

**South Carolina Electric & Gas
COL Application
Part 3 – Environmental Report**

CHAPTER 2, ENVIRONMENTAL DESCRIPTION

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
2.0	ENVIRONMENTAL DESCRIPTION	2.0-1
2.1	SITE LOCATION	2.1-1
2.2	LAND	2.2-1
2.2.1	THE SITE AND VICINITY	2.2-1
2.2.1.1	The Site	2.2-1
2.2.1.2	The Vicinity	2.2-2
2.2.2	TRANSMISSION CORRIDORS AND OFFSITE AREAS	2.2-3
2.2.2.1	Existing Corridors	2.2-4
2.2.2.2	Proposed Transmission Corridors	2.2-5
2.2.3	The Region	2.2-7
2.2.3.1	Fairfield County	2.2-8
2.2.3.2	Newberry County	2.2-9
2.2.3.3	Lexington County	2.2-10
2.2.3.4	Richland County	2.2-10
2.3	WATER	2.3-1
2.3.1	HYDROLOGY	2.3-1
2.3.1.1	Surface Water	2.3-1
2.3.1.1.1	Rivers and Streams	2.3-1
2.3.1.1.2	Historical Flooding and Peak Flows	2.3-3
2.3.1.1.3	Low Flows	2.3-4
2.3.1.1.4	Dams and Reservoirs	2.3-5
2.3.1.1.5	Water Temperatures	2.3-8
2.3.1.1.6	Erosion and Sedimentation	2.3-9
2.3.1.1.7	Wetlands	2.3-11
2.3.1.2	Groundwater Resources	2.3-11
2.3.1.2.1	Regional Hydrogeology	2.3-11
2.3.1.2.2	Local Hydrogeology	2.3-12
2.3.1.2.3	Site Hydrogeology	2.3-13
2.3.1.2.3.1	Observation Well Installation and Testing Program	2.3-14
2.3.1.2.3.2	Groundwater Levels and Flow directions	2.3-15
2.3.1.2.3.2.1	Horizontal Groundwater Flow	2.3-15
2.3.1.2.3.2.2	Vertical Groundwater Flow	2.3-16
2.3.1.2.3.3	Hydraulic Properties	2.3-16
2.3.1.2.3.4	Subsurface Pathways	2.3-18
2.3.1.2.3.5	Alternate Subsurface Pathways	2.3-19
2.3.1.2.3.5.1	Saprolite/Shallow Bedrock Zone Pathway to Mayo Creek	2.3-20
2.3.1.2.3.5.2	Deep Bedrock Pathway to the Broad River	2.3-20
2.3.1.2.3.5.3	Deep Bedrock Pathway to Mayo Creek	2.3-20
2.3.1.2.3.5.4	Deep Bedrock Pathway to Hypothetical Private Well at Property Boundary	2.3-20
2.3.1.2.4	Summary	2.3-21
2.3.2	WATER USE	2.3-21
2.3.2.1	Groundwater Use	2.3-21

**South Carolina Electric & Gas
COL Application
Part 3 – Environmental Report**

TABLE OF CONTENTS (CONT.)

<u>Section</u>	<u>Title</u>	<u>Page</u>
2.3.2.1.1	Regional Groundwater Use	2.3-21
2.3.2.1.2	Local Groundwater Use.....	2.3-22
2.3.2.2	Surface Water Use	2.3-22
2.3.2.2.1	Regional Surface Water Use.....	2.3-22
2.3.2.2.2	Local Surface Water Use	2.3-23
2.3.3	Water Quality	2.3-25
2.3.3.1	Surface Water	2.3-25
2.3.3.1.1	Mayo Creek.....	2.3-27
2.3.3.1.2	Unnamed Tributary to Parr Reservoir	2.3-27
2.3.3.1.3	Broad River	2.3-27
2.3.3.1.4	Parr Reservoir	2.3-28
2.3.3.1.5	Monticello Reservoir.....	2.3-28
2.3.3.2	Groundwater.....	2.3-31
2.4	ECOLOGY	2.4-1
2.4.1	TERRESTRIAL ECOLOGY	2.4-1
2.4.1.1	Site Description and Habitats	2.4-1
2.4.1.1.1	Terrestrial Wildlife	2.4-3
2.4.1.1.2	Endangered and Threatened Species.....	2.4-5
2.4.1.1.3	Other Important Species and Habitats	2.4-7
2.4.1.1.4	Summary and Conclusions: Site Habitats and Wildlife	2.4-8
2.4.1.2	Transmission Corridor Habitats and Communities	2.4-9
2.4.2	AQUATIC ECOLOGY	2.4-10
2.4.2.1	Broad River and Associated Reservoirs.....	2.4-10
2.4.2.1.1	Broad River and Parr Reservoir Aquatic Communities	2.4-10
2.4.2.1.2	Monticello Reservoir Aquatic Communities.....	2.4-18
2.4.2.1.3	Monticello Subimpoundment Aquatic Communities	2.4-24
2.4.2.2	Onsite Streams.....	2.4-25
2.4.3	IMPORTANT AQUATIC RESOURCES.....	2.4-29
2.4.3.1	Rare/Sensitive Species	2.4-29
2.4.3.2	Diadromous Species	2.4-31
2.5	SOCIOECONOMICS	2.5-1
2.5.1	DEMOGRAPHY	2.5-1
2.5.1.1	Population Data by Sector.....	2.5-1
2.5.1.2	Population Data by Political Jurisdiction.....	2.5-3
2.5.1.3	Population Density	2.5-4
2.5.1.4	Transient and Migrant Populations.....	2.5-6
2.5.2	COMMUNITY CHARACTERISTICS.....	2.5-7
2.5.2.1	Economy	2.5-7
2.5.2.2	Transportation	2.5-8
2.5.2.2.1	Roads	2.5-8
2.5.2.2.2	Railroads	2.5-9
2.5.2.2.3	Waterways.....	2.5-10
2.5.2.2.4	Airports	2.5-10
2.5.2.2.5	Evacuation Routes	2.5-10
2.5.2.3	Taxes.....	2.5-10

**South Carolina Electric & Gas
COL Application
Part 3 – Environmental Report**

TABLE OF CONTENTS (CONT.)

<u>Section</u>	<u>Title</u>	<u>Page</u>
2.5.2.3.1	Personal and Corporate Income Taxes.....	2.5-11
2.5.2.3.2	Sales and Use Taxes	2.5-11
2.5.2.3.3	Property Tax.....	2.5-11
2.5.2.3.4	Other Taxes.....	2.5-12
2.5.2.4	Land Use.....	2.5-12
2.5.2.4.1	Fairfield County	2.5-13
2.5.2.4.2	Lexington County	2.5-14
2.5.2.4.3	Newberry County.....	2.5-14
2.5.2.4.4	Richland County.....	2.5-15
2.5.2.5	Aesthetics and Recreation	2.5-16
2.5.2.6	Housing	2.5-16
2.5.2.7	Community Infrastructure and Public Services	2.5-17
2.5.2.7.1	Public Water Supplies and Waste Water Treatment Systems ..	2.5-17
2.5.2.7.2	Police and Fire Department and Medical Facilities	2.5-18
2.5.2.7.3	Social Services.....	2.5-19
2.5.2.8	Schools.....	2.5-19
2.5.2.8.1	Public Schools – Kindergarten through 12.....	2.5-19
2.5.2.8.2	Fairfield County	2.5-20
2.5.2.8.3	Lexington County	2.5-21
2.5.2.8.4	Newberry County.....	2.5-21
2.5.2.8.5	Richland County	2.5-21
2.5.2.8.6	Colleges/Universities.....	2.5-22
2.5.3	HISTORIC PROPERTIES	2.5-22
2.5.3.1	Historic Context	2.5-23
2.5.3.2	Description of Historic Properties within 10 miles of the VCSNS Site.....	2.5-26
2.5.3.3	Description of Historic Properties within the SCE&G Property..	2.5-27
2.5.3.4	Transmission Line Rights-of-Way	2.5-29
2.5.3.5	Native American Sites	2.5-30
2.5.4	ENVIRONMENTAL JUSTICE	2.5-31
2.5.4.1	Methodology.....	2.5-31
2.5.4.2	Minority Populations	2.5-31
2.5.4.3	Low-Income Populations	2.5-33
2.5.4.4	Potential for Disproportionate Impacts	2.5-33
2.6	GEOLOGY.....	2.6-1
2.6.1	PHYSIOGRAPHY AND GEOMORPHOLOGY	2.6-1
2.6.2	SITE GEOLOGY	2.6-1
2.6.3	GROUNDWATER.....	2.6-2
2.7	METEOROLOGY, AIR QUALITY, AND NOISE	2.7-1
2.7.1	REGIONAL CLIMATOLOGY	2.7-1
2.7.1.1	Data Sources.....	2.7-1
2.7.1.2	General Climate Description	2.7-3
2.7.1.3	Normal, Mean, and Extreme Climatological Conditions	2.7-5
2.7.1.3.1	Temperature.....	2.7-5
2.7.1.3.2	Atmospheric Water Vapor	2.7-6

**South Carolina Electric & Gas
COL Application
Part 3 – Environmental Report**

TABLE OF CONTENTS (CONT.)

<u>Section</u>	<u>Title</u>	<u>Page</u>
2.7.1.3.3	Precipitation.....	2.7-6
2.7.1.3.4	Wind Conditions	2.7-7
2.7.2	AIR QUALITY	2.7-8
2.7.2.1	Regional Air Quality Conditions.....	2.7-8
2.7.2.2	Projected Air Quality Conditions.....	2.7-9
2.7.2.3	Restrictive Dispersion Conditions.....	2.7-9
2.7.3	SEVERE WEATHER	2.7-11
2.7.3.1	Thunderstorms and Lightning.....	2.7-12
2.7.3.2	Extreme Winds	2.7-12
2.7.3.3	Tornadoes	2.7-13
2.7.3.4	Hail, Snowstorms, and Ice Storms	2.7-14
2.7.3.5	Tropical Cyclones.....	2.7-16
2.7.4	LOCAL METEOROLOGY	2.7-18
2.7.4.1	Normal, Mean, and Extreme Values	2.7-19
2.7.4.1.1	Temperature.....	2.7-19
2.7.4.1.2	Atmospheric Water Vapor	2.7-20
2.7.4.1.3	Precipitation.....	2.7-20
2.7.4.1.4	Fog	2.7-22
2.7.4.2	Average Wind Direction and Wind Speed Conditions	2.7-23
2.7.4.3	Wind Direction Persistence	2.7-24
2.7.4.4	Atmospheric Stability.....	2.7-25
2.7.4.5	Topographic Description and Potential Modifications	2.7-26
2.7.5	SHORT-TERM DIFFUSION ESTIMATES	2.7-28
2.7.5.1	Basis.....	2.7-28
2.7.5.2	PAVAN Modeling Results.....	2.7-31
2.7.6	LONG-TERM (ROUTINE) DIFFUSION ESTIMATES.....	2.7-32
2.7.6.1	Basis.....	2.7-32
2.7.6.2	XOQDOQ Modeling Results.....	2.7-34
2.7.7	NOISE	2.7-35
2.8	RELATED FEDERAL AND OTHER PROJECT ACTIVITIES	2.8-1
2.8.1	FEDERAL PROJECTS/ACTIONS	2.8-1
2.8.2	COOPERATING AGENCIES	2.8-3
2.8.3	PROJECTS AND ACTIVITIES IN THE REGION WITH POTENTIAL TO CONTRIBUTE TO CUMULATIVE IMPACTS.....	2.8-3
2.9	EXISTING PLANT PARAMETERS	2.9-1