

2.9 EXISTING PLANT PARAMETERS

VCSNS Unit 1 is part of the environment that would be affected by the construction and operation of Units 2 and 3. Therefore, parameters describing the existing plant comprise a baseline against which parameters for the new reactors can be compared. Additionally, the impacts of the proposed reactors are cumulative with the impacts of the existing plant. Accordingly, [Table 2.9-1](#) presents Unit 1 parameters that are important for assessing the environmental impacts of constructing and operating Units 2 and 3. The table is organized into the resource or impact topics discussed in Chapters 2, 4, and 5, as appropriate: land use, water, socioeconomics, radiological impacts, and nonradiological impacts. The ecology resource area is not listed, because plant parameters that affect this resource are identified under other topics.

**Table 2.9-1 (Sheet 1 of 2)
Plant Parameters for Unit 1**

Parameter	Quantity and Units
Land Use	
Developed acreage	2,245 acres; Plant facilities occupy 370 acres with remaining 890 acres primarily in forest, 860 acres are covered by Monticello Reservoir, and 125 acres are used for transmission lines
Exclusion Area Boundary	Site boundary (western axis is 5,850 feet and eastern axis is 5,350 feet)
Low Population Zone Boundary	3 miles
Water	
Monticello Reservoir water consumptive use	VSCNS: 13 cubic feet per second
Parr Reservoir water use	Fairfield Pumped Storage Facility 9.5 billion gallons per day pumped from Parr Reservoir to Monticello Reservoir and then returned to Parr Reservoir
Groundwater withdrawal	2 dewatering wells approximately 26 gallons per minute average total
Socioeconomics	
Permanent plant workforce	635
Outage workforce	2003: 695 2005: 780 2006: 464 prime contractor + approximately 200 other contract employees
Population within 10 miles	12,209 residents and transients
Population within 50 miles	1,028,075 residents
Radiological Impacts	
Airborne emissions	Fission/Activation Products: 110 curies Radioiodines: 1.85×10^{-3} curies Particulates: 1.44×10^{-5} curies Tritium: 3.12 curies
Airborne pathway collective dose	0.0356 millirem

**Table 2.9-1 (Sheet 2 of 2)
Plant Parameters for Unit 1**

Parameter	Quantity and Units
Radiological Impacts (continued)	
Liquid discharges (curies/yr)	Fission/Activation Products: 0.0758 curies Tritium: 466 curies Dissolved/Entrained Gases: 0.850 curies Gross Alpha: 0 curies
Liquid pathway collective dose	4.76 × 10 ⁻³ millirem
Solid radiological waste volume	77.40 cubic meters
Solid radiological waste radioactivity	229.43 curies
Worker collective dose	<u>Year</u> <u>Dose</u> 2003: 71 person-rem 2004: 10 person-rem 2005: 73 person-rem
Nonradiological Impacts	
Criteria pollutants emitted	NOx = <100 tons per year (permit limit) Annual SO ₂ = 41.2 µg/m ³ ozone = not modeled per SCDHEC Annual PM ₁₀ = 27.56 µg/m ³ 8-hour CO = 7518.9 µg/m ³ Annual TSP = 26.6 µg/m ³
Noise	Ambient: Not available Operating plant: one time measurement of 45.9 dBA measured at drive entrance (outside rock barrier)
Building height	containment dome: 166 feet above grade
Other	
MWt	Core thermal rating of 2,900 megawatts thermal
MWe capacity	Maximum dependable electrical capacity: 966 MW