corridor across approximately 60 linear miles of eastern Georgia	Minimize potential impacts through compliance with permitting requirements and best management practices, including sediment basins.	Land use on some land will change from woodland or agriculture to open scrub or grassland.
		Restrict sites of access to corridor for construction equipment.	
		Limit maintenance access roads	
		Revegetate, with attention to wildlife structure or food plots.	

Table 10.1-1 (cont.) Construction-Related Unavoidable Adverse Environmental Impacts

Category	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Potential to disturb buried historic, archaeological, or paleontological resources	Conduct sub-surface testing prior to start of any onsite work to identify buried historic, cultural, or paeleontological resources. Follow established VEGP procedures to stop work and contact appropriate regulatory agencies if potential unanticipated historic, cultural, or paleontological resources are discovered.	Potential for destruction of unanticipated historic, cultural, or paleontological resources
	Construction debris will be disposed in on-site of off-site landfills	Use waste minimization to reduce volume of debris	Some land will be dedicated to disposal of construction debris and not available for other uses
Hydrologic and Water Use/	Construction has potential to erode sediments into water resources and will dewater the shallow aquifer	Adhere to applicable regulations, permits, and plans. Use best Management practices as found in the Georgia Stormwater Manual Install drainage controls to direct dewatering runoff.	Dewatering of shallow aquifer to surface water during construction.
	Construction will require approximately 460 gpm of groundwater	Practice water conservation as practical No other measures or controls will be necessary because withdrawals will be less than allowed by current permits	Use of groundwater as source for all water used for construction.
	Construction along river banks or stream banks (in the case of the transmission line) could introduce sediments into the river or stream	Adhere to best management practices. Install drainage controls Revegetate as soon as possible after clearing.	Small unavoidable adverse impacts

Table 10.1-1 (cont.) Construction-Related Unavoidable Adverse Environmental Impacts

Category	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Use of heavy equipment introduces the possibility of petroleum spills that could enter surface water	Use good maintenance practices to maintain equipment, and prevent spills and leaks. Invoke VEGP's existing SPCC plan for construction activities.	Small unavoidable adverse impacts
Aquatic Ecology	Construction at river's edge will cause the loss of some organisms, and temporary degradation of habitat Transmission line construction across streams will cause the loss of some organisms and temporary degradation of habitat	Install coffer dams or similar engineering protective measures around the construction site Use best management practices to minimize erosion and sedimentation Install storm water drainage system at large construction sites and stabilize disturbed soils	Small unavoidable adverse impacts, including effects of construction noise on fish, for which there is no known mitigation
Terrestrial Ecology	Habitat loss will kill or displace animals Clearing and grading will kill or displace animals Construction noises could startle or scare animals	Plant footprint is sited on previously disturbed area that is poor natural habitat. Site new corridor to avoid critical or sensitive habitats/species as much as possible per Georgia regulations and GPC practices. Limit vegetation removal and construction activities to construction site or corridor and access roads	Small unavoidable impacts
	Birds may collide with tall construction equipment	No measures or controls will be necessary because impacts will be small.	Small unavoidable impacts

Table 10.1-1 (cont.) Construction-Related Unavoidable Adverse Environmental Impacts

Category	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
Socio-economics	Construction workers, employees at the existing units, and local residents will be exposed to elevated levels of dust, noise and exhaust emissions from vehicles	Train and appropriately protect VEGP employees and construction workers to reduce the risk of potential exposure to noise, dust and exhaust emissions.	Small unavoidable impacts
		Make public announcements or prior notification of atypically loud construction activities.	
		Use dust control measures (such as watering, stabilizing disturbed areas, covering trucks).	
		Ensure construction equipment is maintained	
		Manage concerns from adjacent residents or visitors on a case-by-case basis.	
	Construction workers, employees at the existing units, outage employees, and local residents will be exposed to elevated levels of traffic	Post signs near construction entrances and exits to make the public aware of potentially high construction traffic areas.	Level of service on River Road will be reduced during shift change
		Add turn lanes at construction entrance	
		Consider buses, vans, carpools, or staggered shifts	
	Construction workers could be injured	Provide on-site services for emergency first aid, and arrange with local hospital emergency room to accept trauma victims, and conduct regular health and safety monitoring.	Small unavoidable impacts
		Provide appropriate job-training to construction workers.	

Table 10.1-1 (cont.) Construction-Related Unavoidable Adverse Environmental Impacts

Category	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Initially sufficient housing to support the influx of construction workforce may be unavailable in Burke County	Discuss construction plans and anticipated influx of workers with community leaders. Builders and developers will meet the demand for additional housing, and because the project has a long lead time, and the construction workforce will build gradually, it is likely that if the community anticipates the increase in population, adequate housing will always be available.	Potential short-term housing shortage in Burke County.
	Initially there may be insufficient classroom space for the influx of construction workers families	Discuss construction plans and anticipated influx of workers with community leaders. Increased tax revenues as a result of the large construction project will fund additional school resources. Because the project has a long lead time, and the construction workforce will build gradually, it is likely that if the community anticipates the increase in population, adequate classroom space will always be available.	In the short-term there could be school crowding and inadequate fire protection in Burke County
	Inadequate fire protection infrastructure in Burke County will be further reduced	Discuss construction plans and anticipated influx of workers with community leaders. Burke County could fund additional fire protection equipment and train additional staff using the tax resources already paid by VEGP. Increased tax revenues after construction begins could be used to purchase additional equipment and hire/train additional staff, if necessary.	In the short term there could be insufficient fire protection in some areas of Burke County
Radiological	Construction workers will be exposed to small doses of radiation from the existing units	None required. All doses will be well within regulatory limits.	Small radiation exposure to construction workers.

Table 10.1-1 (cont.) Construction-Related Unavoidable Adverse Environmental Impacts

Category	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
Atmospheric and Meteorological	Construction will cause increased air emissions from traffic and construction equipment, and fugitive dust	Use dust control measures (such as watering, stabilizing disturbed areas, covering trucks) Ensure that construction equipment is well maintained.	Small unavoidable adverse impacts
Environmental Justice	Except for increased traffic on River Road, no disproportionately high or adverse impacts to minority or low-income populations were identified.	Consider buses, vans, carpools, or staggered shifts	Small unavoidable adverse impacts

Table 10.1-2 Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
Land Use	Operating the new units will generate radioactive and non-radioactive wastes that are required to be disposed in permitted disposal facilities or permitted landfills	Practice waste minimization to minimize the volume of wastes.	Some land will be dedicated to permitted landfills or licensed disposal facilities and will not be available for other uses.
Hydrological and Water Use	Operations will result in discharge of small amounts of chemicals to the Savannah River	All discharges will comply with Georgia NPDES permit and applicable water quality standards. Revise the existing VEGP Storm Water Pollution Prevention Plan or prepare and implement a new one to avoid/minimize releases of contaminated storm water. Revise the existing VEGP Spill Prevention Countermeasures and Control Plan or prepare and implement a new one to avoid/minimize contamination from spills.	Small unavoidable adverse impacts
	Water for some systems will be provided by groundwater	Maximum normal groundwater use will be within existing permit limits	Water withdrawn from groundwater will not be available for other uses. In the unlikely event of off-normal pumping by more than one unit, the groundwater withdrawal limits could be exceeded and the aquifer drawdown could be accelerated
	Maintenance activities at the site and along the transmission line could result in small petroleum spills	Revise the existing VEGP Spill Prevention Countermeasures and Control Plan or prepare and implement a new one to avoid/minimize contamination from spills. Adhere to the GPC SPCC plan when working on transmission lines	Small unavoidable adverse impacts

Table 10.1-2 (cont.) Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Maximum surface water consumptive use will be less that 2 percent of 7Q10.	No mitigation required.	Water lost through evaporation will not be available for other uses
	Operations will result in a small thermal plume discharged to the Savannah River	The differences between plume temperature and ambient water temperature will be maintained within limits set in the NPDES permit	Small unavoidable adverse impacts
Aquatic Ecology	Operations will result in discharge of small amounts of chemicals to the Savannah River	The NPDES permit limits are set to ensure that discharges do not significantly affect aquatic populations or water quality.	Small unavoidable adverse impacts
	Routine maintenance activities could result in petroleum spills near water	Revise the existing VEGP Spill Prevention Control and Countermeasures Plan or prepare and implement a new one to avoid/minimize contamination from spills.	Small unavoidable adverse impacts
	Impingement, entrainment and thermal discharges	Cooling towers	Small unavoidable impacts
Terrestrial Ecology	Some birds will collide with the cooling towers or the transmission line	This is not a problem with the existing cooling towers and is not expected to be a problem with the new towers. Bird collisions with transmission lines are so rare that none have been reported to GPC. No mitigation is necessary	Small unavoidable adverse impacts

Table 10.1-2 (cont.) Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Salt drift will be distributed in a 3,300 foot radius around each tower.	The rate of deposition will be less than that expected to cause leaf damage. No mitigation is necessary.	Small unavoidable adverse impacts
	Episodic loud noises at the site or along transmission line could frighten animals.	None necessary	Small unavoidable adverse impacts
Socioeconomic	The plants emit low noise	Noise levels would normally not be above background at the site boundary. No mitigation is necessary.	Small unavoidable adverse impacts
	Episodic loud noises could annoy nearby residents	Handle incidents on a case-by-case basis.	
	New transmission line has potential to induce electric shock in people standing near the line	Build transmission line to NESC code to minimize noise and electric shock	Small unavoidable adverse impacts
	Additional cooling towers and plumes would impact existing viewscape.	Consider landscaping to hide towers from boaters on the river	Small unavoidable adverse impacts
	Two additional units will double the traffic on local roads during shift change. More frequent outages at VEGP will increase traffic even further.	Consider staggering outage shifts to reduce plant-associated traffic on local roads during shift changes	Small unavoidable adverse impacts
	Emissions from diesel generators and the auxiliary boilers	No mitigation needed. Emission would be within limits established in certificates of operation	Small unavoidable adverse impacts

Table 10.1-2 (cont.) Operations-Related Unavoidable Adverse Environmental Impacts

Category/ Vogtle ESP ER Section	Adverse Impact	Mitigation Measure	Unavoidable Adverse Environmental Impacts
	Population in the region may increase by 2,600 people	No mitigation required. The increased tax revenues from construction will support upgrades to additional infrastructure. Housing availability is adequate in the region.	Small unavoidable adverse impacts
Radiological	Potential doses to members of the public from releases to air and surface water.	All releases will be well below regulatory limits. No mitigation required.	Small unavoidable adverse impacts
Atmospheric and Meteorological	Median plume from cooling towers will be about 0.5 miles long with a maximum plume length of 6.2 miles expected 3.5 percent of the time	No mitigation required	Small unavoidable adverse impacts
	Diesels and the auxiliary boiler would contribute to air emissions	Comply with permit limits and regulations for installing and operating air emission sources.	Small unavoidable adverse impacts
Environmental Justice	No disproportionately high or adverse impacts on minority or low-income populations resulting from operation of the proposed new units have been identified.	None required.	Small unavoidable adverse impacts

AR-06-2684

Enclosure

Attachment A-8 #47

U.S. Census Bureau
American FactFinder

QT-H14. **Value, Mortgage Status, and Selected Conditions: 2000**
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Geographic Area: **Burke County, Georgia**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf3.htm.

Subject	Number	Percent
Specified owner-occupied housing units	**3,072**	**100.0**
VALUE		
Less than $10,000	73	2.4
$10,000 to $14,999	77	2.5
$15,000 to $19,999	70	2.3
$20,000 to $24,999	123	4.0
$25,000 to $29,999	154	5.0
$30,000 to $34,999	143	4.7
$35,000 to $39,999	130	4.2
$40,000 to $49,999	395	12.9
$50,000 to $59,999	378	12.3
$60,000 to $69,999	320	10.4
$70,000 to $79,999	360	11.7
$80,000 to $89,999	150	4.9
$90,000 to $99,999	168	5.5
$100,000 to $124,999	173	5.6
$125,000 to $149,999	145	4.7
$150,000 to $174,999	99	3.2
$175,000 to $199,999	40	1.3
$200,000 to $249,999	30	1.0
$250,000 to $299,999	26	0.8
$300,000 to $399,999	0	0.0
$400,000 to $499,999	18	0.6
$500,000 to $749,999	0	0.0
$750,000 to $999,999	0	0.0
$1,000,000 or more	0	0.0
Median (dollars)	59,800	(X)
MORTGAGE STATUS		
With a mortgage, contract to purchase, or similar debt	1,952	63.5
With a second mortgage or home equity loan, but not both	319	16.3

Subject	Number	Percent
Second mortgage only	154	48.3
Home equity loan only	165	51.7
Both second mortgage and home equity loan	0	0.0
No second mortgage or home equity loan	1,633	83.7
Without a mortgage	1,120	36.5
TENURE BY SELECTED CONDITIONS		
Owner-occupied housing units	**6,030**	**100.0**
With one selected condition	1,732	28.7
With two selected conditions	126	2.1
With three selected conditions	7	0.1
With four selected conditions	0	0.0
No selected conditions	4,165	69.1
Renter-occupied housing units	**1,904**	**100.0**
With one selected condition	595	31.3
With two selected conditions	50	2.6
With three selected conditions	43	2.3
With four selected conditions	0	0.0
No selected conditions	1,216	63.9

(X) Not applicable.
Source: U.S. Census Bureau, Census 2000 Summary File 3, Matrices H7, H74, H76, H80, and HCT28.

U.S. Census Bureau
American FactFinder

QT-H14. **Value, Mortgage Status, and Selected Conditions: 2000**
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Geographic Area: **Richmond County, Georgia**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf3.htm.

Subject	Number	Percent
Specified owner-occupied housing units	**36,702**	**100.0**
VALUE		
Less than $10,000	134	0.4
$10,000 to $14,999	252	0.7
$15,000 to $19,999	250	0.7
$20,000 to $24,999	375	1.0
$25,000 to $29,999	613	1.7
$30,000 to $34,999	750	2.0
$35,000 to $39,999	854	2.3
$40,000 to $49,999	2,944	8.0
$50,000 to $59,999	4,048	11.0
$60,000 to $69,999	5,210	14.2
$70,000 to $79,999	4,270	11.6
$80,000 to $89,999	4,372	11.9
$90,000 to $99,999	3,219	8.8
$100,000 to $124,999	3,686	10.0
$125,000 to $149,999	2,188	6.0
$150,000 to $174,999	1,218	3.3
$175,000 to $199,999	475	1.3
$200,000 to $249,999	627	1.7
$250,000 to $299,999	383	1.0
$300,000 to $399,999	403	1.1
$400,000 to $499,999	205	0.6
$500,000 to $749,999	159	0.4
$750,000 to $999,999	42	0.1
$1,000,000 or more	25	0.1
Median (dollars)	76,800	(X)
MORTGAGE STATUS		
With a mortgage, contract to purchase, or similar debt	26,334	71.8
With a second mortgage or home equity loan, but not both	5,733	21.8

Subject	Number	Percent
Second mortgage only	3,366	58.7
Home equity loan only	2,367	41.3
Both second mortgage and home equity loan	88	0.3
No second mortgage or home equity loan	20,513	77.9
Without a mortgage	10,368	28.2
TENURE BY SELECTED CONDITIONS		
Owner-occupied housing units	**42,819**	**100.0**
With one selected condition	10,219	23.9
With two selected conditions	361	0.8
With three selected conditions	22	0.1
With four selected conditions	0	0.0
No selected conditions	32,217	75.2
Renter-occupied housing units	**31,101**	**100.0**
With one selected condition	11,795	37.9
With two selected conditions	1,105	3.6
With three selected conditions	41	0.1
With four selected conditions	0	0.0
No selected conditions	18,160	58.4

(X) Not applicable.
Source: U.S. Census Bureau, Census 2000 Summary File 3, Matrices H7, H74, H76, H80, and HCT28.

U.S. Census Bureau
American FactFinder

QT-H14. **Value, Mortgage Status, and Selected Conditions: 2000**
Data Set: Census 2000 Summary File 3 (SF 3) - Sample Data
Geographic Area: **Columbia County, Georgia**

NOTE: Data based on a sample except in P3, P4, H3, and H4. For information on confidentiality protection, sampling error, nonsampling error, definitions, and count corrections see http://factfinder.census.gov/home/en/datanotes/expsf3.htm.

Subject	Number	Percent
Specified owner-occupied housing units	**21,453**	**100.0**
VALUE		
Less than $10,000	17	0.1
$10,000 to $14,999	50	0.2
$15,000 to $19,999	18	0.1
$20,000 to $24,999	17	0.1
$25,000 to $29,999	44	0.2
$30,000 to $34,999	80	0.4
$35,000 to $39,999	94	0.4
$40,000 to $49,999	190	0.9
$50,000 to $59,999	459	2.1
$60,000 to $69,999	1,168	5.4
$70,000 to $79,999	1,689	7.9
$80,000 to $89,999	2,250	10.5
$90,000 to $99,999	2,125	9.9
$100,000 to $124,999	3,509	16.4
$125,000 to $149,999	2,711	12.6
$150,000 to $174,999	2,402	11.2
$175,000 to $199,999	1,508	7.0
$200,000 to $249,999	1,405	6.5
$250,000 to $299,999	730	3.4
$300,000 to $399,999	555	2.6
$400,000 to $499,999	247	1.2
$500,000 to $749,999	122	0.6
$750,000 to $999,999	31	0.1
$1,000,000 or more	32	0.1
Median (dollars)	118,000	(X)
MORTGAGE STATUS		
With a mortgage, contract to purchase, or similar debt	17,902	83.4
With a second mortgage or home equity loan, but not both	3,643	20.3

Columbia County, Georgia - QT-H14. Value, Mortgage Status, and Selected Conditions: 2000

Subject	Number	Percent
Second mortgage only	1,656	45.5
Home equity loan only	1,987	54.5
Both second mortgage and home equity loan	59	0.3
No second mortgage or home equity loan	14,200	79.3
Without a mortgage	3,551	16.6
TENURE BY SELECTED CONDITIONS		
Owner-occupied housing units	**25,544**	**100.0**
With one selected condition	4,713	18.5
With two selected conditions	128	0.5
With three selected conditions	9	0.0
With four selected conditions	0	0.0
No selected conditions	20,694	81.0
Renter-occupied housing units	**5,576**	**100.0**
With one selected condition	1,834	32.9
With two selected conditions	110	2.0
With three selected conditions	12	0.2
With four selected conditions	10	0.2
No selected conditions	3,610	64.7

(X) Not applicable.
Source: U.S. Census Bureau, Census 2000 Summary File 3, Matrices H7, H74, H76, H80, and HCT28.

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Enclosure

Attachment B-1 #114

ER Section 2.3 Water

NRC Question 114

Provide estimated erosion characteristics and sediment transport rates, including bed and suspended load fractions, for the Savannah River near the site.

Response

Responses to NRC Question 114 are provided in the following two sections.

1. Estimated Erosion Characteristics

Bank erosion caused by wave action has been measured in the reservoirs upstream of the ESP (Hoke, 2000), but no references to measurements of bank erosion along the middle reaches of the Savannah River were found in the literature.

Erosion characteristics of the Savannah River near the site were discussed in a general manner in Section 2.4.9 of the SAR, where it was concluded that bank erosion along the study reach has not been a significant factor:

Historical development of the river plan-form, which is the shape on map of river bank-line, near the VEGP site is well-represented in the USGS 7.5-minute series (topographic) maps. Oxbow lakes, meander cutoffs, abandoned meanders, low-lying swamps, and forested wetlands provide considerable evidence of historical channel plan-form development. Although meander river plan-form is present upstream and downstream of the site, the Savannah River near the site has a relatively straight and stable reach extending approximately from River Mile 143 to River Mile 152. A comparison of river bank-lines between 1965 and 1989, obtained from USGS topographic maps (USGS 1989a; USGS 1989b; USGS 1989d) and topographic maps used for VEGP Units 1 and 2 shows a nearly unchanged river plan-form within the reach during this period.

Hale and Jackson (2003) describe how dredging for navigation has altered the hydrology and geomorphology of the Savannah River over the past century. They present a table of forty cut-offs constructed on the lower Savannah River between 1889 and 1962 that had the cumulative effect of reducing stream length by a total of 26.5 miles. Each of these cut-offs will have had some impact on local channel conditions and sediment transport due to change in bed slope.

According to their table, the 4350-foot Cox Point Cut-off at River Mile 153.2 (about 2.3 miles upstream of the Vogtle site) was completed in 1959. The cutoff is visible on the Shell Bluff Landing 1:24,000-scale USGS topographic map.

Based on the alignment of the channel shown on the map, which is based on aerial photography from 1965 with photorevisons from 1989, the stability of the Savannah River channel section at the Vogtle site does not appear to have been adversely impacted by the cut-off, which would be the expected outcome for the relatively short length of the cut-off and the mild gradient of the reach.

In general, channel straightening of the type affected by the Cox Point cutoff will cause a local reduction in water level and an increase in velocity, so that the small creeks which are tributary to the reach may experience increased gradients causing scour and

head cutting (U.S.D.O.T., 1977). No evidence of such impacts is noticeable at the scale of the available mapping, however.

2. Sediment Transport Rates

A search of the literature shows that there have been a number of studies of sediment transport on the Savannah River within the piedmont physiographic region, resulting from requirements to establish Total Maximum Daily Loads for the E.P.A. (i.e. EPA 1999, Keyes and Radcliffe, 2002, Freshley, 2003). There have also been a number of studies of sedimentation in Savannah Harbor (Goodrich, Way, and Liu, 2003; Semmes et al 2003, and Phillips and Slattery, 2006). Sedimentation rates resulting from these studies, where available, are not directly applicable at the study site within the coastal plain physiographic region because of the different bed slopes and stream power typical of each physiographic region.

There have been very few studies of sedimentation on the Savannah River near the site because sedimentation has not been considered a critical environmental issue in the coastal plain below the Corps's three-dam reservoir project, where the Vogtle site is located. According to the Savannah District of the U.S. Army Corps of Engineers (USACE 1996):

> The problem of sediment in the Savannah River Basin has been greatly reduced since the early 1900's by the conversion of much former cropland to silviculture and pasture. Cotton farming, considered a highly erosive land use, has greatly declined during this century in central Georgia and western South Carolina. The combination of agricultural decline, transition of cropland to timber and pasture, and widespread implementation of soil conservation practices have resulted in lessened stream sediment loads. Deposits of silt in the reservoirs and channel retrogression below the dams are not major problems.

Duncan and EuDaly (2003) discuss the possibility that the reduced variation in discharge downstream of the dams since closure has lead to accumulations of silt with an adverse impact on fish habitats in the shoals, but they present no measurements or quantitative estimates of sedimentation rates.

<u>Suspended load transport rates</u>

Table 1 summarizes the availability of water quality data for the U.S.G.S gages on the Savannah River. There is no information of measured bed load measurements and of the 23 gage stations listed to have water quality data, only two have data on suspended load transport rates, and only the gage at Clyo is in the coastal plain reach (USGS 2006).

Table 1 - Water quality data availability for USGS gages on the Savannah River

USGS Site Number	Site Name	From	To	Count	suspended sediment data available
2187303	SAVANNAH RIVER AT GA 181 NEAR MONTEVIDEO, GA.	1/10/2002	12/11/2002	22	turbidity only
2187500	SAVANNAH RIVER NEAR IVA,S.C.	5/24/1957	11/14/1985	138	suspended solids, residue
2189000	SAVANNAH RIVER NEAR CALHOUN FALLS, S. C.	3/29/1956	7/10/1974	63	turbidity only
21964839	SAVANNAH RIVER NEAR MARTINEZ, GA	7/24/1990	2/16/1994	44	none
2196560	SAVANNAH RIVER (AUGUSTA INTAKE) NR AUGUSTA, GA.	10/12/1970	10/12/1970	1	none
2196650	SAVANNAH R NR BEECH ISLAND, S. C.	12/10/1971	7/12/1972	5	none
2196670	SAVANNAH RIVER JEFFERSON DAVIS BR, AT AUGUSTA, GA.	1/14/2002	12/16/2002	20	residue
2196671	SAVANNAH RIVER (US 1) AT AUGUSTA, GA.	1/28/1997	8/13/1998	18	turbidity, residue
2196993	SAVANNAH RIVER ABOVE LOCK AND DAM AT AUGUSTA, GA.	1/14/2002	12/16/2002	20	turbidity, residue
2197000	SAVANNAH RIVER AT AUGUSTA, GA	7/24/1990	7/20/1998	62	turbidity, residue
					turbidity
2197065	SAVANNAH RIVER BELOW SPIRIT CREEK, NEAR AUGUSTA,GA	7/23/1990	8/9/2005	243	turbidity, residue
2197320	SAVANNAH R. NR JACKSON, SC	10/3/1972	6/27/1974	23	turbidity
2197375	SAVANNAH RIVER AT STONY BLUFF LANDING, GA.	11/3/1937	12/17/2002	83	turbidity, residue
2197500	SAVANNAH R AT BURTONS FERRY BR NR MILLHAVEN, GA	10/19/1993	2/15/1994	5	turbidity
2198500	SAVANNAH RIVER NEAR CLYO, GA	5/1/1938	7/8/2003	771	suspended solids, residue
2198920	SAVANNAH RIVER AT GA 25, AT PORT WENTWORTH, GA	5/2/1958	8/10/2005	101	turbidity, residue
2198975	SAVANNAH RIVER AT SAVANNAH, GA	1/16/2002	12/2/2004	63	turbidity, residue
219897991	SAVANNAH RIVER AT FORT JACKSON, NEAR SAVANNAH, GA	1/17/2002	12/2/2004	63	turbidity, residue
219897992	SAVANNAH RIVER AT SOUTH CHANNEL,NEAR SAVANNAH, GA	1/17/2002	12/2/2004	63	turbidity
219897996	SAVANNAH RIVER AT FIELDS CUT, NEAR SAVANNAH, GA	1/17/2002	12/2/2004	63	turbidity, residue
219897998	SAVANNAH RIVER NEAR FORT PULASKI, GA	1/17/2002	12/2/2004	63	turbidity, residue
2198980	SAVANNAH RIVER AT FORT PULASKI, GA	3/7/1960	3/8/1960	3	residue

While water quality data for the Savannah River at Clyo, GA (2198500) includes entries from 1938 to the present, only 97 records of measurements of suspended sediment load between 1974 and 1983 are reported (as time-weighted daily mean values).

These data points are listed in Table 2 and are plotted in Figure 1 against the average daily discharge recorded for those days. There is only a slight correlation between average daily discharge in cfs and suspended sediment load in tons per day, so the suspended load data time series can not be extended with much reliability.

There are gages on the Savannah River nearer to the site than Clyo, for which turbidity measurements are available, offering the possibility of estimating suspended sediment loads from a correlation with turbidity measurements, but no statistically significant relation was discerned between turbidity measurements and average daily suspended sediment discharge for these data sets.

Table 2 Suspended Sediment loads and average daily flows for the Savannah River at Clyo, GA

Date	Average daily flow, cfs	Suspended sediment discharge, tons per day		Date	Average daily flow, cfs	Suspended sediment discharge, tons per day
1/17/1974	19800	1970		3/8/1978	11600	469
2/14/1974	26300	2120		4/5/1978	10300	609
3/21/1974	10100	1270		5/3/1978	9670	342
4/26/1974	13300	1450		6/7/1978	10300	72
5/22/1974	9190	1350		7/6/1978	7220	660
8/1/1974	7810	522		8/9/1978	7870	170
8/30/1974	9040	731		9/7/1978	8850	337
9/26/1974	7620	518		10/4/1978	6880	15
10/23/1974	7480	850		11/2/1978	6690	54
11/22/1974	8300	627		12/6/1978	7460	200
12/18/1974	8700	353		1/4/1979	7710	166
1/17/1975	14600	3150		2/7/1979	8370	386
2/21/1975	23500	771		4/4/1979	16800	544
3/13/1975	23200	643		5/2/1979	35200	762
4/17/1975	38700	847		6/7/1979	18800	1260
5/8/1975	14500	1170		7/19/1979	7840	462
6/19/1975	11400	948		8/23/1979	7760	251
7/17/1975	12800	1170		9/6/1979	11400	400
8/13/1975	9700	627		10/4/1979	11600	345
9/11/1975	9020	497		11/9/1979	9040	243
10/16/1975	9940	485		12/14/1979	16600	538
11/12/1975	16200	797		1/10/1980	8640	140
12/18/1975	15400	994		2/6/1980	24700	603
1/14/1976	15900	926		3/6/1980	12400	439
2/12/1976	18600	492		4/2/1980	51600	1570
3/17/1976	13000	1120		5/7/1980	12000	758
4/14/1976	22200	754		6/11/1980	17500	950
5/12/1976	8070	367		7/2/1980	9030	24
6/9/1976	21200	592		8/6/1980	6480	273
7/14/1976	18000	544		9/4/1980	6120	234
8/11/1976	8400	530		10/8/1980	7950	372
9/14/1976	8230	152		11/21/1980	8770	309
10/6/1976	8900	301		12/9/1980	7820	233
11/4/1976	9200	400		1/8/1981	7870	214
12/2/1976	15900	1350		2/4/1981	7850	148
1/12/1977	19100	363		4/16/1981	7380	278
2/10/1977	11700	57		5/5/1981	6350	223
3/9/1977	14700	591		6/3/1981	7510	734
4/7/1977	24300	643		7/9/1981	6180	67
5/5/1977	11400	745		8/26/1981	6870	149
6/2/1977	7820	484		9/3/1981	6450	313
7/13/1977	7320	332		11/4/1981	5430	147
8/10/1977	8090	440		1/6/1982	15200	1070
9/14/1977	7590	326		3/3/1982	18500	549
10/20/1977	7050	266		5/13/1982	6660	215
11/17/1977	13700	769		7/13/1982	6680	332
12/7/1977	15700	899		9/2/1982	6250	284
1/11/1978	11100	366		2/8/1983	19300	1060
2/8/1978	28600	318				

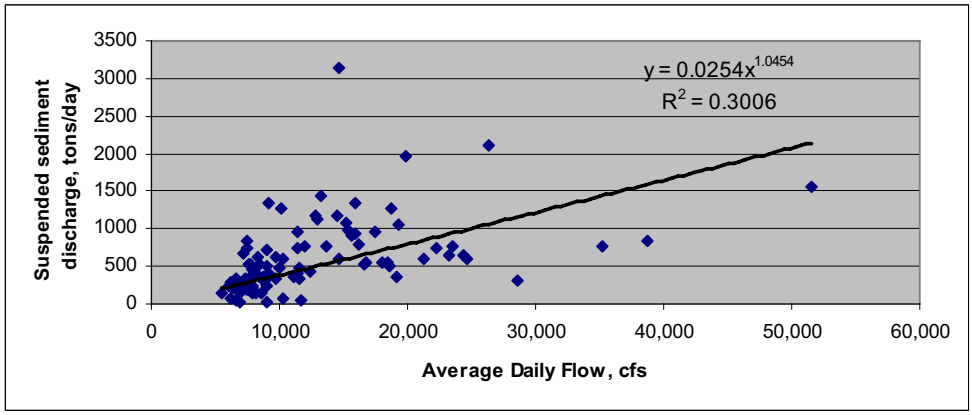

Figure 1 – Average daily suspended sediment load for Savannah River at Clyo, GA (USGS Gage No. 2198500)

The 97 reported measurements of daily suspended sediment loads were sorted to permit the calculation of monthly statistics, as summarized in Table 3, and plotted in Figure 2. The data shows some seasonality, but as the relation between discharge and suspended load is not strong, the seasonality is not pronounced.

Table 3 Calculation of monthly statistics for suspended sediment load at Clyo, GA

January samples	tons/day	February samples	tons/day	March samples	tons/day	April samples	tons/day	May samples	tons/day	June samples	tons/day
1/17/1974	1970	2/14/1974	2120	3/21/1974	1270	4/26/1974	1450	5/22/1974	1350	6/19/1975	948
1/17/1975	3150	2/21/1975	771	3/13/1975	643	4/17/1975	847	5/8/1975	1170	6/9/1976	592
1/14/1976	926	2/12/1976	492	3/17/1976	1120	4/14/1976	754	5/12/1976	367	6/2/1977	484
1/12/1977	363	2/10/1977	57	3/9/1977	591	4/7/1977	643	5/5/1977	745	6/7/1978	72
1/11/1978	366	2/8/1978	318	3/8/1978	469	4/5/1978	609	5/3/1978	342	6/7/1979	1260
1/4/1979	166	2/7/1979	386	3/6/1980	439	4/4/1979	544	5/2/1979	762	6/11/1980	950
1/10/1980	140	2/6/1980	603	3/3/1982	549	4/2/1980	1570	5/7/1980	758	6/3/1981	734
1/8/1981	214	2/4/1981	148			4/16/1981	278	5/5/1981	223		
1/6/1982	1070	2/8/1983	1060					5/13/1982	215		
Samp size	9		9		7		8		9		7
Avg	929.4		661.7		725.9		836.9		659.1		720.0
Std Dev	1024.1		627.8		330.7		448.5		409.2		384.9
C.I., 95%, α = .05	**669.0**		**410.2**		**245.0**		**310.8**		**267.3**		**285.1**
C.I., 50%, α = .50	**230.2**		**141.2**		**84.3**		**107.0**		**92.0**		**98.1**

July samples	tons/day	August samples	tons/day	September samples	tons/day	October samples	tons/day	November samples	tons/day	December samples	tons/day
7/17/1975	1170	8/1/1974	522	9/26/1974	518	10/23/1974	850	11/22/1974	627	12/18/1974	353
7/14/1976	544	8/30/1974	731	9/11/1975	497	10/16/1975	485	11/12/1975	797	12/18/1975	994
7/13/1977	332	8/13/1975	627	9/14/1976	152	10/6/1976	301	11/4/1976	400	12/2/1976	1350
7/6/1978	660	8/11/1976	530	9/14/1977	326	10/20/1977	266	11/17/1977	769	12/7/1977	899
7/19/1979	462	8/10/1977	440	9/7/1978	337	10/4/1978	15	11/2/1978	54	12/6/1978	200
7/2/1980	24	8/9/1978	170	9/6/1979	400	10/4/1979	345	11/9/1979	243	12/14/1979	538
7/9/1981	67	8/23/1979	251	9/4/1980	234	10/8/1980	372	11/21/1980	309	12/9/1980	233
7/13/1982	332	8/6/1980	273	9/3/1981	313			11/4/1981	147		
		8/26/1981	149	9/2/1982	284						
Samp size	8		9		9		7		8		7
Avg	448.9		410.3		340.1		376.3		418.3		652.4
Std Dev	364.0		208.5		117.6		253.5		282.7		437.3
C.I., 95%, α = .05	**252.2**		**136.2**		**76.8**		**187.8**		**195.9**		**324.0**
C.I., 50%, α = .50	**86.8**		**46.9**		**26.4**		**64.6**		**67.4**		**111.5**

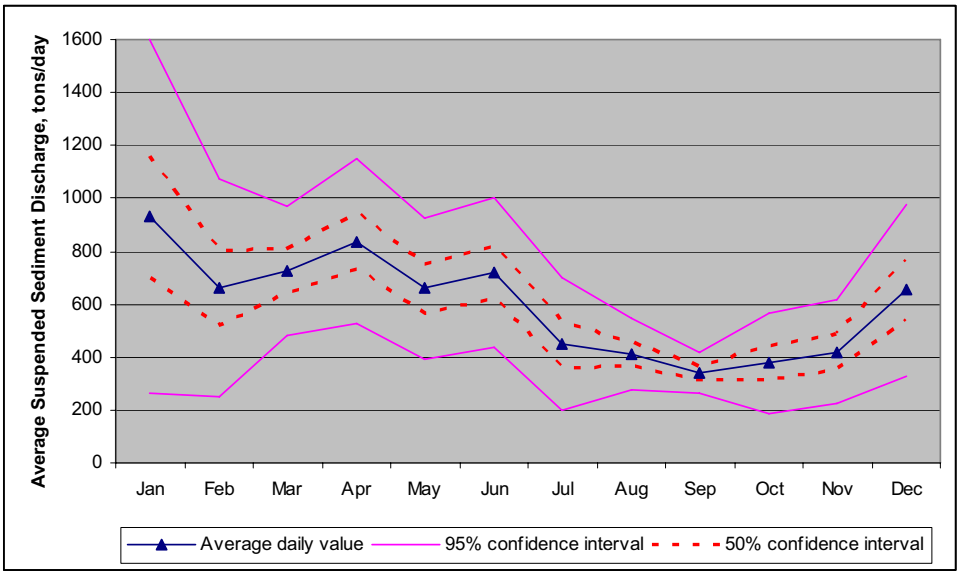

Figure 2 – Average monthly suspended sediment discharge measured on the Savannah River at Clyo, GA (USGS Gage No. 2198500)

Based on the assumption that the suspended sediment load at Clyo is not significantly different from the load at the Vogtle site, ninety miles upstream, the monthly average suspended load at the site will range between 200 and 1600 tons per day with a 95% probability.

Bed Load Sediment Transport Rates

No bed load sediment transport measurements have been reported for any reach of the Savannah River and can not be easily estimated as a fraction of the suspended load because the portion of sediment that moves as bed load varies widely between rivers and on the same river over time (Keyes & Radcliffe, 2002).

However, to get an order of magnitude estimate, the globally averaged ratio of suspended load to bed load sediment flux for rivers of 9:1 reported by Syvitski et al (2003) can be used. For the range of suspended load of 320 to 880 tons per year calculated from the data at Clyo, GA, this would indicate a range for bed load transport of between about 35 and 100 tons per day.

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Action

Clarifying text, tables, and figures will be added in the next revision of the ESP application as appropriate, and the Section 2.3 References will be updated as required.

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Enclosure

Attachment B-2 #120

ER Section 2.3.1, Hydrology

NRC Question 120

Provide data that support why Wells OW-1006 and OW-1007 were at their highest elevations in June and lowest elevations in December (Table 2.3.1-18). Trends at other wells show relatively low elevations in July and high elevations in Feb/March. Well 808, with its respective high/low elevation for September and May, also seems to be an exception.

Response

ER Table 2.3.1-18 summarizes monthly groundwater levels for the Water Table aquifer for the period extending from June 2005 through June 2006, which includes 13 months of data. ER Figure 2.3.1-15 plots the hydrographs for each well. The minimum, maximum, range, and mean groundwater level for each observation well have been determined and are summarized in Table 1 of this response. The observations wells have been further sorted in order of descending groundwater level based on mean values.

As is evident from ER Figure 2.3.1-15 and statistics presented in Table 1, water levels measured in observation wells exhibit little variability over time and do not show any significant seasonal influences over the 13 month period. The well exhibiting the most variability (808) has a range of only 1.02 ft. The range for all wells averages 0.62 ft.

Because the variability is relatively small, attaching physical significance to the timing of the maximum and minimum values for the set wells is difficult. The lithology of the screened intervals for these wells and their hydraulic conductivity values are relatively consistent, as is indicated in SSAR Appendix 2.5A – Geotechnical Investigation and Laboratory Testing Data Report (report Appendix D). The trends likely reflect the transient response of the Water Table aquifer to temporal and spatial variability in groundwater recharge. The fact that observation wells OW-1006 and OW-1007 are both located on topographically-steeper terrain suggests that their temporal response to seasonal recharge would be different than for wells located in upland areas. Several additional years of monitoring would be required to verify this hypothesis. Regardless of the underlying physical mechanisms, the seasonal range in Water Table aquifer groundwater levels is small (averaging 0.62 ft), and observations to date indicate that groundwater flow directions and gradients do not exhibit any significant variation with season.

References

None.

Table 1. Monthly Groundwater Level Elevations in the Water Table Aquifer

Well	Groundwater Level Elevations (ft msl)																
	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Min	Max	Range	Mean
OW-1013	164.95	165.00	165.29	165.47	165.48	165.42	165.21	165.29	165.46	165.31	165.23	165.11	164.96	164.95	165.48	0.53	165.24
804	163.73	163.62	163.92	164.10	164.21	164.23	164.05	164.08	164.23	164.30	164.11	163.99	163.88	163.62	164.30	0.68	164.03
OW-1010	163.06	163.26	163.59	163.77	163.81	163.78	163.62	163.60	163.63	163.57	163.44	163.29	163.09	163.06	163.81	0.75	163.50
OW-1009	162.38	162.40	162.71	162.90	163.01	163.03	162.87	162.93	163.01	163.01	162.89	162.79	162.65	162.38	163.03	0.65	162.81
OW-1012	161.83	161.93	162.07	162.06	161.98	161.80	161.71	161.82	161.86	161.80	161.68	161.53	161.37	161.37	162.07	0.70	161.80
803A	159.98	159.91	160.15	160.32	160.39	160.48	160.39	160.37	160.48	160.45	160.30	160.20	160.12	159.91	160.48	0.57	160.27
OW-1015	159.63	159.58	159.78	159.90	159.96	159.96	159.82	159.81	159.79	159.89	159.75	159.66	159.58	159.58	159.96	0.38	159.78
808	158.88	159.14	159.42	159.55	159.49	159.37	159.15	159.04	159.19	159.15	158.99	158.53	158.80	158.53	159.55	1.02	159.13
805A	158.53	158.57	158.84	158.98	159.09	159.09	159.05	158.94	158.92	158.98	158.82	158.82	158.63	158.53	159.09	0.56	158.87
LT-12	158.21	157.90	158.07	158.22	158.31	158.28	158.21	158.53	158.66	158.48	158.54	158.48	158.23	157.90	158.66	0.76	158.32
802A	157.88	157.86	158.07	158.23	158.29	158.34	158.28	158.28	158.39	158.23	158.17	158.09	157.99	157.86	158.39	0.53	158.16
LT-13	156.10	155.92	156.13	156.30	156.32	156.37	156.23	156.36	156.66	156.35	156.32	156.32	156.23	155.92	156.66	0.74	156.28
OW-1003	155.94	155.89	156.06	156.29	156.24	156.36	156.26	156.34	156.37	156.43	156.32	157.24	156.16	155.89	156.43	0.54	156.22
806B	155.62	155.65	155.78	155.90	155.96	155.98	155.88	155.97	155.98	156.03	155.85	155.78	155.73	155.62	156.03	0.41	155.85
LT-1B	154.92	154.82	155.01	155.16	155.18	155.22	155.06	155.18	155.52	155.28	155.18	155.15	154.95	154.82	155.52	0.70	155.13
142	154.37	154.38	154.49	154.64	154.75	154.69	154.60	154.71	154.78	154.71	154.63	154.55	154.48	154.37	154.78	0.41	154.60
LT-7A	154.39	154.15	154.33	154.46	154.48	154.46	154.31	154.57	154.83	154.59	154.57	154.50	154.41	154.15	154.83	0.68	154.47
809	152.78	152.70	152.75	152.89	152.98	152.97	152.98	153.10	153.22	153.18	153.05	153.02	153.00	152.70	153.22	0.52	152.98
OW-1007	151.82	151.72	151.78	151.63	151.45	151.15	151.05	151.41	151.49	151.45	151.22	151.11	150.99	150.99	151.82	0.83	151.41
179	147.42	148.40	148.42	148.72	148.69	148.75	148.52	148.61	148.64	148.72	148.66	148.76	148.78	148.40	148.78	0.38	148.64
OW-1006	147.66	147.48	147.57	147.60	147.49	147.20	147.18	147.41	147.40	147.37	147.35	147.12	147.05	147.05	147.66	0.61	147.38
OW-1005	132.95	132.73	132.88	133.01	132.67	132.65	132.53	132.74	133.04	133.12	133.14	133.20	133.12	132.53	133.20	0.67	132.91

Notes: Monthly groundwater level elevations obtained from ER Table 2.3.1-18.
Yellow-shaded cells denote minimum values.
Blue-shaded cells denote maximum values.
May 2006 measurement for OW-1003 appears anomalous based on ER Figure 2.3.1-15; value is excluded in calculation of statistics.
June 2005 measurement for 179 appears anomalous based on ER Figure 2.3.1-15; value is excluded in calculation of statistics.

AR-06-2684

Enclosure

Attachment B-3 #123

Attachment B-3

Table 1. Total Porosity and Grain Size Distribution Test Data for the Lisbon Formation (Blue Bluff Marl)

Borehole	Sample No.	Elevation (ft msl)	% Gravel	% Sand	% Fines	Description	USCS Classification	D50 (mm)	Porosity
B-1002	UD-1 Upper	130.0	49.4%	21.7%	28.9%	Silty gravel with sand	GM	3.49	0.59
B-1002	UD-2	118.5	22.9%	41.2%	35.9%	Clayey sand with gravel	SC	0.26	0.56
B-1002	UD-3	108.5	12.8%	53.4%	33.8%	Clayey sand	SC	0.21	0.36
B-1002	UD-4	98.5	53.7%	21.8%	24.5%	Clayey/silty gravel with sand	GC-GM	7.52	0.25
B-1002	UD-5	88.5	26.3%	49.4%	24.3%	Silty sand with gravel	SM	0.87	0.45
B-1003	17	135.2	16.5%	50.1%	33.4%	Silty sand with gravel	SM	0.43	ND
B-1003	UD-1	130.2	1.6%	57.8%	40.6%	Silty sand	SM	0.14	0.46
B-1003	22	118.5	1.2%	67.1%	31.7%	Silty sand with shells	SM	0.27	0.52
B-1003	27	101.5	11.7%	45.8%	42.5%	Silty sand	SM	0.12	0.42
B-1003	31	81.5	7.3%	58.5%	34.2%	Silty sand with shells	SM	0.15	0.39
B-1004	UD-1 Upper	105.8	1.0%	52.7%	46.3%	Silty sand	SM	0.10	0.56
B-1004	UD-2	96.3	0.7%	57.6%	41.7%	Silty sand	SM	0.15	0.45
B-1004	UD-3 Upper	86.3	38.0%	29.8%	32.2%	Clayey gravel with sand	GC	0.49	0.43
B-1004	UD-4 Upper	72.8	20.9%	37.4%	41.7%	Silty sand with gravel	SM	0.12	0.38
B-1004	UD-5	61.3	34.9%	41.3%	23.8%	Silty sand with gravel	SM	0.85	0.44
B-1004	UD-6	51.3	5.2%	60.3%	34.5%	Clayey sand	SC	0.18	0.39
B-1006	32	132.5	0.0%	35.9%	64.1%	Sandy elastic silt	MH	ND	ND
							Median	0.24	0.44

Notes: Data obtained from SSAR Appendix 2.5A – Geotechnical Investigation and Laboratory Testing Data Report (report Appendix E).
ND – not determined.

AR-06-2684

Enclosure

Attachment C-1 #135

Southern Nuclear
Operating Company, Inc.
42 Inverness Center Parkway
Birmingham, Alabama 35242

SOUTHERN COMPANY
Energy to Serve Your World™

File: E.03.34
Log: EV-06-0053

January 11, 2006

Vogtle Electric Generating Plant
Ground Water Use Permit No. 017-0003
Semi-Annual Report

Mr. Bill Frechette
Georgia Environmental Protection Division
Water Withdrawal Permitting Program
Groundwater Permitting Unit
4220 International Parkway, Suite 101
Atlanta, GA 30354

Dear Mr. Frechette:

In accordance with standard condition #3 of the Vogtle Electric Generating Plant Ground Water Use Permit (No. 017-0003) and Rule 391-3-2-.08, enclosed is the semi-annual Ground Water Use Report for the second half of 2005, and the annual measured value for specific conductance.

If you have any questions, please contact Jessica Joyner at (205) 992-7693.

Sincerely,

Jessica Joyner for

Mike Godfrey
Environmental Affairs Manager

JMG/JAJ:ahl

Vogtle Electric Generating Plant – Permit No. 017-0003

Annual Specific Conductance

Obtained from:	Make-up well #1
Obtained on:	12/09/05
Value (µmhos/cm):	173.4
Temperature:	25°C

Obtained from:	Recreation Center well
Obtained on:	12/09/05
Value (µmhos/cm):	236
Temperature:	25°C

Georgia Environmental Protection
Department of Natural Resources

Groundwater Use Report

This form shall be submitted to the Division twice each year, within the reporting period specified on the Groundwater Withdrawal Permit under Standard Condition No. 3.

(Print or type ALL information)

Permittee Information

Contact Person: Mike Godfrey | Phone: (205) 992-6387 | Email: JGODFREY@southernco.com

Company / Permittee: Southern Nuclear operating Company / Vogtle electric Generating Plant

Address: P.O. Box 1295 , Birmingham , Alabama 35201
(No. and Street) (City) (State) (Zip)

GW Withdrawal Permit No.: 017 - 0003 | For six (6) month period from July 2005 thru December 2005

County where well(s) is located: Burke County , GA

This report is on the Cretaceous Sand aquifer(s) used by well(s) numbered MU-1, MU-2A, TW-1, SW-5, SB, Rec, CW-3, & TW-4

Month/Year	Amount of water pumped from aquifer(s) each MONTH (in gallons)				Method used to determine pumpage
	System Total from ALL wells		Monthly Average (Total/Days in Month)		
July/2005	24146700	gal	778900	gal	☒ Flow meter
August/2005	24861100	gal	802000	gal	☐ Other (specify below)
September/2005	28310800	gal	943700	gal	
October/2005	30421000	gal	981300	gal	
November/2005	23340100	gal	778000	gal	
December/2005	26566000	gal	857000	gal	Average hours pumped per day 7.2
Six Month - Grand Total	157645700	gal			

Static water level (SWL)***	46.05	ft.	Elevation 154.48	ft.	Well no. MU-1	Date measured 12-08-05
Pumping water level (PWL)***	49.20	ft.	Elevation 151.33	ft.	Well no. MU-1	Date measured 12-08-05

(Use additional sheet if necessary)

Number of hrs shutdown for SWL measurement 0.25. Number of continuous hrs pumped for PWL measurement 2.08.

Method of measurement: ☐ Air line ☒ Probe ☐ Tape ☐ Other (specify) _____

Measurement from: ☒ Top of casing ☐ Ground ☐ Other (specify) _____

***** Obtain and submit appropriate sets of water level measurements as indicated below:**

From 1-5 wells – a set from ONLY 1 WELL
From 6-10 wells – a set from ONLY 2 WELL
From 11-15 wells – a set from ONLY 3 WELL
From 16-20 wells – a set from ONLY 4 WELL

Take readings from the highest yield well(s) using the same well(s) each time. For additional wells, follow this format.

And such other pertinent information submitted by the applicant or required by the Division.

I certify that the above information is true to the best of my knowledge.

Signed

Clifton L. Buck , Chemistry Manager
Title

1/6/06
Date

Return Report To:
Georgia Environmental Protection Division
Water Withdrawal Permitting Program
Georgia Department of Natural Resources
2220 International Parkway, Suite 101
Atlanta, Georgia 30354

October 2002

Georgia Environmental Protection
Department of Natural Resources

Groundwater Use Report

This form shall be submitted to the Division twice each year, within the reporting period specified on the Groundwater Withdrawal Permit under Standard Condition No. 3.

(Print or type ALL information)

Permittee Information

Contact Person: Mike Godfrey | Phone: (205) 992-6387 | Email: JGODFREY@southernco.com

Company / Permittee: Southern Nuclear operating Company / Vogtle electric Generating Plant

Address: P.O. Box 1295 , Birmingham , Alabama 35201
(No. and Street) (City) (State) (Zip)

GW Withdrawal Permit No.: 017 - 0003 | For six (6) month period from July 2005 thru December 2005

County where well(s) is located: Burke County , GA

This report is on the Cretaceous Sand aqulfer(s) used by well(s) numbered MU-1, MU-2A, TW-1, SW-5, SB, Rec, CW-3, & TW-4

Month/Year	Amount of water pumped from aqulfer(s) each MONTH (in gallons)		Method used to determine pumpage
	System Total from ALL wells	Monthly Average (Total/Days in Month)	
N/A	N/A gal	N/A gal	☐ Flow meter
N/A	N/A gal	N/A gal	☐ Other (specify below)
N/A	N/A gal	N/A gal	
N/A	N/A gal	N/A gal	
N/A	N/A gal	N/A gal	
N/A	N/A gal	N/A gal	Average hours pumped per day N/A
Six Month - Grand Total	gal		

Static water level (SWL)***	24.55 ft.	Elevation 143.647 ft.	Well no. Rec	Date measured 12-08-05
Pumping water level (PWL)***	46.50 ft.	Elevation 121.697 ft.	Well no. Rec	Date measured 12-08-05

(Use additional sheet if necessary)

Number of hrs shutdown for SWL measurement 2.17. Number of continuous hrs pumped for PWL measurement 0.67.

Method of measurement: ☐ Air line ☒ Probe ☐ Tape ☐ Other (specify) _____

Measurement from: ☒ Top of casing ☐ Ground ☐ Other (specify) _____

***** Obtain and submit appropriate sets of water level measurements as indicated below:**

From 1-5 wells – a set from ONLY 1 WELL
From 6-10 wells – a set from ONLY 2 WELL
From 11-15 wells – a set from ONLY 3 WELL
From 16-20 wells – a set from ONLY 4 WELL

Take readings from the highest yield well(s) using the same well(s) each time. For additional wells, follow this format.

And such other pertinent information submitted by the applicant or required by the Division.

I certify that the above information is true to the best of my knowledge.

Signed

Clifton L. Buck , Chemistry Manager
Title

Date 1/6/06

Return Report To:
Georgia Environmental Protection Division
Water Withdrawal Permitting Program
Groundwater Permitting Unit (GWUR)
4220 International Parkway, Suite 101
Atlanta, Georgia 30354

October 2002

Southern Nuclear
Operating Company, Inc.
42 Inverness Center Parkway
Birmingham, Alabama 35242

SOUTHERN COMPANY
Energy to Serve Your World℠

File: E.03.34
Log: EV-06-1477

July 7, 2006

Vogtle Electric Generating Plant
Ground Water Use Permit No. 017-0003
Semi-Annual Report

Mr. Bill Frechette
Georgia Environmental Protection Division
Water Withdrawal Permitting Program
Groundwater Permitting Unit
4220 International Parkway, Suite 101
Atlanta, GA 30354

Dear Mr. Frechette:

In accordance with standard condition #3 of the Vogtle Electric Generating Plant Ground Water Use Permit (No. 017-0003) and Rule 391-3-2-.08, enclosed is the semi-annual Ground Water Use Report for the first half of 2006.

If you have any questions, please contact Jessica Joyner at (205) 992-7693.

Sincerely,

J. M. Godfrey
Environmental Affairs Manager

JMG/JAJ:ahl

Enclosure

Georgia Environmental Protection
Department of Natural Resources

Groundwater Use Report

This form shall be submitted to the Division twice each year, within the reporting period specified on the Groundwater Withdrawal Permit under Standard Condition No. 3.

(Print or type ALL information)

Permittee Information

Contact Person: Mike Godfrey | Phone: (205) 992-6387 | Email: JGODFREY@southernco.com

Company / Permittee: Southern Nuclear Operating Company / Vogtle Electric Generating Plant

Address: P.O. Box 1295, Birmingham, Alabama 35201
(No. and Street) (City) (State) (Zip)

GW Withdrawal Permit No.: 017 - 0003 | For six (6) month period from January 2006 thru June 2006

County where well(s) is located: Burke County , GA

This report is on the Cretaceous Sand aquifer(s) used by well(s) numbered MU-1, MU-2A, TW-1, SW-5, SB, Rec, CW-3, & IW-4, SEC

Month/Year	Amount of water pumped from aquifer(s) each MONTH (in gallons)		Method used to determine pumpage
	System Total from ALL wells	Monthly Average (Total/Days in Month)	
January/2006	20309500 gal	655100 gal	☒ Flow meter
February/2006	24932900 gal	890500 gal	☐ Other (specify below)
March/2006	27213400 gal	877900 gal	
April/2006	30291800 gal	1009700 gal	
May/2006	23786400 gal	767300 gal	
June/2006	27432400 gal	914400 gal	Average hours pumped per day 7.1
Six Month - Grand Total	153966400 gal		

Static water level (SWL)*** 46.23 ft.	Elevation 154.30 ft.	Well no. MU-1	Date measured 06-07-06
Pumping water level (PWL)*** 52.03 ft.	Elevation 148.50 ft.	Well no. MU-1	Date measured 06-07-06

(Use additional sheet if necessary)

Number of hrs shutdown for SWL measurement 0.50. Number of continuous hrs pumped for PWL measurement 0.50.

Method of measurement: ☐ Air line ☒ Probe ☐ Tape ☐ Other (specify) _____

Measurement from: ☒ Top of casing ☐ Ground ☐ Other (specify) _____

***** Obtain and submit appropriate sets of water level measurements as indicated below:**

From 1-5 wells – a set from ONLY 1 WELL
From 6-10 wells – a set from ONLY 2 WELL
From 11-15 wells – a set from ONLY 3 WELL
From 16-20 wells – a set from ONLY 4 WELL

Take readings from the highest yield well(s) using the same well(s) each time. For additional wells, follow this format.

And such other pertinent information submitted by the applicant or required by the Division.

I certify that the above information is true to the best of my knowledge.

Signed

Clifton L. Buck , Chemistry Manager
Title

7-6-06
Date

Return Report To:
Georgia Environmental Protection Division
Water Withdrawal Permitting Program
Groundwater Permitting Unit (GWUR)
4220 International Parkway, Suite 101
Atlanta, Georgia 30354

sld October 2002

Georgia Environmental Protection
Department of Natural Resources

Groundwater Use Report

This form shall be submitted to the Division twice each year, within the reporting period specified on the Groundwater Withdrawal Permit under Standard Condition No. 3.

(Print or type ALL information)

Permittee Information

Contact Person: Mike Godfrey | Phone: (205) 992-6387 | Email: JGODFREY@southernco.com

Company / Permittee: Southern Nuclear Operating Company / Vogtle Electric Generating Plant

Address: P.O. Box 1295, Birmingham, Alabama 35201
(No. and Street) (City) (State) (Zip)

GW Withdrawal Permit No.: 017 - 0003 | For six (6) month period from January 2006 thru June 2006

County where well(s) is located: Burke County , GA

This report is on the Cretaceous Sand aquifer(s) used by well(s) numbered MU-1, MU-2A, TW-1, SW-5, SB, Rec, CW-3, & IW-4, SEC

Month/Year	Amount of water pumped from aquifer(s) each MONTH (in gallons)		Method used to determine pumpage
	System Total from ALL wells	Monthly Average (Total/Days in Month)	
January/2006	N/A gal	N/A gal	☐ Flow meter
February/2006	N/A gal	N/A gal	☐ Other (specify below)
March/2006	N/A gal	N/A gal	
April/2006	N/A gal	N/A gal	
May/2006	N/A gal	N/A gal	
June/2006	N/A gal	N/A gal	Average hours pumped per day ____
Six Month - Grand Total	N/A gal		

Static water level (SWL)*** 24.68 ft.	Elevation 143.517 ft.	Well no. Rec	Date measured 06-07-06
Pumping water level (PWL)*** 44.30 ft.	Elevation 123.897 ft.	Well no. Rec	Date measured 06-07-06

(Use additional sheet if necessary)

Number of hrs shutdown for SWL measurement 0.50. Number of continuous hrs pumped for PWL measurement 0.50.

Method of measurement: ☐ Air line ☒ Probe ☐ Tape ☐ Other (specify) ____

Measurement from: ☒ Top of casing ☐ Ground ☐ Other (specify) ____

***** Obtain and submit appropriate sets of water level measurements as indicated below:**

From 1-5 wells – a set from ONLY 1 WELL
From 6-10 wells – a set from ONLY 2 WELL
From 11-15 wells – a set from ONLY 3 WELL
From 16-20 wells – a set from ONLY 4 WELL

Take readings from the highest yield well(s) using the same well(s) each time. For additional wells, follow this format.

And such other pertinent information submitted by the applicant or required by the Division.

I certify that the above information is true to the best of my knowledge.

Signed

Clifton L. Buck , Chemistry Manager
Title

7/6/06
Date

Return Report To:
Georgia Environmental Protection Division
Water Withdrawal Permitting Program
Groundwater Permitting Unit (GWUR)
4220 International Parkway, Suite 101
Atlanta, Georgia 30354

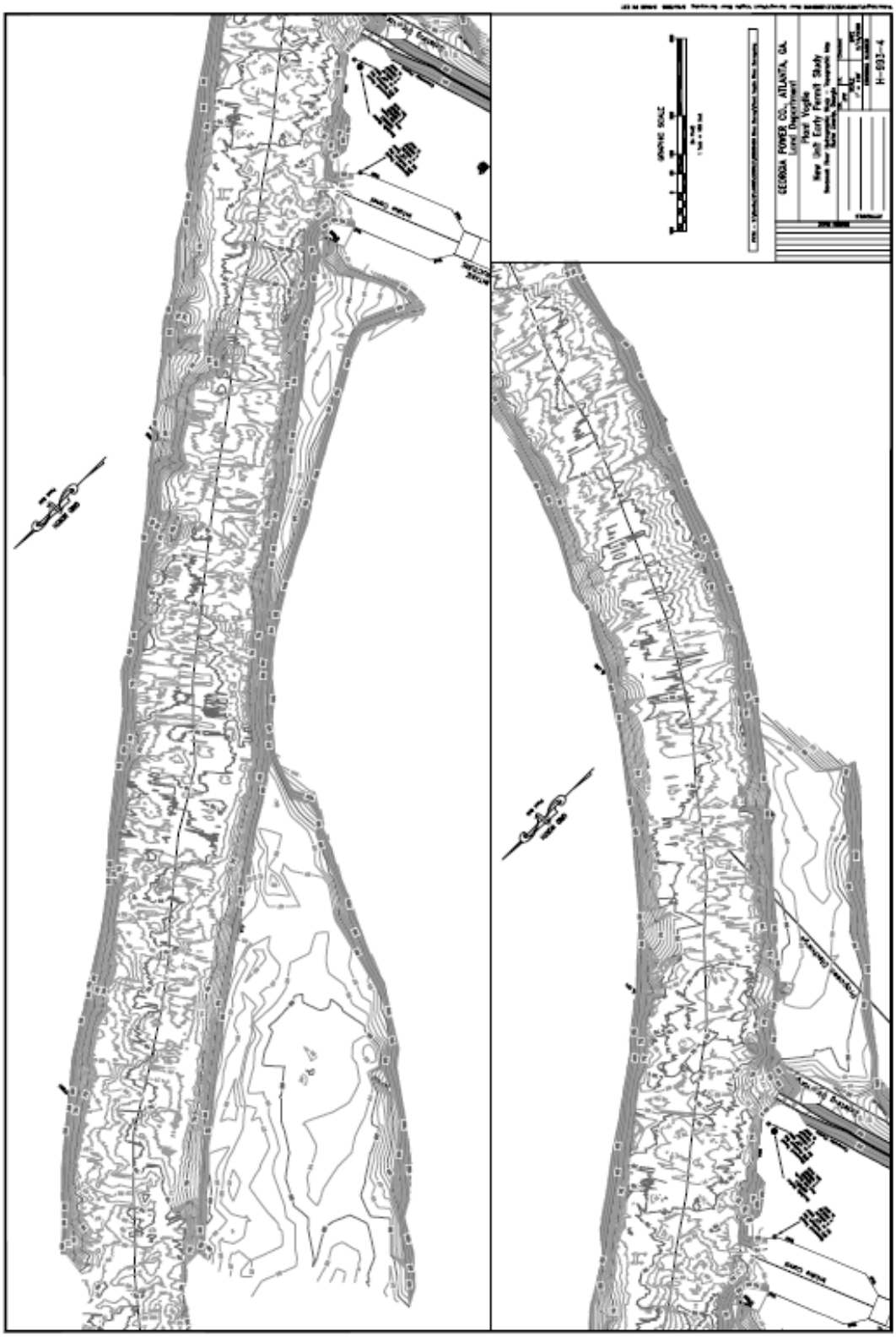
sld October 2002

AR-06-2684

Enclosure

Attachment C-2 #157

AR-06-2684
Enclosure
Attachment C-2 #157



AR-06-2684

Enclosure

Attachment C-3 #177

Intracompany Correspondence

SOUTHERN COMPANY
Energy to Serve Your World

Date: December 6, 2006

To: Mr. Mike Nichols

From: Mr. Bobby Williams

Subject: Plant Vogtle

Enclosed are the test results for the Plant Vogtle soil samples delivered to the Southern Company Central Laboratory on December 1, 2006. Tests performed include, Soil Particle Size Analysis (ASTM D-422).

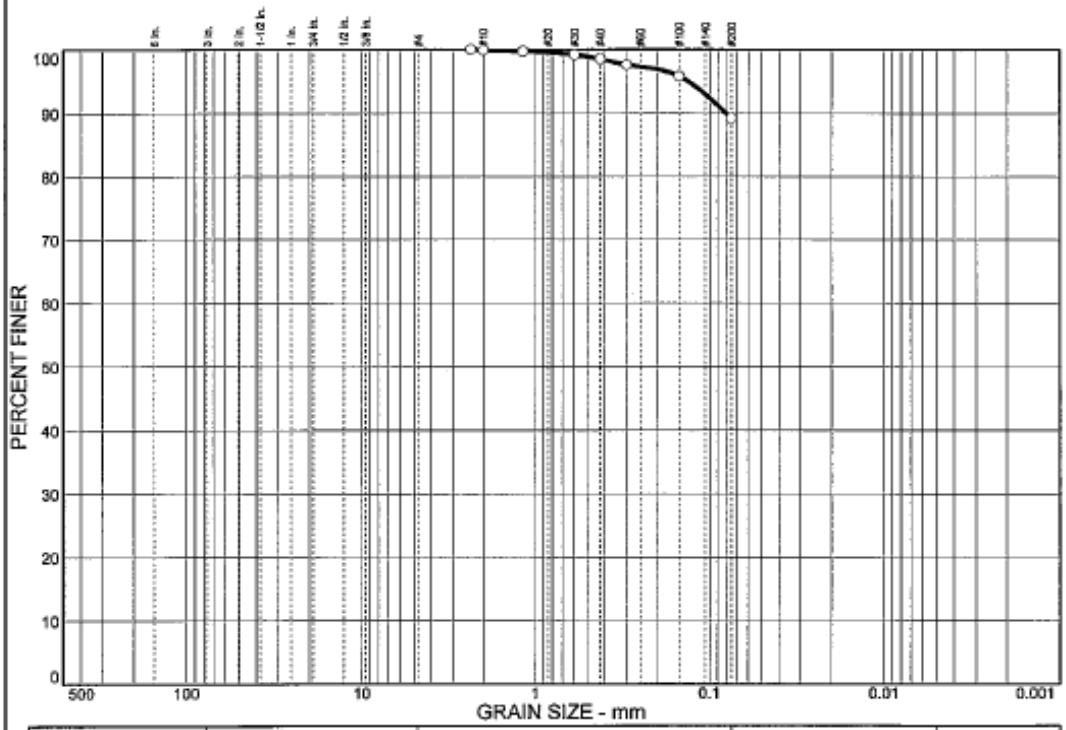
We appreciate the opportunity to assist you on this project. If there are any questions, or if we can be of any further assistance, please call me at 8-255-6508 or Sam Moore at 8-255-6061.

Sincerely,

Bobby Williams, PE
Geostructural Services

cc: Mr. Tom C. Moorer

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	10.8	89.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#8	100.0		
#10	99.9		
#16	99.7		
#30	99.2		
#40	98.5		
#50	97.6		
#100	95.8		
#200	89.2		

* (no specification provided)

Soil Description

Brown Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO=

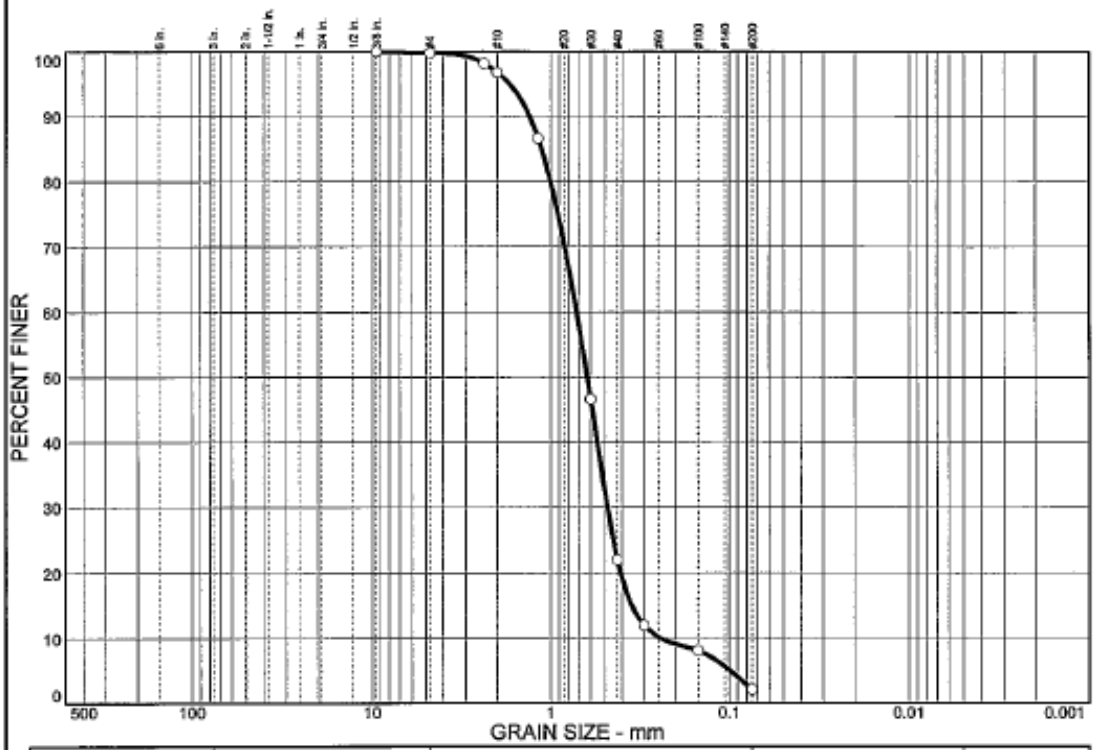
Remarks

Sample No.: MA112806 - 1 **Source of Sample:** **Date:** 12/06/06
Location: Discharge **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 1

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.2	97.7	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	99.8		
#8	98.2		
#10	96.8		
#16	86.6		
#30	46.6		
#40	22.0		
#50	12.0		
#100	8.1		
#200	2.1		

* (no specification provided)

Soil Description

Brown Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.13 D_{60}= 0.720 D_{50}= 0.627
D_{30}= 0.483 D_{15}= 0.353 D_{10}= 0.243
C_u= 2.96 C_c= 1.33

Classification

USCS= SP AASHTO=

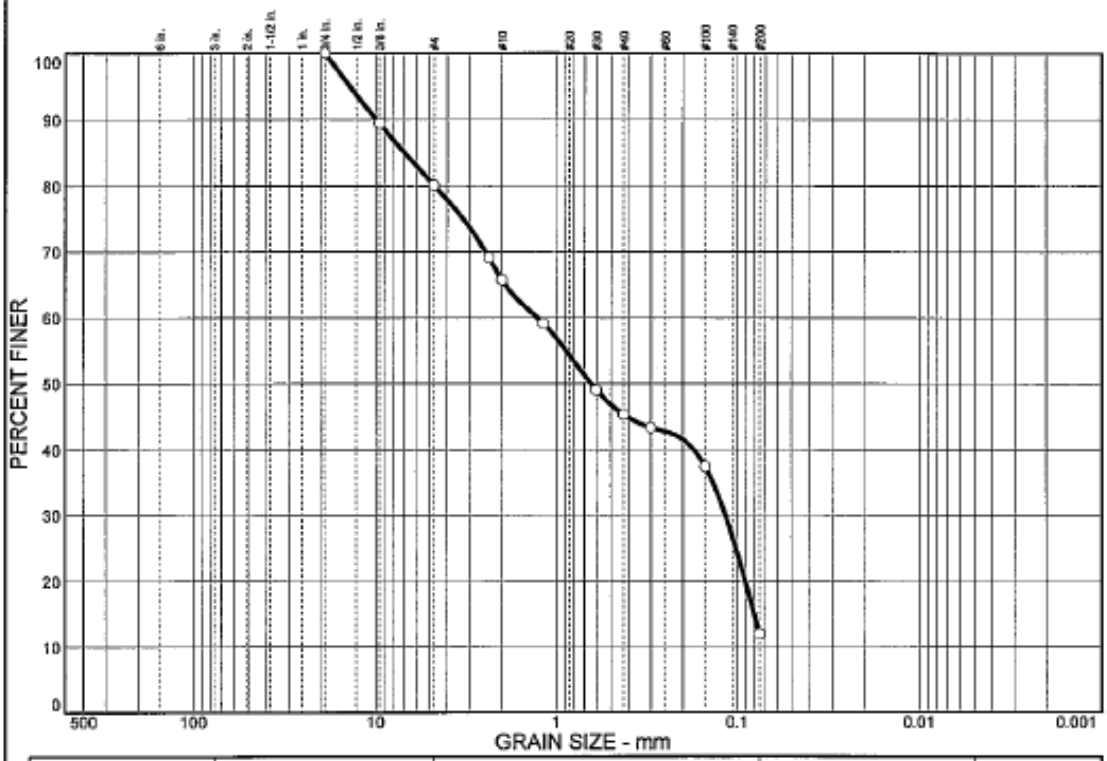
Remarks

Sample No.: MA112806 - 2 **Source of Sample:** **Date:** 12/06/06
Location: Upper River Shoreline **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 2

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	19.9	68.2	11.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
.375 in.	89.4		
#4	80.1		
#8	69.1		
#10	65.7		
#16	59.1		
#30	49.0		
#40	45.3		
#50	43.3		
#100	37.4		
#200	11.9		

* (no specification provided)

Soil Description

Brown Poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.91 D_{60}= 1.28 D_{50}= 0.644
D_{30}= 0.116 D_{15}= 0.0805 D_{10}=
C_u= C_c=

Classification

USCS= SP-SM AASHTO=

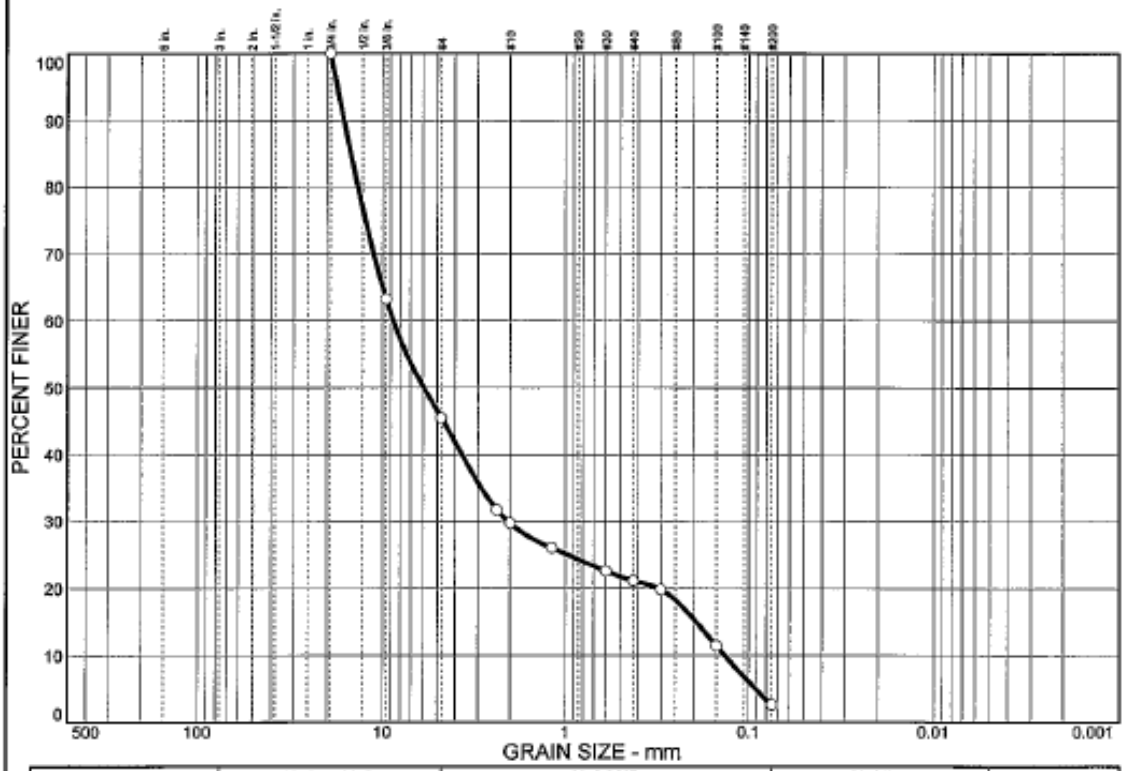
Remarks

Sample No.: MA112806 - 3 **Source of Sample:** **Date:** 12/06/06
Location: Upper River Middle **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 3

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	54.5	42.9	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
.375 in.	63.2		
#4	45.5		
#8	31.7		
#10	29.7		
#16	26.0		
#30	22.6		
#40	21.1		
#50	19.8		
#100	11.4		
#200	2.6		

* (no specification provided)

Soil Description

Brown Poorly graded gravel with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 14.8 D_{60}= 8.72 D_{50}= 5.93
D_{30}= 2.06 D_{15}= 0.193 D_{10}= 0.135
C_u= 64.34 C_c= 3.59

Classification

USCS= GP AASHTO=

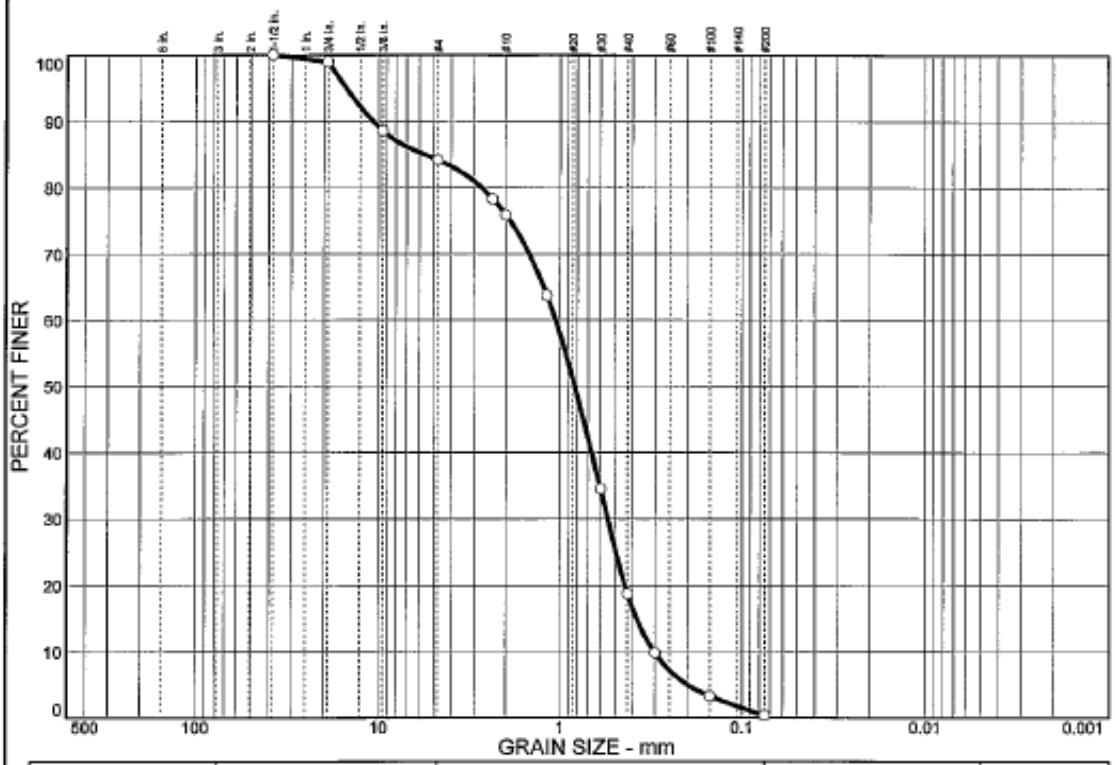
Remarks

Sample No.: MA112806 - 4 **Source of Sample:** **Date:** 12/06/06
Location: Upper River Deep **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 4

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	15.8	83.8	0.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50 in.	100.0		
0.75 in.	99.0		
.375 in.	88.6		
#4	84.2		
#8	78.3		
#10	75.9		
#16	63.7		
#30	34.5		
#40	18.7		
#50	9.8		
#100	3.3		
#200	0.4		

* (no specification provided)

Soil Description

Brown Poorly graded sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 5.58 D_{60}= 1.06 D_{50}= 0.831
D_{30}= 0.548 D_{15}= 0.379 D_{10}= 0.303
C_u= 3.50 C_c= 0.93

Classification

USCS= SP AASHTO=

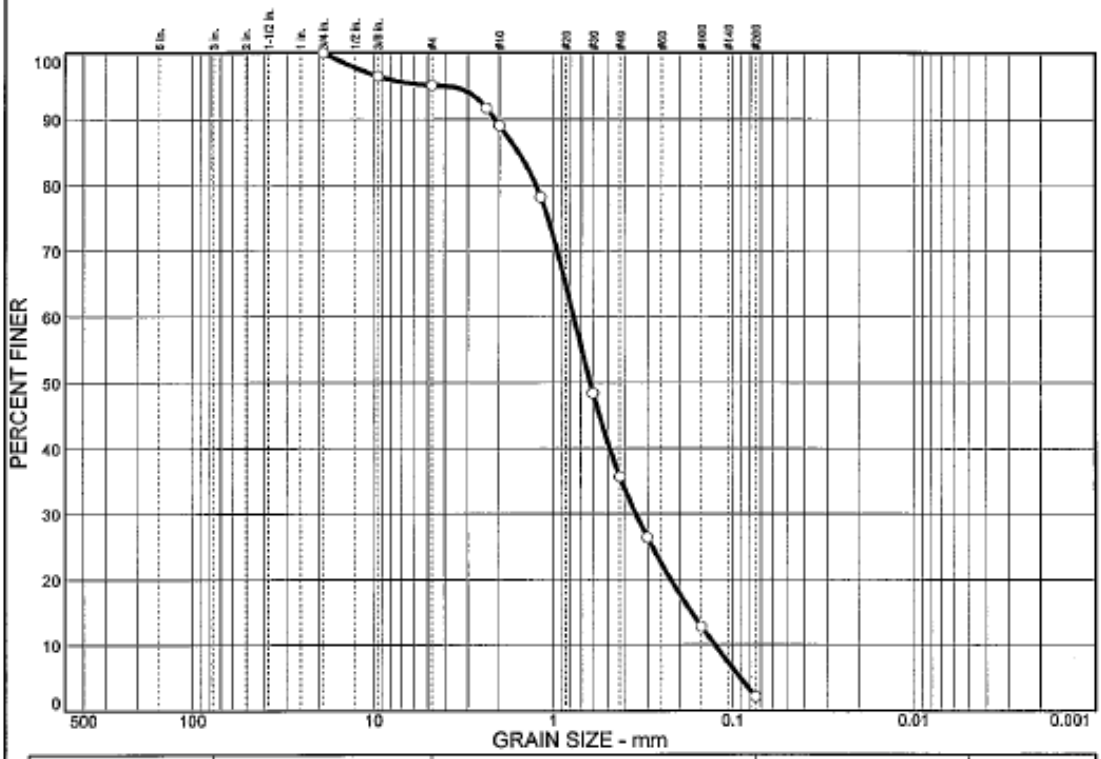
Remarks

Sample No.: MA112806 - 5 **Source of Sample:** **Date:** 12/06/06
Location: Middle River Shoreline **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 5

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.9	93.0	2.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
.375 in.	96.5		
#4	95.1		
#8	91.7		
#10	89.0		
#16	78.2		
#30	48.4		
#40	35.7		
#50	26.4		
#100	12.8		
#200	2.1		

* (no specification provided)

Soil Description

Brown Well-graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.57 D_{60}= 0.770 D_{50}= 0.622
D_{30}= 0.347 D_{15}= 0.171 D_{10}= 0.126
C_u= 6.09 C_c= 1.24

Classification

USCS= SW AASHTO=

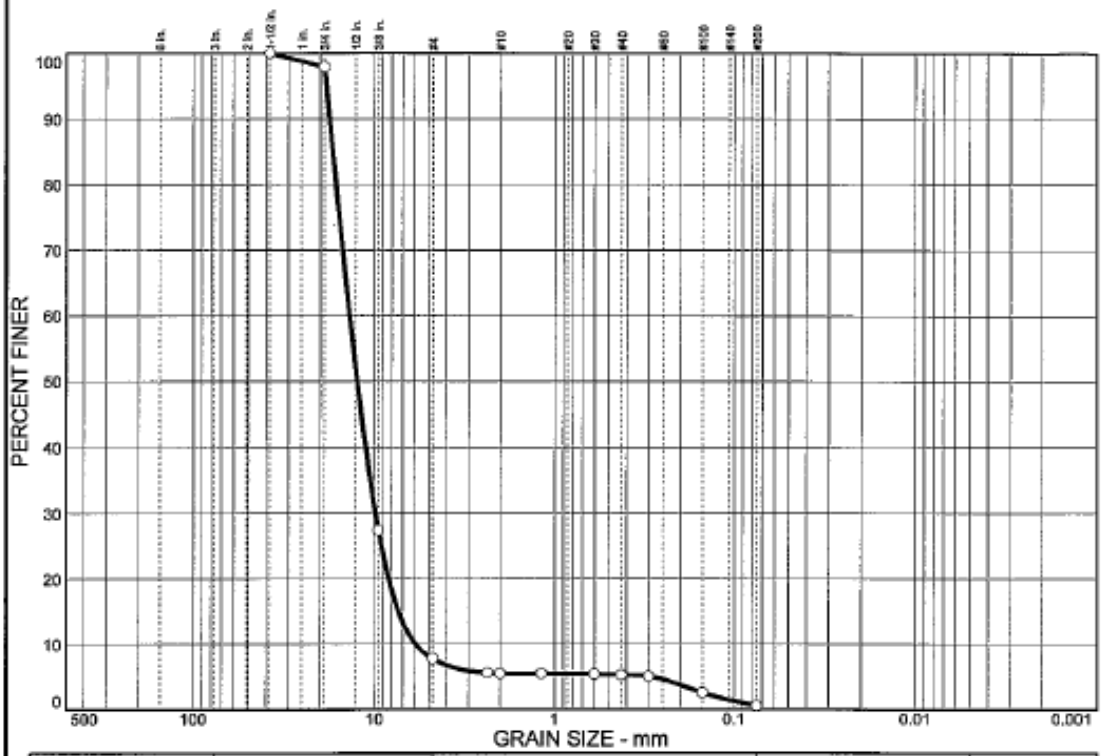
Remarks

Sample No.: MA112806 - 6 **Source of Sample:** **Date:** 12/06/06
Location: Middle River Middle **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 6

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	92.2	7.2	0.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50 in.	100.0		
0.75 in.	97.9		
.375 in.	27.4		
#4	7.8		
#8	5.6		
#10	5.5		
#16	5.5		
#30	5.4		
#40	5.3		
#50	5.1		
#100	2.6		
#200	0.6		

* (no specification provided)

Soil Description

Brown Poorly graded gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 17.1 D_{60}= 13.7 D_{50}= 12.5
D_{30}= 9.89 D_{15}= 7.36 D_{10}= 5.92
C_u= 2.32 C_c= 1.21

Classification

USCS= GP AASHTO=

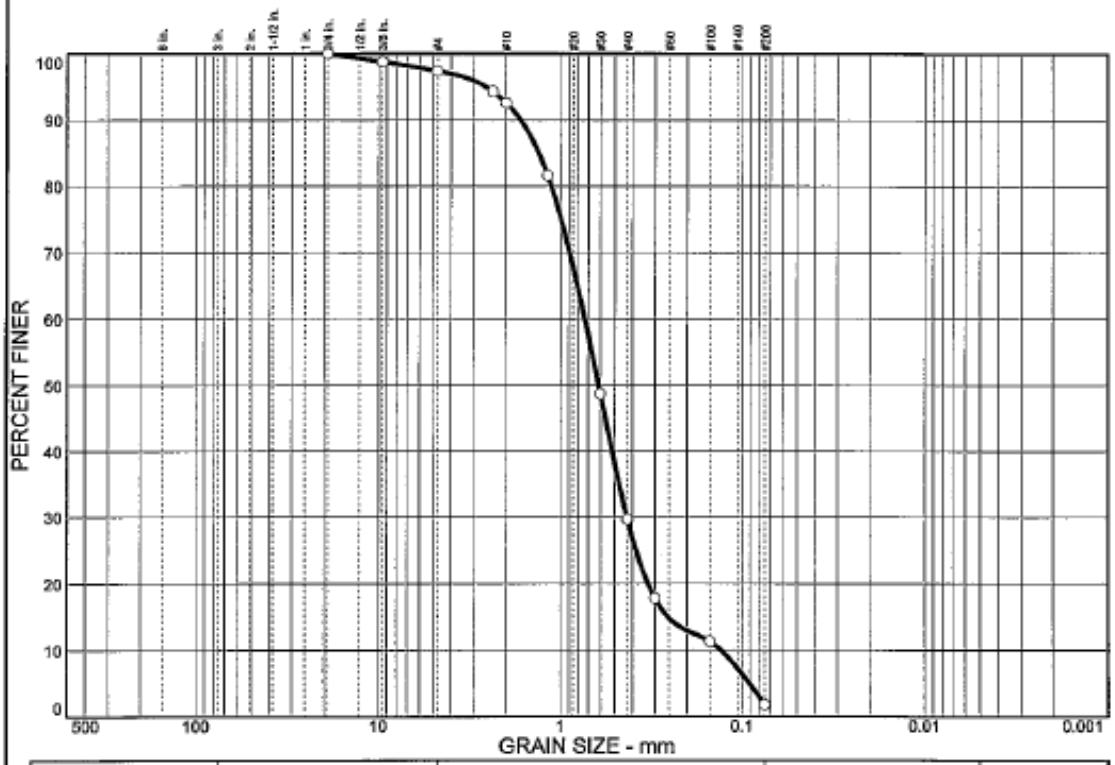
Remarks

Sample No.: MA112806 - 7 **Source of Sample:** **Date:** 12/06/06
Location: Middle River Deep **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 7

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	2.6	95.6	1.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
.375 in.	98.8		
#4	97.4		
#8	94.3		
#10	92.6		
#16	81.6		
#30	48.7		
#40	29.7		
#50	17.8		
#100	11.3		
#200	1.8		

* (no specification provided)

Soil Description

Brown Poorly graded sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.32 D_{60}= 0.733 D_{50}= 0.614
D_{30}= 0.428 D_{15}= 0.254 D_{10}= 0.131
C_u= 5.61 C_c= 1.91

Classification

USCS= SP AASHTO=

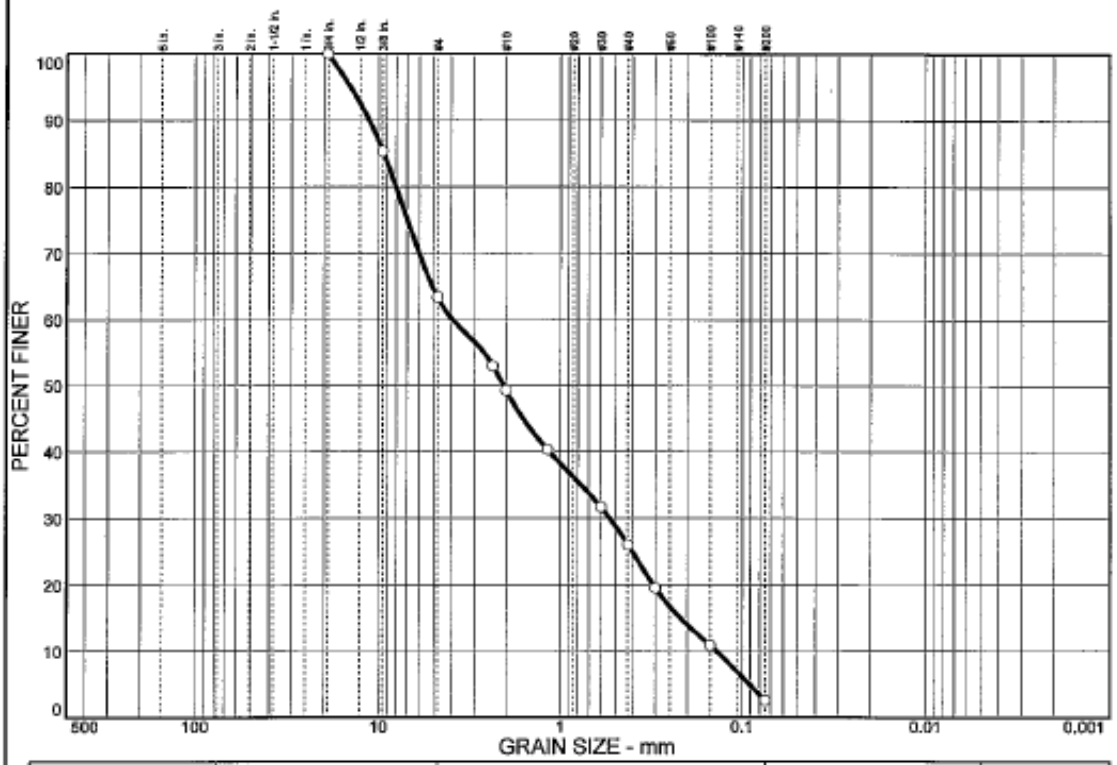
Remarks

Sample No.: MA112806 - 8 **Source of Sample:** **Date:** 12/06/06
Location: Down River Shoreline **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 8

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	36.6	60.8	2.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
.375 in.	85.4		
#4	63.4		
#8	53.0		
#10	49.3		
#16	40.3		
#30	31.7		
#40	26.0		
#50	19.5		
#100	10.9		
#200	2.6		

* (no specification provided)

Soil Description

Brown Poorly graded sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 9.40 D_{60}= 3.92 D_{50}= 2.06
D_{30}= 0.536 D_{15}= 0.218 D_{10}= 0.138
C_u= 28.36 C_c= 0.53

Classification

USCS= SP AASHTO=

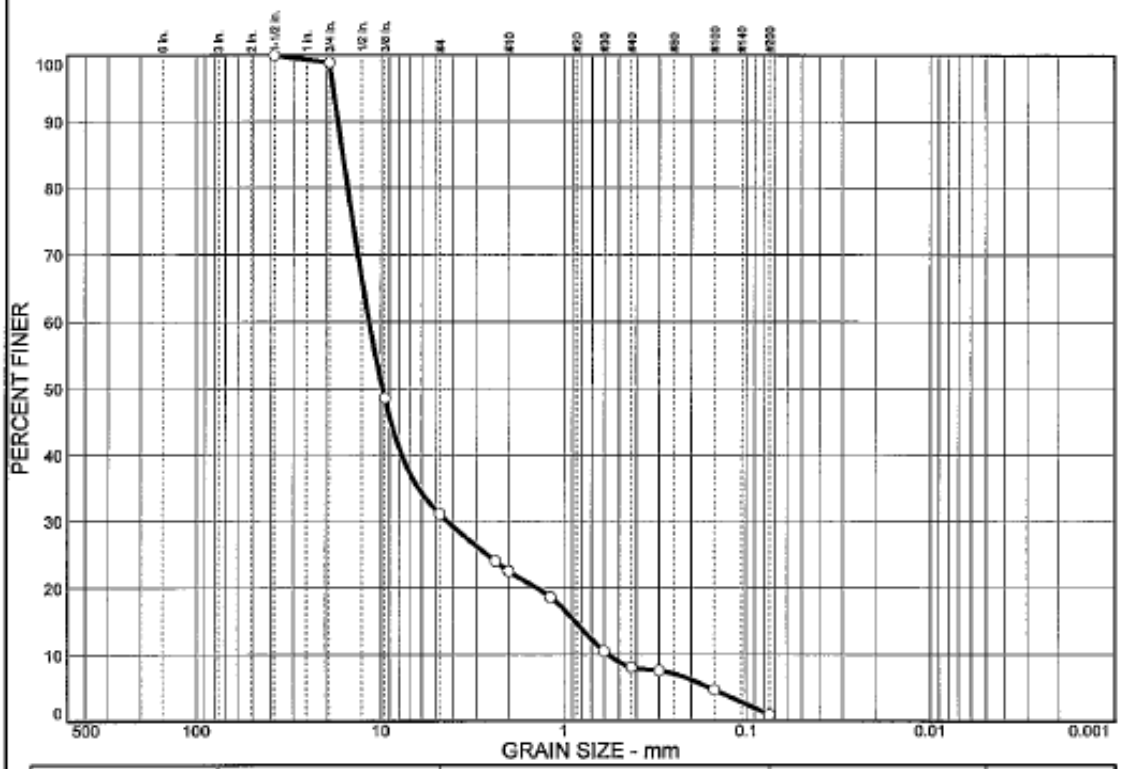
Remarks

Sample No.: MA112806 - 9 **Source of Sample:** **Date:** 12/06/06
Location: Down River Middle **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 9

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	68.9	30.1	1.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.50 in.	100.0		
0.75 in.	98.9		
.375 in.	48.5		
#4	31.1		
#8	24.0		
#10	22.5		
#16	18.6		
#30	10.5		
#40	8.1		
#50	7.6		
#100	4.7		
#200	1.0		

* (no specification provided)

Soil Description

Brown Well-graded gravel with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 16.1 D_{60}= 11.6 D_{50}= 9.81
D_{30}= 4.31 D_{15}= 0.867 D_{10}= 0.570
C_u= 20.35 C_c= 2.81

Classification

USCS= GW AASHTO=

Remarks

Sample No.: MAI12806 - 10 **Source of Sample:** **Date:** 12/06/06
Location: Down River Deep **Elev./Depth:**

SOUTHERN COMPANY

Client: Southern Nuclear / Mike Nichols and Tom Moorer
Project: Plant Vogtle
Project No: EWO - **Lab#** 10

On November 28, 2006, substrate samples were collected from the Savannah River along three transects perpendicular to the shoreline and adjacent to the proposed intake area of Plant Vogtle. Additionally, a single shoreline sample was taken at the proposed discharge area. Transects included the uppermost reach (upper river), middle (middle river), and lowermost reach (lower river) of the proposed intake area as determined by prior placement of survey flagging by Southern Nuclear personnel. Shoreline latitude/longitude coordinates were recorded at each transect and single quart-jar samples were taken by hand via a boat and diver at depths of 0.5m (shoreline), 1.0m (middle), and 1.5m (deep). Samples were labeled, preserved on ice, and analyzed. In order to further characterize the substrate underwater pictures were taken using an Oceans System Deep Blue Pro Splashcam underwater video camera with auxiliary lighting and PVR-Plus Video Capture software. A single representative picture was chosen for each depth.

Shoreline coordinates

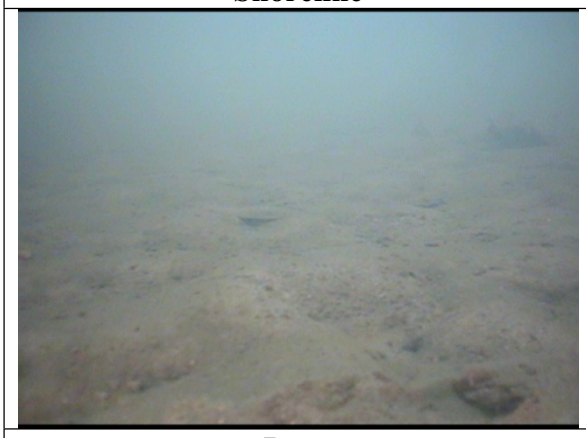
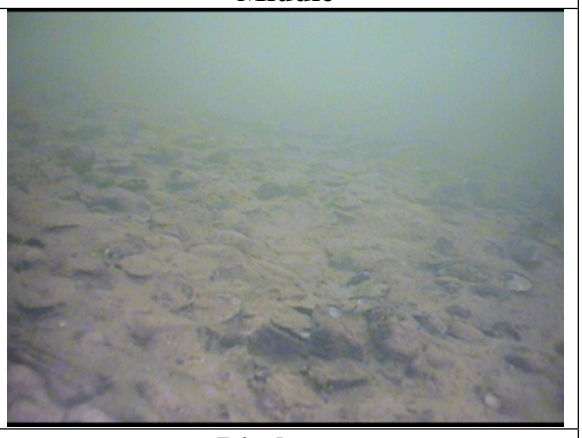
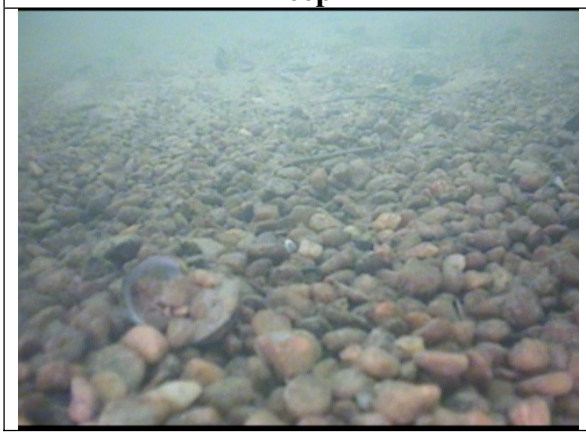
	Latitude	**Longitude**
Upper River	N 33°09'18.1"	W 81°45'32.4"
Middle River	N 33°09'16.5"	W 81°45'30.8"
Lower River	N 33°09'14.9"	W 81°45'29.6"
Discharge	N 33°08'54.3"	W 81°45'10.8"

Substrate Description

	Shoreline	**Middle**	**Deep**
Upper River	Brown poorly-graded sand	Brown poorly-graded sand with silt and gravel	Brown poorly-graded gravel with sand
Middle River	Brown poorly-graded sand with gravel	Brown well-graded sand	Brown poorly-graded gravel
Lower River	Brown poorly-graded sand	Brown poorly-graded sand with gravel	Brown well-graded gravel with sand
Discharge	Brown Silt	No sample	No sample

M. Abney
Georgia Power Environmental Lab

Representative Substrate

Shoreline	Middle
	
Deep	**Discharge**
	

M. Abney
Georgia Power Environmental Lab

AR-06-2684

Enclosure

Attachment C-4 #89

REVISED
July 19, 2004

Title 22 Compliance Requirements Manual

Introduction

The 2004 Georgia General Assembly passed a law amending Chapters 2 and 3 of Title 22 of the Official Code of Georgia Annotated. The amendments add new requirements that a utility must meet before exercising the power of eminent domain in constructing certain electric transmission lines.

The new requirements become effective on July 1, 2004, and include the following:

- Holding one or more public meetings in each county where a transmission line is to be constructed with an opportunity for comment and questions.
- Documenting compliance with the requirements, such as a description of the alternative construction approaches the utility considered for each transmission line construction project and why it rejected those alternatives.
- Demonstrating that the utility, in selecting the route for a transmission line, considered factors such as existing land uses, existing environmental conditions, existing corridors, engineering practices related to the construction and operation of the line, and costs related to construction, operation, and maintenance of the line.
- Providing that in condemnations for transmission lines, hearings before the Special Master must take place no sooner than 30 days, but no more than 40 days, from the date on which the petition and order are served on the condemnee(s).

This manual includes the protocols Georgia Power must follow to meet the new requirements of Title 22. The protocols are organized in the order in which they occur in the process of constructing a transmission line. Each section begins with a Protocol Checklist and is followed by details on how to comply with the protocols.

The process begins with the planners identifying a particular transmission problem and then forming a Solution Team to choose a preferred solution. The next step involves the Location Committee's analyzing route options and siting the new line, and public meetings then follow to provide an opportunity for comment by members of the public. The Land Department will then try to obtain the necessary property rights by negotiating in good faith with affected landowners. If necessary, condemnation proceedings occur next, followed by a post-condemnation process and litigation of any appeals.

In the case of many transmission line projects undertaken by Georgia Power Company, the departments listed below have some responsibility in the protocols that are required for each step in the process of planning such projects and acquiring the necessary property rights:

Southern Company Services:

Transmission Planning–East

Georgia Power Company:

Area Planning
Project and Administration
Land Department
Environmental Affairs
Line Design and Engineering
Acquisition Group
Land Department Legal Services
Transmission Maintenance Center
Transmission Construction
Transmission Planning and Administration
Corporate Communication
Community and Economic Development

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Section A: Problem Identification and Selection of Preferred Solution

Protocol Checklist

In the case of most Georgia Power transmission line projects, a Planner in Southern Company Services Transmission Planning–East is responsible, in conjunction with Georgia Power Area Planning and Transmission Support, for the following activities:

- ☐ Assess the transmission problem.
- ☐ Identify alternative solutions
- ☐ Assess alternate solutions for Title 22 implications
- ☐ Evaluate alternatives for viable solutions
  - Select the best practical and feasible solutions
  - Assess these solutions for Title 22 implications
- ☐ Organize a Solution Team to review and evaluate viable solutions
- ☐ Determine – with guidance and advice from the Land Acquisition and Legal Services departments – whether any of the proposed solutions from the narrowed-down list will require acquisition of property rights and, therefore, require compliance with the new Title 22 requirements.
- ☐ Implement the Alternative Construction Approaches Checklist (**Exhibit A-1**) and make sure alternative construction approaches are identified and documented for the proposed solutions in the narrowed-down list.
- ☐ Work with the Solution Team to select a preferred solution and document the preferred solution that is selected.
- ☐ Clear Solution Team documentation with Legal Services and transmit Title 22 Project File to Land Legal Services.

Section A: Problem Identification and Selection of Preferred Solution

Protocols

1. Problem Identification

Southern Company Services Transmission Planning–East and Georgia Power's Area Planning and Transmission Support groups are responsible for developing new 115 kV, 230 kV, and 500 kV transmission line facilities and documenting the need for such facilities. Transmission Planning–East takes primary responsibility for network transmission needs in Georgia, and Area Planning assumes primary responsibility if the radial transmission system needs to be developed to serve new customer load. These groups conduct the following activities to identify problems on the transmission system in Georgia:

- Perform load flow analysis of the system.
- Consider new load/demand creates a need for system improvements.

2. Alternative Solutions

A Planner in Transmission Planning, with input from Area Planning and Transmission Support, determines first whether the scope and nature of the electrical problem require that alternative solutions be considered.

- If there is only one electrical solution:
    1. Send project to the Solution Team
    2. Request estimates.
- If there are multiple possible electrical solutions:
    1. Perform internal planning review.
    2. Analyze solutions to develop viable alternatives.
    3. Send project to the Solution Team.
    4. Request estimates.

3. Solution Team

Transmission Planning and Area Planning pull together and chair a Solution Team that includes representatives from Transmission Planning, Project Management, Line Engineering, Transmission Maintenance Center, the Regions, and Land Acquisition (Location Engineer), as well as a Staff Attorney from Land Legal Services and estimators.

The Planner – with guidance and advice from a Land Legal Services Staff Attorney and a Land Location Engineer – determines whether any of the proposed alternative solutions will require

new or additional property rights and, therefore, make the project subject to the new requirements of Title 22.

The Planner chairs the Solution Team and is responsible for:

- Identifying the specific participants in the Solution Team.
- Providing the Solution Team the necessary information to gain an in-depth understanding of the electrical problem to be solved and the alternative electrical solutions by:
    1. Identifying overloaded facilities, the conditions that cause the overload, and the magnitude of the overload.
    2. Reviewing the list of alternative solutions prepared by the Planner.
- Soliciting information and input from Solution Team members so the Team can become familiar with the existing transmission facilities and the geography, topography, and land uses in the problem area by:
    1. Reviewing Transmission Key Map, Grid Maps, and System One-Line Diagrams.
    2. Reviewing STOMP facility information and ABSITS.
    3. Reviewing Line Design and TMC facility records (including Job Spec Books, Plan Sheets, and Profiles).
    4. Making a site visit to the problem area to review geography, topography, existing land uses, archaeological and environmental concerns, mechanical and electrical condition of existing facilities, and access to rights-of-way.
- Preparing and presenting all relative information/documentation regarding the problem, the internal review process, and feasible alternatives for further review and analysis.
- Implement the Alternative Construction Approaches Checklist (**Exhibit A-1**) to determine which construction approaches are feasible for the solutions.
- Charging the Solution Team with identifying a preferred solution from the feasible alternatives derived from the internal planning review.
- Requesting and helping complete cost estimates for the feasible alternative solutions.
- Reviewing cost estimates by:
    1. Seeking input from each representative on the Solution Team.
    2. Including site visits to validate/clarify any assumptions.
- Requesting revised cost estimates if needed.
- Taking minutes at the meeting(s).

4. Selection of Preferred Solution

The Planner charges the Solution Team with identifying a preferred solution and leads participants to:

- Gather more detailed information about the narrowed-down list of alternative solutions.
- Develop and review cost estimates of each alternative solution.
- Request revised estimates if necessary.
- Review information, input, and decisions of Solution Team members.
- Identify a preferred solution.
- Document the selection of the preferred solution and forward the documentation, as a part of the Project Business File, to the Project Manager.

For each of the alternative solutions that are subject to the Title 22 requirements after feasible alternative construction approaches have been considered, the Planner is responsible for:

- Documenting the analysis of the proposed solutions and the alternative construction approaches.
- Preparing a statement as to why any alternative construction approaches were rejected.
- Including all documentation in the Project Business File.

Exhibits for Section A:

Exhibit A-1: Alternative Construction Approaches Checklist

Exhibit A-1: Alternative Construction Approaches Checklist

This Alternative Construction Approaches Checklist should be implemented by the Planner and the Line Design Engineer after they have gained an in-depth understanding of the electrical problem to be solved and the alternative solutions and have become familiar with the existing transmission facilities and the geography, topography, and land uses in the problem area.

1. Explore possible solutions that would use existing Georgia Power rights-of-way ("ROW"):
   - ☐ Generate high-level cost estimates of both underground and overhead construction approaches.
   - ☐ Proceed with more detailed cost estimates of underground construction approaches or document why the underground options are not selected.
     - o Utilize the Underground Transmission Line Decision-Making Matrix to explore underground options.
     - o Utilize the Underground Transmission Line Cost-Estimating Tool to produce high-level cost estimates.
     - o If underground options appear feasible, prepare detailed cost estimates.
   - ☐ If underground options are not selected, proceed with more detailed cost estimates of overhead construction approaches or document why the solutions using existing Georgia Power ROW are not selected.
     - o Explore possibilities to upgrade, reconductor, or rebuild existing Georgia Power transmission lines.
     - o For new transmission lines, consider compacting existing lines on existing ROW, building double circuit lines, or acquiring new ROW adjacent to existing ROW.
     - o Consider whether existing facilities can be taken out of service for the duration of the construction project.
     - o Prepare cost estimates using TEAMS and following Line Design estimating process and conventions.
2. Explore possible solutions that would use existing public ROW:
   - ☐ Generate high-level cost estimates of both underground and overhead construction approaches.
   - ☐ Proceed with more detailed cost estimates of underground construction approaches or document why the underground solutions are not selected.
     - o Utilize the Underground Transmission Line Decision-Making Matrix to explore underground options.
     - o Utilize the Underground Transmission Line Cost-Estimating Tool to produce high-level cost estimates.

- If underground options appear feasible, prepare detailed cost estimates.

- ☐ If underground options are not selected, proceed with more detailed cost estimates of overhead construction approaches or document why the solutions using public ROW are not selected.
  - Utilize state and county road maps to develop possible routes for new transmission line.
  - Determine whether the line can be built on public ROW or just off public ROW by acquiring new Georgia Power ROW adjacent to the public ROW.
  - Determine whether there are plans to modify the existing public ROW and whether the new transmission line would create any public safety hazards (such as clear roadside issues).
  - Contact public officials responsible for the public ROW to determine if they would allow the new line to be installed on the public ROW and if permits could be acquired in a timely manner.
  - Prepare cost estimates using TEAMS and following Line Design estimating process and conventions.

3. Explore possible solutions that would use new ROW:
   - ☐ Generate high-level cost estimates of both underground and overhead construction approaches.
   - ☐ Proceed with more detailed cost estimates of underground construction approaches or document why the underground solutions are not selected.
     - Utilize the Underground Transmission Line Decision-Making Matrix to explore underground options.
     - Utilize the Underground Transmission Line Cost-Estimating Tool to produce high-level cost estimates.
     - If underground options appear feasible, prepare detailed cost estimates.
   - ☐ If underground options are not selected, proceed with more detailed cost estimates of overhead construction approaches or document why the solutions of using new ROW are not selected.
     - Make a site visit to the problem area to review geography, topography, existing land uses, archaeological and environmental concerns, mechanical and electrical condition of existing facilities, and access to new ROW.
     - With input from the Location Engineer, conduct a high-level assessment of public impact and likelihood of locating a route on new ROW.
     - Prepare cost estimates using TEAMS and following Line Design estimating process and conventions.
4. Determine a preferred solution and review decisions with Transmission Line Engineering Supervisor, Principal Engineer, and Team Leader.

Section B: Siting

Protocol Checklist

- ☐ The Location Engineer shall gather data pertaining to the transmission line project.
- ☐ The Location Engineer shall complete a Project Scope Document (**Exhibit B-1**) with key information about the project and shall obtain visuals pertaining to the project.
- ☐ The Land Department shall organize a Location Committee made up of individuals from designated areas.
- ☐ The Location Committee is responsible for ensuring compliance with Title 22 requirements and, therefore, must consider the following in selecting a route for the location of an electric transmission line:
  - ☐ Alternative construction approaches. (see **Exhibit A-1**)
  - ☐ Existing land uses in the geographic area where the line is to be located. (see **Exhibit B-2**)
  - ☐ Existing corridors. (see **Exhibit B-3**)
  - ☐ Existing environmental conditions in the area. (see **Exhibit B-4**)
  - ☐ Engineering practices related to the construction and operation of the line. (see **Exhibit B-6**)
- ☐ The Location Committee shall determine a Final Study Route.
- ☐ The Land Department shall ensure that documentation of compliance with Title 22 requirements is complete and is included in the Project Business File.

Section B: Siting

Protocols

The location, or siting, process is the first step in determining a route for an electric transmission line and is followed by acquiring the necessary property rights for the line and releasing for construction a right-of-way corridor on which the line will be built. In carrying out that first step, the Location Committee must select a route that is practical and feasible taking into consideration Title 22 in addition to reliability and safety in making its decision. While the Location Committee is conducting its analysis of potential routes, the property owners remain anonymous.

Title 22 requires that Georgia Power document its process for selecting a transmission line route. Specifically, § 22-3-161(a) states:

> "In selecting the route for the location of the electric transmission line, the utility shall consider existing land uses in the geographic area where the line is to be located, existing corridors, existing environmental conditions in the area, engineering practices related to the construction and operation of the line, and costs related to the construction, operation, and maintenance of the line."

The work of the Location Committee, as described in this section, leads to the selection of a route for a transmission line. Thus, the Location Committee is directly responsible for complying with these requirements of Title 22.

1. Data Gathering

Data gathering and preliminary route analysis tasks will vary depending on whether the Location Engineer, who is the project manager for the overall location process, utilizes Land Engineering GIS services or a consultant as a resource for the data necessary to locate a route for a transmission line.

The Location Engineer is responsible for defining a general project area and outlining the basic project assumptions for the preferred solution (voltage, construction type, schedule, purpose, and need) as determined by the Solution Team. The Location Engineer also may identify preliminary routes or route segments to serve as starting points from which additional alternatives or adjustments can be made.

The Location Engineer is responsible for:

- Obtaining the Project Business File from the Solution Team.
- Identifying the possible corridors for the transmission line.
- Ordering aerial photography of the project area.
    1. Determine scale
    2. Black and white or color

- Reviewing and updating applicable ARC GIS Data Layers to include data on:
    1. Land uses
        a. Evaluation criteria (such as airports, cemeteries, churches, schools, cultural resources, historical sites, residences, and businesses)
        b. Zoning
    2. Environmental issues
        a. Rivers, streams, and wetlands
        b. Endangered species
    3. Existing corridors
        a. Utilize the ITS transmission grid
        b. Identify other corridors (such as pipelines and telecommunications facilities)
- Obtaining county property tax records/maps (with identities of property owners excluded)
- Considering access for construction and maintenance.
- Coordinating work activities between the consultant and the Location Committee, if applicable.

2. Location Committee Preparation

The Location Engineer is responsible for reviewing the Project Business File and preparing the Project Scope Document (in the form of **Exhibit B-1**) to be presented to the Location Committee that includes the following information:

- Need for the project
- Required right-of-way width
- Line construction type
- Guys/guy flares
- Underbuild (transmission, distribution, other)
- Required substation area
- Terrain of project area

The Location Engineer also obtains visuals to be presented as needed, including:

- Aerial photography or ARC GIS output of the possible corridors
- Tax parcel information (with identities of property owners excluded to assure no ownership is known prior to route selection)
- Other maps (such as USGS topographical maps, county maps, and ITS grid maps)

- Demographic data

3. Location Committee Formulation

A representative from the Land Department is responsible for organizing a Location Committee made up of individuals from the following areas:

- Land (chairs the committee)
- Environmental Affairs
- Regions
- Transmission Planning
- Transmission Maintenance Center ("TMC")
- Transmission Line Design (Line/Substation)
- Transmission Line Construction (Line/Substation)
- Area Planning
- Advisory members, as appropriate, from Corporate Communication, Legislative Affairs, and Community and Economic Development

If the Location Committee is siting a substation in conjunction with a transmission line that is subject to the new Title 22 requirements, the committee will include representatives from Substation Design, Substation Construction, and Land Engineering.

The chair of the Location Committee is responsible for sending notification of the project to managers/supervisors of committee members. The notification should:

- Briefly describe the location process.
- Identify the project.
- State the scope of the project.
- State the responsibilities of committee members.
- Emphasize the commitment of time and effort required of committee members.
- Ask for a recommendation or approval of a representative from their departments.

4. Location Committee Key Responsibilities

The Location Committee must comply with the requirements of Title 22, which states that in selecting a route for the location of an electric transmission line, a utility shall consider:

- Alternative construction approaches. (see **Exhibit A-1**)
- Existing land uses in the geographic area where the line is to be located. (see **Exhibit B-2**)

- Existing corridors. (see **Exhibit B-3**)
- Existing environmental conditions in the area. (see **Exhibit B-4**)
- Engineering practices related to the construction and operation of the line. (see **Exhibit B-6**)
- Costs related to the construction, operation and maintenance of the line.

5. Determination of a Final Study Route

The Location Committee shall consider potential routes and shall determine a Final Study Route, which is the general corridor within which the final engineered transmission line will be located.

6. Documentation of Compliance with Title 22 Requirements

After a Final Study Route has been determined, the Land Compliance Coordinator and the Land Department Staff Attorney responsible for the Acquisition Team for the project shall ensure that documentation of compliance with the Title 22 requirements is complete and is included in the Project Business File.

Exhibits for Section B:

Exhibit B-1: Project Scope Document
Exhibit B-2: Existing Land Uses Checklist
Exhibit B-3: Existing Corridors Checklist
Exhibit B-4: Existing Environmental Conditions Checklist
Exhibit B-5: Preliminary Location Process Environmental Report ("LPER")
Exhibit B-6: Engineering Practices Checklist

Exhibit B-1: Project Scope Document

Project Definition

Scope

Project Name:
(Complete name)

Project Need:
(High level understanding of the need for the project based on planning projections and load demand)

Type of Facilities Needed:
(Transmission line voltage or substation configuration, along with land rights – ROW requirements.)

Termination Points or Site Location:
(Beginning and ending substations, taps, and load centers for substations)

Schedule:
(Start, finish, duration)

Additional Information:
(Additional information pertinent to identifying the scope of the project)

Preliminary Findings

Physical Elements:
(Things that may impact the project, such as topography, airports, navigable rivers, railroads, and existing utilities)

Special Conditions:
(Territorial or franchise issues, DOT, or federal or state issues)

Other Information:
(Any other information that is needed or will help in the analysis)

Assumptions

(Information that is understood or ideas being considered that will underlie location constraints for the project. For example: underground solution has been ruled out because of cost, or topography suggests using certain structures.)

Identification of Preferred Solution

(Information about the preferred solution selected by the Solution Team)

Exhibit B-2: Existing Land Uses Checklist

Cultural Resources

- ☐ Environmental Affairs provides information about proposed transmission line corridors to Land Resources.
- ☐ Land Resources contracts with a professional consultant to conduct background research on potential cultural resources in the proposed corridor areas.
- ☐ The consultant prepares background report for Land Resources on the locations and descriptions of previously recorded cultural resources (archaeological or architectural).
- ☐ Land Resources forwards copies of the consultant's report to the Acquisition Supervisor, Environmental Affairs, and the Location Engineer.
- ☐ When the Location Committee selects a route and a survey of the selected route is completed, Land Resources requests the consultant to conduct a cultural resource investigation of the surveyed route.
- ☐ If a significant issue develops during the investigation by the consultant, the consultant contacts Land Resources, which coordinates with the Location Engineer and Environmental Affairs to resolve the issue.
- ☐ The consultant submits to Land Resources a draft report that identifies previously unknown, significant archaeological and architectural resources, if any, and recommends a determination of eligibility for each resource.
- ☐ Land Resources reviews the consultant's draft report and forwards copies of the draft report to Land Acquisition, the Location Engineer, and Environmental Affairs for review and comment.
- ☐ Land Resources provides comments back to the consultant for preparation of a final report.
- ☐ If Section 106 of the Historic Preservation Act applies, Land Resources submits the report to the State Historic Preservation Office ("SHPO") for Section 106 review and response.

Current Zoning

- ☐ The Location Committee utilizes current land use maps and zoning ordinances to develop an understanding of the current land issues in the proposed transmission line corridors.

Exhibit B-3: Existing Corridors Checklist

- ☐ The Location Committee reviews Transmission Key Map, Grid Map, and System One-Line Diagrams for existing electric transmission line corridors.
- ☐ The Location Committee utilizes aerial photography to identify other existing corridors (such as pipeline or telecommunication corridors) in the proposed corridor areas.
- ☐ The Location Committee utilizes information from field inspections to identify other existing corridors (such as newly constructed corridors or others not identifiable in the aerial photography) in the proposed corridor areas.

Exhibit B-4: Existing Environmental Conditions
(Overview followed by Checklist)

The Location Process includes two stages involving environmental issues:

Stage 1

Stage 1 consists of the more broad scale, generally public domain research and analysis that are performed under the auspices of the Location Committee. These investigations provide useful data for the selection of a Final Study Route. Because field surveys and inspections have not begun within the study area at this point in the process, these analyses must be performed using "off the shelf" data and are typically conducted within a Geographic Information System ("GIS") environment.

- Environmental work generally begins with the establishment of an Environmental Project Area, which creates the boundary for subsequent analyses, both formal and informal. The project area may be a logical boundary of geographic/land use features, or it may be defined by environmental determinants, such as watershed limits.

- The Location Committee develops alternatives for consideration within the project area.

- Environmental Affairs prepares the Preliminary Location Process Environmental Report ("LPER") (**Exhibit B-5**) in a GIS and documents the LPER with a map.

    1. Additional alternatives and/or modifications to existing alternatives are likely at this point in the process as a result of environmental constraints revealed by the LPER map.

    2. Coordination with regulatory agencies can occur at any point in the process, but typically occurs subsequent to alternative development and preliminary LPER preparation. These factors facilitate meaningful consultation with the necessary agencies.

    3. At project inception, Environmental Affairs creates a project folder/binder to collect and establish the necessary components of the final LPER.

    4. The LPER worksheet is intended to guide environmental compliance activities and facilitate documentation. The main components of the LPER worksheet are:

        a. Project Information
        b. Study Area Characteristics
        c. Environmental Resource Characteristics
        d. Agency Coordination
        e. Meeting/Activity Log
        f. Mitigation Commitments
        g. Permit Assessment

- Stage 1 is complete when the Location Committee selects a Final Study Route.

- This Exhibit B-4 includes a checklist entitled "Baseline Regulatory and Environmental Determinant Framework," which covers Stage 1 activities that are relevant to the location process.

[Note: GIS is the primary framework around which the Stage 1 activities are performed. The GIS for location activities is **location.mxd**. (Under the ArcView 3.x series, it was formerly named **location.apr** reflecting previous file conventions.) References to shapefiles and layers will be used interchangeably for the purposes of this document.]

Stage 2

Stage 2 is focused and field-oriented and begins after survey notification is complete for parcels along the Final Study Route. On-the-ground surveys of the Final Study Route provide detailed information and locations of, among other things, wetlands, streams, habitat types, vegetation communities, protected species, and potential cultural resources within the Final Study Route.

Stage 2 activities include:

- Field surveys for waters of the U.S. (including streams and wetlands), waters of the State, and protected species are performed along the Final Study Route.
- Minor modifications to the project centerline may occur to minimize project impacts.
- The Stage 2 process is documented through the completion of the LPER worksheet (**Exhibit B-5**), which begins in Stage 1. The worksheet, Preliminary LPER Map, and relevant attachments (such as consultant reports and contact database) collectively constitute the Final LPER.

The information gathered in Stage 2 is then utilized for three primary purposes:

- To make fine-scale adjustments (minor route changes and structure location modifications) to minimize environmental impacts to the extent practicable.
- To supply hard data to the environmental permitting process as needed (such as NPDES permitting, §404 CWA permitting, and USFWS coordination).
- To assist construction staff in designing and implementing access roads and stream crossings.

Exhibit B-4: Existing Environmental Conditions (continued)

Baseline Regulatory and Environmental Determinant Framework

[Note: "Location.mxd" is the base ESRI ArcGIS 8.x project file from which all LPER reports and maps are generated. Shapefiles and layers are presented here in italics and refer to those files included in the project document Location.mxd.]

Wetlands

Does the project cross and/or impact any wetlands?

☐ YES ☐ NO

☐ *Analyze National Wetlands Inventory (NWI) mapping within the GIS.*

☐ *Investigate USGS 7.5' Quadrangles with contour mapping within the GIS.*

☐ *Investigate Color Infrared Photos.*

☐ Perform Windshield Survey.

Land Use

Does the project cross any areas of a National Forest?

☐ YES ☐ NO

☐ *Analyze USFS National Forest Land shapefile within the GIS to determine whether the project impacts the Chattahoochee National Forest or the Oconee National Forest.*

☐ Perform Windshield Survey.

Does the project cross any areas of state ownership/management?

☐ YES ☐ NO

☐ *Analyze GA DNR Managed Lands shapefile within the GIS.*

☐ *Analyze Stewardship Lands.*

☐ Perform Windshield Survey.

Does the project cross any other areas of non-private ownership?

☐ YES ☐ NO

☐ *Analyze Stewardship Lands.*

☐ *Investigate Appalachian Trail CL.*

☐ Perform Windshield Survey.

☐ Analyze GDOT County Road Maps on paper.

Wildlife

Does the project affect any important avian habitat areas?

☐ YES ☐ NO

☐ *Analyze Known Wading Bird Concentrations shapefile within the GIS.*

☐ *Analyze Audubon Society Important Bird Areas shapefile within the GIS.*

☐ *Analyze Bald Eagle Nest Locations (one-mile buffer).*

☐ *Analyze Woodstork Nest Locations (three-mile buffer).*

Protected Species

Does the project impact any federally listed species?

☐ YES ☐ NO

☐ *Analyze Federal TES List by County (hyperlink).*

☐ *Analyze Heritage Database Locations (2004-2001).*

☐ *Analyze EO Quarter Quad.*

☐ *Analyze Known Woodstork Locations shapefile within GIS (three-mile buffer).*

☐ *Analyze Known Bald Eagle Nest Locations shapefile within GIS (one-mile buffer).*

Does the project impact any state listed species?

☐ YES ☐ NO

☐ *Analyze State TES List by County (hyperlink)*

☐ *Analyze Heritage Database Locations (2004-2001)*

☐ *Analyze EO Quarter Quad*

Streams and Rivers

Does the project cross and/or impact any streams or rivers?

☐ YES ☐ NO

☐ *Analyze USGS Streams shapefile within the GIS.*

☐ *Analyze USGS Lakes shapefile within the GIS.*

☐ *Investigate USGS 7.5' Quadrangles with contour mapping within the GIS.*

☐ Perform Windshield Survey.

Does the project cross and/or impact any National Wild and Scenic Rivers?

☐ YES ☐ NO

☐ *Investigate National Wild and Scenic Rivers shapefile within the GIS.*

Does the project cross any "navigable waters"?

☐ YES ☐ NO

☐ *Determine crossing of navigable waters.*

☐ *Investigate USGS 7.5' Quadrangles with contour mapping within the GIS.*

Does any part of the project occur within 2000 feet of the Chattahoochee River?

☐ YES ☐ NO

☐ *Investigate USGS 7.5' Quadrangles with contour mapping within the GIS.*

☐ *Investigate USGS Streams.*

Does the project occur within a county containing designated trout waters?

☐ YES ☐ NO

☐ *Investigate Trout Counties (hyperlink).*

Does the project cross any "major" rivers?

☐ YES ☐ NO

☐ *Investigate flow 400 cfs.*

☐ *Investigate USGS Streams.*

Does the project cross any impaired waters?

☐ YES ☐ NO

☐ *Analyze 305(b)/303(d) Listed Streams*

Does the project occur in a regulated "coastal county"?

☐ YES ☐ NO

☐ *Analyze Coastal Counties shapefile within the GIS.*

<u>Early Coordination</u>

While not required during Stage 1 of the location process, early coordination with state and federal agencies is beneficial. This coordination is in advance of any specific permitting activities. The following agencies may be contacted to acquire information about the study area for the proposed project and/or to coordinate future permitting actions:

☐ US Fish and Wildlife Service – regarding Federally listed protected species and locations of designated critical habitat.

- ☐ GA DNR Natural Heritage Program – regarding Federal and state-listed protected species.
- ☐ GA DNR Coastal Resources Division – regarding projects occurring within one or more of the designated coastal counties.
- ☐ US Corps of Engineers – regarding projects with anticipated substantive stream/river crossing, navigable waters, and/or involving crossings or impacts to Corps lakes or property.
- ☐ Georgia State Historic Preservation Officer ("SHPO") – regarding projects involving known locations of existing National Register properties and/or other important heritage resources.

Exhibit B-5: Preliminary Location Process Environmental Report ("LPER")

LPER WORKSHEET

GEORGIA POWER
A SOUTHERN COMPANY

PROJECT INFORMATION

Date:

Project Name:
Brief Description of Project:

Worksheet Completed By:
Location Committee Members:

Other Information:

STUDY AREA CHARACTERISTICS

Has a Study Area Been Defined? YES☐ NO☐
Study Area Size (in acres or square miles):
County(ies):
Physiographic Province(s):

Other Information:

ENVIRONMENTAL RESOURCE CHARACTERISTICS

Check all Environmental Determinants that exist within the Study Area (refer to the Preliminary LPER Map, location.mxd)

Stage 1

Environmental Determinant	YES	NO
Wetlands	☐	☐
Streams/Lakes	☐	☐
National Forest	☐	☐
DNR Land	☐	☐
Other Non Private Land (Describe below)	☐	☐
Important Avian Habitat Areas	☐	☐
Known Locations of Federally Listed Species	☐	☐
Known Locations of State Listed Species	☐	☐
Known Bald Eagle Nests	☐	☐
Known Woodstork Nests	☐	☐
Wild and Scenic Rivers	☐	☐
Navigable Waters	☐	☐
Chattahoochee River	☐	☐

Designated Trout Waters	☐	☐
Major Rivers (>400cfs)	☐	☐
303(d) Listed Streams	☐	☐
"Coastal Counties"	☐	☐
Other:	☐	☐
Other:	☐	☐
Other:	☐	☐

Stage 2

Environmental Field Surveys	**Date(s)**	**Consultant Used**
Streams/Wetlands/Buffers		☐
Protected Species		☐
Other:		☐
Other:		☐

AGENCY COORDINATION

Check all boxes that apply to coordination (formal and informal) with respect to the location process. Document dates of coordination in the log below.

Review Georgia Natural Heritage Program ☐
Element Occurrence Database (Quarter Quad)

Literature Review GA DNR State-Listed Species (by County) ☐

Review US Fish and Wildlife Service-Listed Species (by County) ☐

Preliminary Contact/Coordination with USFWS Ecological Services ☐
Details:

Preliminary Contact/Coordination with USCOE ☐
Details:

Preliminary Contact/Coordination with GA DNR Natural Heritage Program ☐
Details:

Other: ☐

MEETING/ACTIVITY LOG

Briefly describe and date the meetings, agency coordination, work product production, field visits and other project milestones relevant to the location process.

Date: Activity/Meeting:
Date: Activity/Meeting:
Date: Activity/Meeting:

Date: Activity/Meeting:
Date: Activity/Meeting:
Date: Activity/Meeting:
Date: Activity/Meeting:
Date: Activity/Meeting:

MITIGATION COMMITMENTS

Describe below with as much detail as relevant any mitigation commitments that are made with agencies, private property owners, etc. Provide action items to ensure compliance.

Mitigation:
Agency or Individual Name:
Action Item(s):

Mitigation:
Agency or Individual Name:
Action Item(s):

Mitigation:
Agency or Individual Name:
Action Item(s):

Mitigation:
Agency or Individual Name:
Action Item(s):

PERMIT ASSESSMENT

Check all items that apply. Use responses to the list below to guide early coordination and scheduling with regulatory agencies.

Clean Water Act

Section 404

- Nationwide Permit (no notification) ☐
- Nationwide Permit (PCN) ☐
- Individual Permit ☐

Section 401 ☐

National Environmental Policy Act

- CE ☐
- EA ☐
- EIS ☐

Rivers and Harbors Act
Section 10 Permit ☐

Endangered Species Act
Section 10
HCP ☐

Georgia Environmental Policy Act
Permit ☐

Historic Preservation Act
Section 106
MOU ☐

Georgia Erosion and Sedimentation Act
Buffer Variance ☐

Other: ☐

Other: ☐

Other: ☐

Exhibit B-6: Engineering Practices Checklist

After the Solution Team has identified a preferred solution to a transmission problem and the decision has been made to construct a new transmission line, the Location Committee should address the following issues related to the construction and operation of the line:

1. Evaluate overhead vs. underground option.

- ☐ Is underground a feasible option? If so, prepare a preliminary estimate for underground design.

2. Evaluate three overhead-line options:

a. Option 1: Rebuild existing GPC facility to accommodate new transmission line circuit.

- ☐ Can existing facility be taken out of service?
- ☐ If no, go to Option 2.
- ☐ If yes, is existing right-of-way width adequate for a rebuild?
- ☐ If no, can existing right-of-way be perfected for additional width?
- ☐ If no, go to Option 2.
- ☐ If yes, prepare a preliminary estimate for double-circuit design.

b. Option 2: Construct new transmission line on state or county road right-of-way.

- ☐ Will DOT/county allow new transmission line to be placed on road right-of-way?
- ☐ If no, can new right of way be acquired adjacent to road right-of-way?
- ☐ If no, go to Option 3.
- ☐ If DOT/county will allow new TL to be placed on the road right-of-way or if a new right-of-way can be acquired adjacent to the road right-of-way, prepare a preliminary estimate for single-pole design.

c. Option 3: Construct new transmission line on new right-of-way corridor.

- ☐ Can new right-of-way be acquired adjacent to existing GPC right-of-way?
- ☐ If no, acquire new right-of-way corridor and prepare preliminary estimates for:
  - Short span (single-pole) design
  - Long span (H-frame/tower) design
- ☐ If yes, prepare preliminary estimates for:
  - Short span (single-pole) design
  - Long span (H-frame/tower) design

3. Evaluate estimates to select preferred solution.

Section C: Public Meetings

Protocol Checklist

Before the public meetings occur, the Land Compliance Coordinator is responsible for:

- ☐ Preparing a list or lists of the owners of all property over which the transmission line is to be constructed or expanded.
- ☐ Determining the number of public meetings to be held in each affected county and setting the date(s) and time(s).
- ☐ Planning the logistics of the public meeting(s).
- ☐ Preparing and distributing public meeting notice(s) to appropriate newspaper(s).
- ☐ Preparing and sending, by certified mail, notice of public meeting(s) to property owners and local government officials.

A few days before and on the day of the meeting(s), the Land Compliance Coordinator is responsible for:

- ☐ Meeting with the venue manager to review logistics and discuss last-minute details of the meeting.
- ☐ Hosting a pre-meeting gathering of company participants.
- ☐ Overseeing set-up of the meeting.
- ☐ Providing ample opportunity for the public to express views and ask questions.
- ☐ Making sure media relations issues are being handled and directing the photographer.

After the meeting(s), the Land Compliance Coordinator is responsible for:

- ☐ Conducting a wrap-up session with meeting participants.
- ☐ Placing appropriate documentation in the Project Business File.

Section C: Public Meetings

Protocols

Protocols 1 through 5 describe what needs to occur before the public meeting(s) is (are) held:

1. Property List(s)

The Land Compliance Coordinator is responsible for:

- Instructing the Acquisition Coordinator to generate a Tax Records List of impacted property owners not less than two weeks after the Location Engineer sends out the project location letter.

  The Tax Records List includes the owners of property over which the line is to be constructed or expanded and is prepared by using the tax records of each county in which any portion of the electric transmission line is to be constructed or expanded.

- Making sure the necessary maps, including parcel numbers, are provided to the Acquisition Coordinator by the Location Engineer for Acquisition Agents to begin research in the county or counties where the properties are located to determine the owners' names and contact information as recorded in the county tax records.

The Acquisition Coordinator is then responsible for:

- Conducting research in a manner to ensure full contact information is obtained.
- Confirming the number of impacted property owners.
- Ensuring the Tax Records List is entered into LAC along with all data requested in LAC at this phase of the project.
- Presenting the Tax Records List and contact information to the Land Compliance Coordinator.

In each affected county, if the number of property owners identified in the Tax Records List is 50 or less, the Land Compliance Coordinator is responsible for obtaining a second list (the Title Records List) of each of the owners of affected property, as indicated in the vesting document(s) in the chain of title for each such property.

In some instances, there may be more property owners in the chain of title than are shown in the tax records. For example, where title is held by an estate, there may be large number of heirs that are property owners according to the vesting document but a single name may be on the tax records for the property. Because Title 22 requires that the number of public meetings be determined based on the number of property owners, it is the purpose of the Title Records List to confirm whether more than one public meeting is required in those instances where there is the potential for uncertainty regarding the actual number of property owners in the chain of title.

If it can be objectively determined, without reference to the Tax Records List, that the number of property owners in the chain of title from whom property rights must be acquired is less than 50, it is not necessary to prepare the Title Records List. A Title Records List is also not necessary if the number of property owners identified in the Tax Records List is more than 50 or the decision has already been made to hold two or more public meetings based on factors other than the number of property owners from whom property rights must be acquired.

The Land Compliance Coordinator is responsible for placing copies of the property list(s) in the Project Business File.

2. Number and Scheduling of Public Meetings

The Land Compliance Coordinator is responsible for determining the number of public meetings to be held in each affected county and setting the date(s) and time(s) by reviewing the Tax Records List and, where applicable, the Title Records List to determine the total number of property owners in any county from whom property rights must be acquired.

If the number of property owners from whom property rights must be acquired in any county is 50 or less, one public meeting is required. If the number of property owners from whom property rights must be acquired exceeds 50 in any county, two (or more) public meetings must be scheduled.

In the event only one public meeting is held, that meeting shall be planned to commence between 6 p.m. and 7 p.m., inclusive, on a business weekday. If more than one public meeting is held, at least one of the public meetings shall commence between 6 p.m. and 7 p.m., inclusive, on a weekday.

Meetings should be scheduled far enough in advance to allow for adequate preparation and timely public notification.

3. Logistics of Public Meeting

In consultation with Region Management, the Land Compliance Coordinator secures, in each county in which the transmission line would be located, an accessible location open to the public, suitable for the public meeting to be held in an "open house" format with anticipated attendance. The Land Compliance Coordinator should:

- Identify the appropriate contact person for each venue.
- Visit the venue(s) with the contact person(s).
- Confirm adequate space for public and company participants.
- Set the date(s) for the public meeting(s) and establish a timeline for newspaper and certified mail notices and other preparation milestones. The timeline should anticipate potential delays and ensure adequate time for public meeting notice and preparation.
- Identify the departments to be represented at the public meeting.
- Identify personnel to represent the departments.

- Arrange for a Court Reporter to be present.
- Appoint front desk and sign-in personnel and ensure that a sign-in sheet or book is available for all attendees to sign upon entering the venue.
- Review venue information with corporate security.
- Confirm the number and size of exhibits to be presented and that venue space is sufficient.
- Coordinate and facilitate pre-public meeting preparation sessions for identified personnel to ensure everyone understands his/her role; confirm that all participants understand what supplies and equipment they will need to bring (such as paper, pens, easels, and handouts).
- In consultation with Corporate Communication and the Location Engineer, arrange for the creation, publication, and presentation of brochures, maps, and exhibits sufficient to provide:
    1. A description of the proposed project including the general route of the transmission line and the general property area within which the utility intends to construct or expand the electric transmission line. (Corporate Communication)
    2. The width of the proposed transmission line route. (Corporate Communication, Location Engineer)
    3. A description of the alternative construction approaches considered by the utility and why such alternatives were rejected by the utility. (Corporate Communication)

    Note: Maps should be labeled: "Proposed Project – Final Study Route." (Location Engineer)
- Arrange for a photographic record of the meeting. (Corporate Communication Photographer)

4. Public Meeting Newspaper Notice

The Land Compliance Coordinator is responsible for preparing and distributing public meeting notice(s) to appropriate newspaper(s). (see **Exhibit C-3**) The notice, which should be reviewed and approved by the Legal Services Manager, must contain the following essential elements:

- Date, time, and location of each meeting.
- A statement that the purpose of the meeting or meetings is to provide public notice of the utility's intent to construct or expand an electric transmission line for which the right of eminent domain may be exercised.
- A description of the proposed project including the general route of the electric transmission line and the general property area within which the utility intends to construct or expand the electric transmission line.
- The width of the proposed transmission line route.

- A description of the alternative construction approaches considered by the utility and a statement of why such alternatives were rejected by the utility.

The Land Compliance Coordinator is responsible for making sure the notice is published in a newspaper of general circulation in each county in which any portion of the electric transmission line is to be constructed or expanded. (see **Exhibit C-1**)

The Land Compliance Coordinator is responsible for identifying which newspaper(s) is/are the general circulation newspaper(s) in each affected county and submitting the notice for publication on a date not less than 30 days before the date of the first public meeting.

With respect to statutes in which the term "newspaper of general circulation" is not defined, the following criteria are helpful in determining which publications satisfy the requirements of the statutes:

- The publication should be available in all parts of the county.
- It should be published at least once weekly.
- It should be intended for general distribution and circulation.
- It should contain news of general interest to the public.
- It should be sold at fixed prices per copy, per week, per month, per year, to subscribers and readers without regard to business, trade, profession, or class.

The Land Compliance Coordinator is responsible for sending the notice to the newspaper(s) under cover of a letter (in the form of **Exhibit C-2)** and placing the requested publisher's certificate in the Project Business File.

5. Certified Mail Notice of Public Meeting(s) to Property Owners and Local Government Officials

With respect to property owners, the Land Compliance Coordinator:

- Sends the same notice that was sent to the newspaper(s) to affected property owners identified in the Tax Records List.
- Signs and includes with the notice a cover letter (in the form of **Exhibit C-4)**.
- Sends the notice by certified mail at least 30 days prior to the date of the first public meeting.
- Places copies of each letter and notice to property owners, along with certified mail coupons, in the Project Business File.

With respect to local government officials, the Land Compliance Coordinator:

- Sends the same notice that was sent to the newspaper(s) to the chairpersons and chief executives of the counties and the mayors of any municipalities in which any affected property is located.

- Signs and includes with the notice a cover letter (in the form of **Exhibit C-5** or **Exhibit C-6).**
- Sends the notice by certified mail at least 30 days prior to the date of the first public meeting.
- Places copies of each letter and notice to local government officials, along with certified mail coupons, in the Project Business File.

Protocols 6 through 10 describe what needs to occur a few days before the public meeting(s) is (are) held and what should be done the day of the meeting:

6. Meeting with venue manager

The Land Compliance Coordinator meets with the venue manager to review specific details about the set up of the meeting.

7. Pre-meeting Gathering

The Land Compliance Coordinator hosts a pre-meeting gathering of participants to remind all participants of their role, to confirm attendance of all essential participants and, if necessary, to distribute GPC logo shirts.

8. Conduct Meeting

The Land Compliance Coordinator oversees set-up of all exhibits, tables, comment cards and collection boxes, and refreshments.

9. Public Comments and Questions

The Land Compliance Coordinator ensures that a reasonable opportunity is allowed for members of the public to express their views on the proposed project and to ask questions by providing at each table and at the venue entrance and exit a sufficient number of comment and/or question cards, along with receptacle boxes to collect them.

10. Media Relations and Photography

The Land Compliance Coordinator makes sure media relations issues are being handled before, during, and after the meeting and, if necessary, directs the Corporate Communication photographer to capture certain themes/scenes during the meeting.

Protocols 11 and 12 describe what needs to occur after the public meeting(s):

11. Wrap-up Session

The Land Compliance Coordinator conducts a wrap-up session with the meeting participants to:

- Make sure all public comment cards have been collected.

- Collect all exhibits.
- Pick up sign-in sheet.
- Get a time frame from the photographer for receipt of pictures.
- Check with participants for problems, issues, contacts, and things that need improving.

12. Documentation

The Land Compliance Coordinator, who is responsible for the general execution and administration of the public meeting and ensuring compliance with these protocols, makes sure that all documents (including brochures, exhibits, public comment cards, question cards, and photography) from the public meeting(s) are preserved in the Project Business File for the subject line.

Exhibits for Section C:

Exhibit C-1: Newspaper Notice of Public Meeting Comments/Suggestions
Exhibit C-2: Sample Form Cover Letter Submitting Public Notice
Exhibit C-3: Public Notice of Public Meeting on Proposed Electric Transmission Line
Exhibit C-4: Cover Letter to Property Owner
Exhibit C-5: Cover Letter to County Chairperson/Chief Executive
Exhibit C-6: Cover Letter to City Mayor

Exhibit C-1

NEWSPAPER NOTICE OF PUBLIC MEETING COMMENTS/SUGGESTIONS

- Georgia Power currently places public notices in newspapers of general circulation in compliance with requirements of the Georgia Environmental Protection Division ("EPD"). Since this establishes an acceptable methodology used by Georgia Power, it is suggested that a consistent approach be adopted for the public notice requirements under O.C.G.A. 22-3-160.
- The public notice is treated as a Legal Notice and submitted to an appropriate newspaper of general circulation. A form cover letter (**Exhibit C-2)** submits the public notice (**Exhibit C-3**) for printing with no specified format, location, or font size, since typically newspapers have a specific section for such legal notices and standard format for such notices. Our practice has been to request, within that cover letter, an Affidavit of Publication, which is a sworn and notarized statement from a representative of the newspaper that the public notice was published on specified dates and includes a copy of the actual legal notice as printed. This Affidavit of Publication should be part of the documentation placed in the Project Business File. Additionally, actual copies of the page of the newspaper containing the public notice should be included in the Project Business File.
- Care should be taken to submit the public notice to the newspaper within the lead time required for publication. (For example, The Atlanta Journal-Constitution deadline for submission of legal notices is 72 business hours prior to publication.) The notice for each public meeting must be published at least thirty days prior to the date of the first public meeting.

Exhibit C-2: Sample Form Cover Letter Submitting Public Notice

{*Date*}

{*Name of Newspaper*}
Attention: Legal Notices/Classifieds
{*Street Address*}
{*City/State/Zipcode*}

RE: Public Notice

Dear {*Name of Newspaper*}

Attached is a public notice as required by the State of Georgia, pursuant to O.C.G.A. 22-3-160, which needs to run in your newspaper on {*Day*}, {*Month*} {*Date*}, {*Year*}. Enclosed is a check for {*Amount of Check*} to cover the cost of the notice. In addition, I would like to request an affidavit sent to my attention, certifying that the attached notice ran in your newspaper on this date. If you have any questions, please call me at {*Phone Number*}.

Thank you for your assistance in this matter.

Sincerely yours,

{*Signature*}
{*Printed Name*}

Attachments

Exhibit C-3

**PUBLIC NOTICE OF PUBLIC MEETING
ON PROPOSED ELECTRIC TRANSMISSION LINE**

This is to inform all interested persons, pursuant to O.C.G.A. 22-3-160, that Georgia Power Company will be holding a public meeting on {*Day*}, {*Month*} {*Date*}, {*Year*}, at {*Time*}at {*Location*}. [*NOTE-If more than one hearing, insert:* A second public meeting will be held on {*Month*} {*Date*}, {*Year*}, commencing at {*Time*}and concluding at {*Time*} at {*Location*}.] The purpose of the meeting is to provide public notice of Georgia Power's intent to construct [*if applicable:* expand] an electric transmission line for which the right of eminent domain may be exercised, within {*Name of County*} County. The proposed project is a {*KV#*} KV {*insert explicit description: ex.. Overhead; lattice structure, etc.*} transmission line with a general route of {*insert general route description*} within the general property area of {*insert general property area*}. The width of the proposed transmission line route is {*width#*}. Alternative construction approaches considered by Georgia Power, with the reasons rejected, are as follows: {*insert alternative construction approaches along with the reasons rejected*}. The public will have the opportunity to ask questions and express views and comment on the project at the public meeting.

DRAFT

Exhibit C-4: Cover Letter to Property Owner

CERTIFIED MAIL

Re:_____

Dear _____:

As you may know, Georgia Power Company intends to construct a transmission line in _____ County. Once the transmission line right-of-way was located, the County Tax Records were researched to determine ownership of the land through which the transmission line will run. The results of this search reveal that the transmission line right-of-way, as located, will cross your property.

In order for you to have an opportunity to learn more about this project a meeting (or meetings) open to the public has (have) been scheduled. A copy of the notice to be published in the (name/date of newspaper) announcing this meeting (or these meetings) is enclosed for your information. We encourage you to attend and participate in this forum.

Sincerely,

DRAFT

Exhibit C-5: Cover Letter to County Chairperson/Chief Executive

CERTIFIED MAIL

Re:_____

Dear _____:

As you may know, Georgia Power Company intends to construct a transmission line in _____ County. A public meeting (or public meetings) has (have) been scheduled for informing and educating the citizens of your county as to the need for, purpose of, and location of this transmission line.

I have enclosed a copy of the notice to be published in the [*name/date of newspaper*] announcing this meeting (these meetings) for your ready reference. I invite you to come to this meeting (these meetings). We look forward to seeing you on [*date of meeting(s)*]. If you have any questions before then, please contact [*name of person*] at [*telephone number*].

Sincerely,

DRAFT

Exhibit C-6: Cover Letter to City Mayor

CERTIFIED MAIL

Re:_____

Dear _____:

As you may know, Georgia Power Company intends to construct a transmission line in _____ County. A portion of this transmission line will be located within the limits of your city. A public meeting (or public meetings) has (have) been scheduled for informing and educating the citizens of your city as to the need for, purpose of, and location of this transmission line.

I have enclosed a copy of the notice to be published in the [*name/date of newspaper*] announcing this meeting (these meetings) for your ready reference. I invite you to come to this meeting (these meetings). We look forward to seeing you on [*date of meeting(s)*]. If you have any questions before then, please contact [*name of person*] at [*telephone number*].

Sincerely,

DRAFT

Section D: Good Faith Negotiations

Protocol Checklist

The Acquisition Agent must:

- ☐ Prepare to discuss the need for the project and the project characteristics.
- ☐ Request a personal meeting with each property owner, or property owner's representative, for notification of survey.
- ☐ Obtain information from an appraiser or appraisers regarding land values in the project area.
- ☐ Request a personal meeting with each property owner, or property owner's representative, to negotiate property acquisition.
- ☐ During settlement negotiations, attempt to discuss the value of the right-of-way with each property owner and provide each property owner with a written offer letter (in the form of **Exhibit D-1**) to purchase the right-of-way. Provide a final offer letter (in the form of **Exhibit D-2**) to the property owner before negotiations end.
- ☐ File appropriate documentation concerning contacts and negotiations with property owners in the Project Business File.

Section D: Good Faith Negotiations

Protocols

1. Preparation

The Acquisition Supervisor, with assistance from Acquisition Coordinators, must ensure the Acquisition Agents have a full understanding of the need for the project and prepare fully to discuss the need for and purpose of the project. The Acquisition Agents must be able to answer the following questions:

- Why is the project needed?
- What is the construction timeframe/schedule?

The Acquisition Agents also must have a full understanding of the characteristics of the project and be prepared to discuss the following:

1. A general description, including:
   - Length of line – beginning and ending points
   - Voltage
   - Right-of-way width – new or existing
   - Structures
     a. Type – single pole, H-frame, tower
     b. Height
     c. Steel, concrete, wood
2. A site-specific description, including:
   - Impact on property
   - Right-of-way width
     a. Centerline
     b. Structure locations
     c. Guy flares, if applicable
     d. Ingress and egress needs, if applicable
     e. Construction roads
     f. Construction equipment

The Acquisition Agents must have a full understanding of the appraisal process, the acquisition process, and the location process.

2. Contact Property Owners for Notification to Survey

The Acquisition Agent must meet in person with each property owner, or property owner's representative, to review the project with the property owner and provide:

- A description of the purpose of the project.
- An explanation of the location process
- An explanation that the initial work is a review of a Final Study Route.
- An explanation of Georgia Power's need to conduct a survey, including:
    1. A survey is necessary to examine topography and environmental conditions and to determine the exact location of the proposed transmission line.
    2. Allowing Georgia Power to conduct a survey does not grant a permanent easement.
- A combination of aerial photography and tax maps to best inform and illustrate to the property owner the location and width of the proposed right-of-way.
- An explanation of the acquisition process.
- A review of the project construction schedule.

After meeting in person with each property owner or property owner's representative, the Acquisition Agent must document each contact in the contact diary. Information in the contact diary should include, but not be limited to:

- Agent's name
- Date and time of contact or attempted contact
- Person contacted or attempted to contact
- All available contact numbers (home, work, cell, fax, and email)
- Pertinent and significant details of the conversation
- Follow-up action items

If the property owner refuses to meet with the acquisition agent, he/she must document such refusal and the reasons therefore in the contact diary.

3. Obtain Information from Appraiser(s) Regarding Land Values in Project Area

The Acquisition Agent will consult with the Land Acquisition Supervisor to retain Appraiser(s) taking into consideration the preference for appraisal experience in the geographical area and the number of Appraisers to retain.

4. Contact Property Owners to Negotiate Property Acquisition

The Acquisition Agent must attempt to meet in person with each property owner, or property owner's representative, to negotiate a property acquisition. During these meetings, the Acquisition Agent must:

- Fully explain the purpose of the project to the property owner.
- Provide a written easement, with a parcel map attached as an exhibit, to the property owner for review that describes in detail the property rights sought.

- Ask and confirm whether the property owner understands the property rights being sought. Inform the property owner that he/she can seek legal counsel or assistance to clarify the property rights being sought.
- Clearly identify that the parcel map is the "Exhibit" to the easement pertaining to the tract(s) of land specific to the property owner. The parcel map must show:
    1. Proposed width of the right-of-way
    2. Proximity to property lines
    3. Proximity to property access
    4. Proximity to structures
    5. Other considerations that illustrate location of the right-of-way on the property
- Provide an additional map, if necessary, to the property owner if the Exhibit does not clearly show the right-of-way in context of the property owner's entire tract.

After meeting in person with each property owner or property owner's representative, the Acquisition Agent must document each contact after it has concluded in the contact diary daily. Information in the contact diary should include, but not be limited to:

- Agent's name
- Date and time of contact or attempted contact
- Person contacted or attempted to contact
- All available contact numbers (home, work, cell, fax, and email)
- Pertinent and significant details of the conversation
- Follow-up action items

If a property owner refuses to meet with the Acquisition Agent, he/she must document such refusal and the reasons therefore in the contact diary.

5. Settlement Negotiations

The Acquisition Agent must meet with the property owner to:

- Discuss the value of right-of-way.
    1. Explain the methodology of the appraisal and clarify that the appraisal is for an easement and not fee simple acquisition.
    2. Explain the valuation of easement area.
- Provide a written offer (in the form of **Exhibit D-1**) to purchase the right-of-way that contains the specific amount offered and any specific terms. A copy of the written offer should be included in the Project Business File.
    1. Written offer will be presented to the property owner at the time the easement is signed.

2. Written offer must be based on data book or appraisal specific to the parcel under negotiation, if available.
3. Negotiations must start at data book value or appraised value.

The Acquisition Agent must document each settlement negotiation in the contact diary. Information in the contact diary should include, but not be limited to:

- Agent's name
- Date and time of contact or attempted contact
- Person contacted or attempted to contact
- All available contact numbers (home, work, cell, fax, and email)
- Pertinent and significant details of the conversation
- Follow-up action items

Before negotiations cease, the Acquisition Agent sends by certified mail a written offer (in the form of **Exhibit D-2**) documenting a final offer to the property owner. A copy of the letter should be included in the Project Business File. If a settlement is not reached with a property owner, the Acquisition Agent is then responsible for sending the Project Business File for that property owner to Land Department Legal Services to begin the condemnation process.

6. Compliance Documentation

After settlement negotiations with a property owner have ended (whether successfully or not), the Acquisition Agent files all paperwork demonstrating compliance with Title 22 requirements, for each property owner contacted by the Acquisition Agent, in the Project Business File, including:

- Copy of easement, as signed by the property owner, if settlement negotiations are successful
- Copy of easement, as presented to the property owner, if settlement negotiations are not successful
- Copy of parcel map
- Copy of contact diary
- Copy of Written Offer letter or Settlement letter
- Copy of check, if any
- Copy of tabulation sheet from the appraisal(s)

Exhibits for Section D:

D-1: Written Offer Letter
D-2: Settlement Letter

Exhibit D-1: Written Offer Letter

[GPC Letterhead]

[Date] [Parcel ID Information]

Dear _____:

As you know from our previous discussions, Georgia Power wants to acquire an easement across your property for our proposed _____ Transmission Line. I've attached a map that shows the location of our proposed line on your property and a copy of the standard transmission line easement document that describes the property rights we need to acquire from you.

We have evaluated the value of the easement we wish to acquire from you and, based on that evaluation, Georgia Power will pay $_____ upon receipt of a signed, standard easement from you.

I continue to be available to answer any questions you may have concerning the transmission line or this proposal. If you have questions, please call me [number].

Sincerely,

[Agent's Name]

Exhibit D-2: Settlement Letter

SENT VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED

[GPC Letterhead]

[Date] [Parcel ID Information]

Dear _____:

At this time I would like to thank you for your time spent with me discussing the easement Georgia Power needs to acquire across your property for our proposed _____ Transmission Line. I recognize this has been a difficult and time consuming effort. We do, however, have an obligation to continue to provide the citizens of the State of Georgia with adequate and reliable electricity and we must move forward with this project to meet the demand and project schedule. I've attached a map that shows the location of our proposed line on your property and a copy of the standard transmission line easement document that describes the property rights we need to acquire from you.

At this time**,** Georgia Power Company is tendering its written good faith offer of $_____ upon receipt of a signed, standard easement from you. This offer is being presented solely as a compromise for purpose of concluding this matter without litigation and is Georgia Power's effort to reach a negotiated settlement of this matter with you. We hope you will consider Georgia Power's offer.

If you decide to accept the offer, please contact me and I will make arrangements to finalize the acquisition with you. If I have not had a response from you within 10 days of the date of this letter, I will then refer this matter to our Legal Counsel with a request that they initiate litigation proceedings to acquire the necessary interest in the property.

Please contact me at [telephone contact number] if you have any questions.

Sincerely,

[Agent's Name]

Enclosures
Cc: Letter File #_____

Section E: Condemnation Proceedings

Protocol Checklist

- ☐ The Land Compliance Coordinator is responsible for preparing a Project Business File and ensuring quality control of all documents submitted to the file.
- ☐ Land Department Legal Services includes averment of compliance with Title 22 requirements in the Condemnation Petition.
- ☐ Local counsel files the Condemnation Petition and the order appointing the Special Master and ensures that the Condemnation Petition and the order are properly served. In addition, local counsel mails the Condemnation Petition and the order via certified mail to any person shown by the public ad valorem tax records of the county in which the property is located to have an interest in the property and any other person having open and obvious possession.
- ☐ The Staff Attorney, in consultation with local counsel, is responsible for scheduling the Special Master hearing not less than 30 days, and not more than 40 days, after the date of service of the order.
- ☐ The Staff Attorney, in consultation with local counsel, is responsible for designating and preparing witnesses to testify at the Special Master hearing.
- ☐ The Staff Attorney should meet with local counsel prior to the general pre-hearing preparation meeting to review the requirements of Title 22 and, with local counsel, should schedule and conduct a pre-hearing preparation session that conforms to existing protocols.
- ☐ At the Special Master hearing, local counsel's opening statement should include information regarding Title 22 requirements. Local counsel's closing statement should include recitation of how evidence presented during the hearing established Georgia Power's compliance with the requirements of Title 22.

Section E: Condemnation Proceedings

Protocols

1. Project Business File

The Land Compliance Coordinator is responsible for:

- Preparing a Project Business File ("the File") for each transmission line that is subject to § 22-3-160. The Land Compliance Coordinator is the custodian of the File, which should contain the documents to prove Georgia Power's compliance with the requirements of Title 22. (see **Exhibit E-2**)
- Reviewing the quality control of each document submitted to the File to ensure its completeness and sufficiency. The Staff Attorney assigned to the Acquisition Team responsible for the transmission line will spot-check the File for legal sufficiency at intervals corresponding to the following milestones:
    - Solution Team Report
    - Location Committee Report
    - Property List(s) Compilation
    - Notice of Public Meeting(s)
    - Public Meeting(s)
    - Good Faith Negotiations

2. Condemnation Petition

The Legal Services Manager is responsible for ensuring that Georgia Power complies with the requirements of Title 22 for each condemnation proceeding. Land Department Legal Services should include an averment to that effect (in the form of **Exhibit E-3**) in the Condemnation Petition.

The affidavit of the Land Compliance Coordinator (in the form of **Exhibit E-4)** should be attached to the Condemnation Petition.

3. Additional Service Requirement

To comply with O.C.G.A. § 22-2-130, the Staff Attorney should instruct local counsel to ensure that in addition to personal service, a copy of the Condemnation Petition and the order appointing the Special Master is mailed by certified mail to (i) any person shown by the public ad valorem tax records of the county in which the property is located to have an interest in the property and (ii) any other person having open and obvious possession of the property. The identity and mailing address of such persons shall be provided with the Request for Condemnation turned in by the Acquisition Agent.

The Tax Records List referred to in Section C of this manual should not be relied upon for purposes of identifying persons shown by the public ad valorem tax records. Rather, the public ad valorem tax records in effect at the time of preparation of the Request for Condemnation

should be reviewed for the identity of the person(s) to be served by certified mail in compliance with O.C.G.A. § 22-2-130.

4. Adjusted Special Master Hearing Schedule

In condemnations subject to O.C.G.A. § 22-2-130, a hearing before the Special Master shall take place not less than 30 days, nor more than 40 days, from after the condemnee(s) is (are) served with a copy of the Condemnation Petition and the order appointing the Special Master.

The Staff Attorney, in consultation with local counsel, is responsible for scheduling the Special Master hearing and the pre-hearing preparation session(s) on a timeline that agrees with the above-stated schedule.

5. Designation of Witnesses for Special Master Hearing

The Staff Attorney, in consultation with local counsel, is responsible for designating and preparing witnesses to testify at the Special Master hearing. The specialties of the required witnesses and the specific area(s) about which they will offer testimony are as follows:

- Land Compliance Coordinator – Title 22 compliance
- Transmission Planning – necessity and cost
- Transmission Line Design – alternate construction approaches and engineering practices
- Location – siting, existing land uses, existing corridors, and engineering practices
- Environmental – existing environmental conditions in the area
- Cultural Resources – existing cultural resources in the area. (The need for testimony from the cultural resources expert should be evaluated on a case-by-case basis depending on the cultural resources issues associated with the parcel(s) being condemned.)
- Appraiser – value (just and adequate compensation)

6. Pre-Hearing Preparation

The Staff Attorney should meet with local counsel prior to the general pre-hearing preparation meeting. The purpose of the attorneys' meeting is to review the requirements of Title 22 and discuss the evidence to be presented at the hearing concerning compliance with such requirements. The meeting should include:

- A review with local counsel, as needed, of the new requirements of Title 22 and resulting evidentiary changes.
- A review of the Project Business File.
- A review of trial exhibits to be prepared.
- A discussion of expert testimony to be presented.

The Staff Attorney and local counsel should schedule and conduct the pre-hearing preparation session to conform to existing protocols. Additional time for the session, or more than one

session, may be necessary to accommodate preparation of additional witnesses who may testify regarding compliance with Title 22 requirements.

7. Special Master Hearing

Local counsel's opening statement should be expanded to include information regarding the new requirements of Title 22. The information presented should be sufficient to educate the Special Master regarding the requirements of Title 22 and provide a roadmap showing how the evidence to be propounded during the hearing proves Georgia Power's compliance with these requirements.

In direct testimony, witnesses should be called to testify about the following matters:

- Title 22 Compliance – The Land Compliance Coordinator testifies, as a fact witness with personal knowledge and as custodian of the pertinent business records, that Georgia Power has complied with the Title 22 requirements concerning notices, public hearing(s), and good faith negotiations.
- Necessity – An expert in transmission planning testifies about the need for the line and presents general costs estimates.
- Location – An expert in transmission line routing, or a fact witness familiar with the Location Committee and siting process, establishes that the route is a practical and feasible route and describes how existing land uses, existing corridors, engineering practices, and cost were considered during the siting process.
- Environmental – An expert in environmental science describes how existing environmental conditions in the area were considered during the siting process.
- Cultural Resources – An expert in cultural resources may testify about any existing cultural resources were considered during the siting process.
- Design – An expert in transmission line design testifies about engineering practices involved in the siting process, identifies the alternative construction approaches that were considered, and explains why the alternative construction approaches were rejected.
- Value – An expert in real property appraisal testifies about the value of the property involved in the proceeding and the amount of just and adequate compensation for the property to be taken.

Local counsel's closing statement should include a point-by-point recitation of how the evidence presented by Georgia Power during the hearing established compliance with the requirements of Title 22.

Exhibits for Section E:

Exhibit E-1: Condemnation Timeline
Exhibit E-2: Documents Needed to Prove Compliance with Title 22 Requirements
Exhibit E-3: Averment of Compliance with Title 22 Requirements
Exhibit E-4: Affidavit of Land Compliance Coordinator

Exhibit E-1: Condemnation Timeline

(Note: Allow a minimum of 90 days from the time you turn in the Request for Condemnation.)

Days	Sequence of Events
10+	Preparation of Condemnation Petition
04+	Review Condemnation File and obtain signatures; Deliver Condemnation Package to local counsel; Final preparation for filing; Judge appoints Special Master; Judge signs Order.
03	Perfect service on all parties, plus additional service requirements by certified mail of persons on ad valorem tax records of county and persons having open and obvious possession of the property.
40	Special Master Hearing set no less than 30, no more than 40, days after service; Pretrial preparation.
1+	Special Master Hearing, which is now lengthened by additional requirements; Additional witness – Land Compliance Coordinator
03	Special Master has 3 days to make an Award
10	Period in which to appeal to Superior Court on value and non-value issues from date Award filed
1+	Judgment should not be submitted to Judge for signature until at least the 11th day after the filing of Award of Special Master. If no non-value issues, Judge signs Judgment; Money paid into Registry of the Court.
?	Judge holds hearing and enters ruling on any non-value issues.
?	De Novo Superior Court Jury Trial on appeal from Award of Special Master

Exhibit E-2: Documents Needed to Prove Compliance with Title 22 Requirements

1. Planning and Solution Team documentation
   - ☐ Alternative construction approaches review
2. Location Committee documentation
   - ☐ Existing land use review
   - ☐ Existing corridors review
   - ☐ Existing environmental conditions review
   - ☐ Engineering practices review
3. Public meeting(s) documentation
   - ☐ Copy of cover letter for submitting public notice of public meeting(s)
   - ☐ Copy of newspaper notification
   - ☐ Copy of certified letters to property owners and officials
   - ☐ Sign-in sheet
   - ☐ Public comments and questions
   - ☐ Court Reporter record
   - ☐ Information pamphlet/brochure on project and purpose of the meeting(s)
4. Good faith negotiations documentation
   - ☐ Written offers for purchase of property rights
   - ☐ Documents describing property rights to be acquired
   - ☐ Maps showing location of transmission line on each owner's property

Exhibit E-3: Averment of Compliance with Title 22 Requirements

Before a condemnation proceeding is filed with respect to a particular parcel of land, the Legal Services Manager ensures that Georgia Power has complied with the requirements of Title 22 related to the property and persons having an interest in the property. The Legal Services Manager then arranges for the following averment to be inserted as paragraph no. 1 in the Condemnation Petition filed concerning that parcel of land:

> "Petitioner is a corporation operating, constructing, and preparing to construct plants for generating electricity and, as provided in O.C.G.A. §22-3-20, has the right of eminent domain under the laws of the State of Georgia. Further, Petitioner states that Petitioner may exercise the right of eminent domain in this matter as Petitioner has complied with the provisions of O.C.G.A. §§ 22-3-160 and 22-3-161 as required under the laws of the State of Georgia with respect to this matter."

Exhibit E-4: Affidavit of Land Compliance Coordinator

[STYLE OF THE CASE]

Affidavit of _____

1.

My name is _____. I reside in _____ County, Georgia; and I am ___ years of age. This affidavit is based upon my personal knowledge.

2.

I am employed by Georgia Power Company ("Petitioner") as the Land Compliance Coordinator. In my capacity as the Land Compliance Coordinator, I am responsible for the Petitioner's activities as they relate to O.C.G.A. §§ 22-3-160 and 22-3-161, and the exercise of the right of eminent domain in this matter.

3.

As to the [*name of project T/L*], for which a Petition for Condemnation has been filed, as to [*name of property owner*], a public meeting was advertised in [*name of newspaper*] on _____ and was held on _____ at _____. I was present at this public meeting. The public meeting began at _____ p.m. and ended at _____ p.m. At the public meeting, the affected property owners, as well as other residents, were afforded an opportunity to ask questions of the Petitioner's representatives and also to express their opinions.

4.

Prior to this public meeting, the Petitioner sent copies of the newspaper notice by certified mail on [*date of mailing*] to the affected property owners. This list of property owners was compiled from tax records in _____ County.

5.

The Petitioner also sent copies of the newspaper notice by certified mail on [*date of mailing*] to the Mayor of [*name of city*] and the Chairperson [or Chief Executive] of [*name of county*].

6.

The negotiations with the property owners directly affected by this project were conducted by the Petitioner's representatives in good faith.

Sworn to and subscribed before
me this ____ day of _____, 200_.

_____ _____
Notary Public [*Name of Affiant*]

Section F: Post-Condemnation Process

Protocol Checklist

- ☐ Additional compensation or reconveyance as stipulated in Chapter 3 of Title 22 applies to any easement or other property interest acquired after July 1, 2004, through exercise of eminent domain for the purposes of constructing or expanding an electric transmission line if the transmission line has not been constructed or expanded after a set time period.
- ☐ Land Records is responsible for implementing and managing a database of properties condemned for transmission line corridors. The purpose of this database is to identify and manage the properties that could be subject to reconveyance or additional compensation.
- ☐ Land Records is responsible for reporting on the status of the transmission line corridor properties acquired through condemnation.

Section F: Post-Condemnation Process

Protocols

1. Application

Additional compensation or reconveyance as stipulated in Chapter 3 of Title 22 applies to any easement or other property interest acquired after July 1, 2004, through exercise of eminent domain for the purposes of constructing or expanding an electric transmission line:

- With a capacity of 230 kV or less, if the utility has not begun construction or expansion within 12 years from date of acquisition; and land burdened is not adjacent to a transmission line corridor in existence 12 years from the date of acquisition.
- With a capacity of more than 230 kV, if the utility has not begun construction or expansion within 15 years from date of acquisition; and land burdened is not adjacent to a transmission line corridor in existence 15 years from the date of acquisition.
- Of any capacity, if the land burdened is adjacent to a transmission line corridor in existence 15 years after the date of acquisition; if the utility has not begun construction or expansion within 15 years from the date of acquisition.

2. Corridor Management

Land Records is responsible for implementing and managing a database, currently LIMS, of properties condemned for transmission line corridors. The purpose of this database is to identify and manage the properties that could be subject to reconveyance or additional compensation as outlined above. The database will be designed to query on the date of the judgment of condemnation and provide the following additional data:

- Owner's name.
- Property information, including address, tax parcel number, land lot(s)/district(s) or GMD(s), and county.
- Judgment of condemnation, including:
    1. Date on which the judgment was entered
    2. Civil Action Number
    3. Recording number, if applicable
- Departmental filing information, including:
    1. Deed file
    2. Letter file
    3. Map file

Land Records also is responsible for maintaining letter files (hard copies) and digitized copies (scanned images of documents) of the closing documents and/or condemnation documents for all

land and land rights acquisitions. The following additional data will be available from these sources and will be compiled at the request of Land Acquisition by Land Records:

- Owner's mailing address if different from property address (typically stated in the contact diary and scanned into LIMS).
- Easement information, including easement width and acreage and any special rights or conditions (shown on the parcel map, which is scanned into LIMS).
- Compensation/award specified (as stated in the judgment of condemnation or final judgment, as the case may be, and contact diary, both of which are scanned into LIMS, and as shown on the scanned image of the check(s)).

3. Reporting/Managing

Land Records is responsible for generating a quarterly report that will include no less than the information listed in the above-mentioned Corridor Management protocol of the transmission line corridor properties acquired through condemnation. Land Records will confer with the Transmission Maintenance Centers and Property Accounting to verify the status of the corridor. Each quarterly report should be forwarded to:

- Land Acquisition
- Land Legal Services

Section G: Text of House Bill 373 (setting forth changes to Chapters 2 and 3 of Title 22)

04 LC 22 5451S

The Senate Regulated Industries and Utilities Committee offered the following substitute to HB 373:

A BILL TO BE ENTITLED
AN ACT

To amend Chapter 2 of Title 22 of the Official Code of Georgia Annotate, relating to condemnation procedures, so as to change the time for hearing before a special master and to require notice by certified mail in condemnations for certain purposes; to amend Chapter 3 of Title 22 of the Official Code of Georgia Annotated, relating to exercise of the power of eminent domain for special purposes, so as to prohibit the use of the power of eminent domain to acquire any property for the construction of certain electric transmission lines without prior public notice and one or more public meetings with an opportunity for comment and questions; to provide for exceptions; to provide for factors to be considered in selecting a route for certain electric transmission lines; to provide procedures for good faith negotiations; to provide for additional compensation for or reconveyance or quitclaim of an easement or other property interest acquired through the exercise of eminent domain in certain circumstances; to provide for related matters; to provide for an effective date and applicability; to repeal conflicting laws; and for other purposes.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF GEORGIA:

SECTION 1.

Chapter 2 of Title 22 of the Official Code of Georgia Annotated, relating to condemnation procedures, is amended by striking Code Section 22-2-102, relating to petitions of condemnation, judicial orders for hearing before a special master, and proceedings in rem, and inserting in lieu thereof the following:

"22-2-102.

Whenever it is desirable, for any reason, to arrive at a quick and certain determination of the compensation to be paid first to the condemnee for the taking or damaging of private property, the condemnor shall file a petition in a superior court having jurisdiction for a judgment in rem against the property or interest therein, as provided in Code Section 22-2-130. At or before the filing of the petition, the condemnor shall present a copy of the petition to a judge of the superior court of the county wherein the property or interest sought to be condemned is located. Thereupon, the judge shall make an order requiring the condemnor, the person in possession of the property or interest, and any other person known to have any rights in the property or interest

to appear at a hearing before a special master at a time and place specified in the order and to make known their rights, if any, in and to the property or interest sought to be condemned, their claims as to the value of the property or interest, and any other matters material to their respective rights. ~~The~~ Except in condemnations for purposes of constructing or expanding one or more electric transmission lines, the hearing before the special master shall take place not less than ten days nor more than 15 days after the date of service of the order. In condemnations for purposes of constructing or expanding one or more electric transmission lines, the hearing before the special master shall take place not less than 30 days and not more than 40 days after the date of service of the order. The order shall give such directions for notice and the service thereof as are appropriate and as are consistent with this article, in such manner as to provide most effectively an opportunity to all parties at interest to be heard. In condemnations for purposes of constructing or expanding one or more electric transmission lines, in addition to service of the order, a copy of the order shall be mailed by certified mail to any person shown by the public ad valorem tax records of the county in which the property is located to have an interest in the property and to any other person having open and obvious possession of the property. It shall not be necessary to attach any other process to the petition except the order so made, and the cause shall proceed as in rem."

SECTION 2.

Chapter 3 of Title 22 of the Official Code of Georgia Annotated, relating to exercise of the power of eminent domain for special purposes, is amended by adding at the end of said chapter a new Article 8 to read as follows:

"ARTICLE 8

22-3-160.

(a) Before exercising the right of eminent domain for purposes of constructing or expanding an electric transmission line with a design operating voltage of 115 kilovolts or greater and a length of one mile or more, any person, corporation, or other entity that generates, transmits, distributes, supplies, or sells electricity for public or private use in this state or generates electricity in this state for transmission or distribution outside this state (hereinafter in this article referred to as 'utility') shall schedule and hold one or more public meetings with an opportunity for comment by members of the public. In any proceeding to exercise the right of eminent domain for purposes of an electric transmission line for which the utility began land acquisition negotiations on or after July 1, 2004, the utility shall be required to demonstrate substantial compliance with this Code section as a condition for exercising the right of eminent domain.

(b) Prior to the public meeting or meetings required by this Code section, the utility shall provide adequate public notice of the utility's intent to construct or expand an electric transmission line and adequate public notice of the public meeting or meetings related to the electric transmission line as follows:

(1) By publishing adequate public notice of said public meeting or meetings in a newspaper of general circulation in each county in which any portion of the electric transmission line is to be constructed or expanded. Said notice shall be published at least 30 days prior to the date of the first public meeting related to the electric transmission line and shall include the following: the date, time, and location of each meeting; a statement that the purpose of the meeting or meetings is to provide public notice of the utility's intent to construct or expand an electric transmission line for which the right of eminent domain may be exercised; a description of the proposed project including the general route of the electric transmission line and the general property area within which the utility intends to construct or expand the electric transmission line; the width of the proposed transmission line route; and a description of the alternative construction approaches considered by the utility and a statement of why such alternatives were rejected by the utility; and

(2) By providing written notice of the public meeting or meetings, by means of certified mail, to each owner of property, as indicated in the tax records of the county in which such property is located, over which the utility intends to construct or expand the electric transmission line and to the chairpersons or chief executives of the counties and the mayors of any municipalities in which such property is located. Such notice shall be mailed at least 30 days prior to the date of the first public meeting related to the electric transmission line and shall include all of the information required, by paragraph (1) of this subsection.

(c) At least one public meeting shall be held in each county in which the electric transmission line would be located. In any county in which the electric transmission line would require acquisition of property rights from more than 50 property owners, two or more public meetings shall be held. The public meetings shall be held in an accessible location and shall be open to members of the public. At least one of the public meetings shall commence between 6:00 P .M, and 7:00 P.M., inclusive, on a business weekday. At the public meetings, the utility shall provide a description of the proposed project including the general route of the electric transmission line and the general property area within which the utility intends to construct or expand the electric transmission line, the width of the proposed transmission line route, and a description of the alternative construction approaches considered by the utility and a statement of why such alternatives were rejected by the utility. At the public meetings, the utility shall allow a reasonable opportunity for members of the public to express their views on the proposed project and to ask questions.

(d) A utility shall not be required to give notice of or hold public meetings with respect to any of the following:

(1) An electric transmission line to be constructed or expanded by a utility on an established right of way or land that was acquired by the utility or any other utility prior to July 1, 2004;

(2) An electric transmission line for which the utility began land acquisition negotiations prior to July 1, 2004;

(3) An electric transmission line to be constructed or expanded by a utility on an established right of way or land that is owned or controlled by a state agency, a county, a municipality, or an agency, bureau, or department of the United States;

(4) An electric transmission line to be constructed or expanded by a utility for the purpose of relocating an existing electric transmission line at the direction, order, or request of a state agency, a county, a municipality, or an agency, bureau, or department of the United States;

(5) An electric transmission line to be constructed or expanded by a utility without exercising the power of eminent domain to acquire the right of way or easement area for such line; or

(6) An electric transmission line to be constructed by a utility for the purpose of serving an electric substation or switching station to be constructed on a site that is owned or controlled by a utility customer to be served by such substation or switching station.

22-3-161.

(a) On and after July 1,2004, before exercising the right of eminent domain for purposes of constructing or expanding an electric transmission line described in subsection (a) of Code Section 22-3-160, the utility shall select a practical and feasible route for the location of the electric transmission line. In selecting the route for the location of the electric transmission line, the utility shall consider existing land uses in the geographic area where the line is to be located, existing corridors, existing environmental conditions in the area, engineering practices related to the construction and operation of the line, and costs related to the construction, operation, and maintenance of the line.

(b) After the utility has selected the preferred route for the location of an electric transmission line, the utility shall attempt in good faith to negotiate a settlement with each property owner from whom the utility needs to acquire property rights for the line. In connection with the negotiations, the utility shall provide the property owner with a written offer to purchase the property rights, a document that describes the property rights, and a drawing that shows the location of the line on the owner's property.

(c) The requirements of subsections (a) and (b) of this Code section shall not apply to an electric transmission line described in subsection (d) of Code Section 22-3-160.

22-3-162.

(a) This Code section shall apply to any easement or other property interest acquired on or after July 1, 2004, through exercise of the right of eminent domain for purposes of constructing or expanding an electric transmission line:

(1) With a capacity of 230 kilovolts or less if the utility has not begun such construction or expansion within 12 years from the date of acquisition and the land burdened by the easement or other property interest is not adjacent to an electric transmission line corridor in existence 12 years from the date of acquisition;

(2) With a capacity of more than 230 kilovolts if the utility has not begun such construction or expansion within 15 years from the date of acquisition and the land burdened by the easement or other property interest is not adjacent to an electric transmission line corridor in existence 15 years from the date of acquisition; and

(3) Of any capacity if the land burdened by the easement or other property interest is adjacent to an electric transmission line corridor in existence 15 years after the date of acquisition and the utility has not begun the construction or expansion for which the easement or other property right was acquired within 15 years from the date of acquisition.

(b) When this Code section becomes applicable to an easement or other property interest, the owner of the land burdened by such easement or property interest may apply to the utility that acquired the easement or other property interest or such utility's successor or assign for reconveyance or quitclaim of the easement or other property interest or for additional compensation for such easement or other property interest. The application shall be in writing, and the utility or its successor or assign shall act on the application within 60 days by:

(1) Executing a reconveyance or quitclaim of the easement or property interest upon receipt of compensation not to exceed the amount of the compensation paid by the utility for the easement or property interest at the time of acquisition; or

(2) Paying additional compensation to the owner of the land burdened by the easement or other property interest, such compensation to be calculated by subtracting the price paid by the utility for the easement or other property interest at the time of acquisition from the fair market value of the easement or other property interest at the time this Code section becomes applicable to such easement or other property interest.

(c) The choice between additional compensation or reconveyance or quitclaim shall be at the discretion of the utility or its successor or assign."

SECTION 3

This Act shall become effective July 1, 2004, and shall apply to the exercise of eminent domain to acquire easements or other property interests for which land acquisition negotiations for

purposes of constructing or expanding one or more electric transmission lines begin on or after such date. The provisions of this Act relating to additional compensation, reconveyance, and quitclaim shall apply to easements and other property interests acquired on or after July 1, 2004, through the exercise of eminent domain.

SECTION 4

All laws and parts of laws in conflict with this Act are repealed.

Section H: Glossary of Terms

ABSITS
ABSITS tracks abnormal situations within the Standard Transmission Operation and Maintenance Program ("STOMP"). The problems are identified through field inspections.

Alternative Construction Approaches
The evaluation of construction alternatives, such as overhead vs. underground lines or single pole vs. double circuit.

Appeals Litigation
If exceptions are filed, a new trial before a Superior Court Judge with full legal process is held.

Condemnation Petition
A filing prepared by Land Department Legal Services. A Condemnation Petition contains a legal description of the property, the names and addresses of all parties that have an interest in the property, and all rights that are to be condemned.

Condemnation Proceedings
This is the statutory process for the acquisition of property through a Special Master and judicial supervision.

Contact Diary
Written history of contacts by Acquisition Agents and their negotiations with landowners.

Final Offer Letter
A letter with a final offer of monetary compensation is sent by certified mail to the property owner in an effort to resolve the acquisition of property rights before initiating a condemnation proceeding.

First Offer Letter or Written Offer Letter
As required by Title 22 Compliance Requirements and a component of good faith negotiations, all offers of fair compensation to property owners must be written and presented to the owner.

Geographic Information System ("GIS")
A computer system for capturing, storing, checking, integrating, manipulating, analyzing and displaying data related to positions on the earth's surface. Typically, a Geographical Information System (or Spatial Information System) is used for handling maps of one kind or another. These might be represented as several layers where each layer holds data about a particular kind of feature. Each feature is linked to a position on the graphical image of a map. Layers of data are organized to be studied and to perform statistical analysis.

Good Faith Negotiations
As required by O.C.G.A. § 22-3-161(b), Acquisition Agents must provide property owners with a document that describes the property rights, a drawing that shows the location of the line on the property, and a written offer of fair compensation for an easement.

LAC (Land Acquisition Database)
Application used by the Acquisition Agents to manage acquisition projects and print legal documents. It provides management with tracking, cost, productivity, and regulatory information.

LIMS (Land Information Management System)
The system used to file and research documents pertaining to Georgia Power fee simple land, easements, rights-of-ways, and other property rights.

Location Committee
Chaired by the Location Engineer in the Land Department, this committee is responsible for determining potential routes and selecting a "practical and feasible route" and the general corridor through which the transmission line will be located.

Notification of Survey
Upon completion of the field assessment by the Location Committee as to the selected line route, an Acquisition Agent contacts the property owner to obtain entrance onto their property to survey the proposed route.

Planners
Planners are responsible for developing and documenting new 115 kV, 230 kV, and 500 kV transmission line facilities in Georgia.

PowerTrac
A tool to assist the GPC Land Acquisition transmission engineer in comparing and evaluating potential transmission line routes by making current GIS information visually available at the beginning of the project.

PowerTrac Data Layer
Various layers using aerial photography, tax parcel imagery (with no ownership data), roads, railroads, rivers, streams, lakes, contour lines, historic and archaeological sites, counties and municipalities, gas pipelines, airports, and FEMA data that are used in building maps.

PowerTrac Output
The visual aids for location meetings, public meetings, and route maps for surveyors. The maps show the centerline and easement width of the proposed line route and are used for general purpose and are not survey quality.

Preferred Solution
The Solution Team narrows the list of alternative approaches and then develops, reviews, and revises estimates of alternatives to establish the best solution to the electrical problem.

Project Scope
Brief description of the name, need, and specifications of facilities needed.

Solution Team
This group evaluates and documents possible solutions to an identified electrical problem with the goal of determining a preferred solution. The team is comprised of representatives from Transmission Planning, Project Management, Line Engineering, Transmission Maintenance Center, the Regions, Land Acquisition (Location Engineer), and a Staff Attorney from Land Legal Services.

Special Master
A person appointed by the Superior Court to carry out certain duties under O.C.G.A. § 22-2-100 et seq.

STOMP (Standard Transmission Operation and Maintenance Program)
Transmission system one-line diagrams that consist of single-line drawings of the transmission grid used by transmission system operations.

Tax Records List (also known as a preliminary property list)
An agent or title specialist is responsible for researching property ownership and obtaining copies of current vesting documents or deed book/page and plat book/page and recording information, including the names, addresses, and phone numbers of all property owners along the route.

TEAMS
Program designed for the transmission project budgeting process. It assists in the creation of budgets through estimating and then keeps tracks of and provides budget and coast updates.

Title Records List (also known as a final property list)
All affected property owners from the Tax Records List will be indicated and a title examination will be required to identify current fee owners and any other parties that may have an interest in the subject property.