

2.9S Existing Plant Parameters and Site Characteristics

The existing units at the STP site are part of the environment that would be affected by the construction and operation of STP 3 & 4. Therefore, parameters and characteristics describing the existing units comprise a baseline against which parameters and characteristics for Units 3 & 4 can be compared. Additionally, the impacts of the proposed reactors are cumulative with the impacts of the existing plant. Accordingly, Table 2.9S-1 presents existing plant parameters that are important for assessing the environmental impacts of constructing and operating new nuclear power plants at the site. 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 non-radiological impacts. The ecology resource area is not listed because plant parameters that affect this resource are identified under other topics.

2.9S.1 References

- 2.9S-1 "Environmental Report – Operation, STP (South Texas Project Nuclear Operating Company)," Amendment 10, July 16, 1987.
- 2.9S-2 ~~"2002 Texas Commission on Environmental Quality Annual Water Use Reports (Combined), STP (South Texas Project Nuclear Operating Company)," February 14, 2003.~~ "Texas Water Development Board, Calendar Year 2002 Water Use (Combined Form), STP (South Texas Project Nuclear Operating Company)." February 14, 2003.
- 2.9S-3 ~~"2003 Texas Water Development Board, TCEQ/TWDB Annual Water Use Reports (Combined), STP (South Texas Project Nuclear Operating Company)," February 24, 2004.~~ "Texas Water Development Board, Calendar Year 2003 Water Use (Combined Form), STP (South Texas Project Nuclear Operating Company), February 24, 2004.
- 2.9S-4 ~~"2004 Texas Water Development Board, TWDB Annual Water Use Reports, STP (South Texas Project Nuclear Operating Company)," February 23, 2005.~~ "Texas Water Development Board, Industrial Water Use Survey for the Calendar Year Ending December 31, 2004, STP (South Texas Project Nuclear Operating Company)" February 22, 2005.
- 2.9S-5 ~~"2005 Texas Water Development Board, TWDB Annual Water Use Reports, STP (South Texas Project Nuclear Operating Company)," February 22, 2006.~~ "Texas Water Development Board, Industrial Water Use Survey for the Calendar Year Ending December 31, 2005, STP (South Texas Project Nuclear Operating Company)" February 16, 2006.
- 2.9S-6 ~~"2006 Texas Water Development Board, TWDB Annual Water Use Reports, STP (South Texas Project Nuclear Operating Company)," February 22, 2006.~~ "Texas Water Development Board, Industrial Water Use Survey for the Calendar Year Ending December 31, 2006, STP (South Texas Project Nuclear Operating Company)" February 22, 2007.

- 2.9S-7 "Final Exercise Report," FEMA (Federal Emergency Management Agency), November 5, 2004.
- 2.9S-8 "2002 Radioactive Effluent Release Report, STP (South Texas Project Nuclear Operating Company)," February 27, 2003.
- 2.9S-9 "2003 Radioactive Effluent Release Report, STP (South Texas Project Nuclear Operating Company)," April 29, 2004.
- 2.9S-10 "2004 Radioactive Effluent Release Report, STP (South Texas Project Nuclear Operating Company)," April 28, 2005.
- 2.9S-11 "2005 Radioactive Effluent Release Report, STP (South Texas Project Nuclear Operating Company)," April 27, 2006.
- 2.9S-12 "2006 Radioactive Effluent Release Report, STP (South Texas Project Nuclear Operating Company)," April 30, 2007.
- 2.9S-13 "Radiation Exposure Information and Reporting System (REIRS) for Radiation Workers," NRC (Nuclear Regulatory Commission) <http://www.reirs.com/>, accessed April 18, 2007.
- 2.9S-14 "Emissions Inventory Data (NOC-TX-06012964), STP (South Texas Nuclear Operating Company) 2006," March 29, 2007.
- 2.9S-15 ["Texas Water Development Board. Calendar Year 2001 Water Use \(Combined Form\), STP \(South Texas Project Nuclear Operating Company\)," February 20, 2002.](#)
- 2.9S-16 ["Texas Commission on Environmental Quality, TCEQ Annual Water Use Reports – 2004, South Texas Project Electric Generating Station," February 23, 2005.](#)
- 2.9S-17 ["Texas Commission on Environmental Quality, TCEQ Annual Water Use Reports – 2005, South Texas Project Electric Generating Station," February 22, 2006.](#)
- 2.9S-18 ["Texas Commission on Environmental Quality, TCEQ/TWDB Annual Water Use Reports – 2006, South Texas Project Electric Generating Station," February 22, 2007.](#)

Table 2.9S-1 Plant Parameters and Site Characteristics for STP 1 & 2

Parameter	Quantity and Units	Explanation/Source
Land Use		
Developed acreage	12,220 acres total site; Plant facilities occupy approximately 65 acres; main cooling reservoir occupies 7,000 acres, and approximately 1,700 acres remain as a lowland natural habitat	Source: Reference 2.9S-1
Exclusion Area Boundary	Oval 1,430 meters from the centerline of each reactor containment building	Source: Reference 2.9S-1
Low Population Zone Boundary	3 miles radius from Exclusion Area Boundary Centroid	Source: Reference 2.9S-1
Water		
River water consumptive use	37,100 acre-ft/year (3-year average <u>[calendar years 2004-2006]</u> listed due to recent increases in Units power up-rates)	Source: Reference 2.9-2S- <u>16</u> to 2.9S- <u>618</u>
Groundwater withdrawal	1,300 acre-ft/year (56 -year approximate average <u>[calendar years 2001-2006]</u>)	Source: Reference 2.9S-2 to 2.9S-6
Socioeconomics		
Permanent plant workforce (Approximate 5-year average)	Average = 1300	Source: Estimate
Outage workforce (Approximate 5-year average)	Average = 400	Source: Estimate
Population within 10 miles	2875 people (decrease from 1990 census)	Source: Reference 2.9S-7
Population within 50 miles	257,252	Source: Reference 2.9S-7
Radiological Impacts		
Airborne emissions (curies/yr)	Fission/Activation Products – 234.5 (5-year average) Radioiodines – 0.00032 (5-year average) Particulates – 0.00183 (5-year average) Tritium – 144.8 (5-year average)	Source: : Reference 2.9S-8 to 2.9S-12

Table 2.9S-1 Plant Parameters and Site Characteristics for STP 1 & 2 (Continued)

Parameter	Quantity and Units	Explanation/Source
Liquid discharges (curies/yr)	Fission/Activation Products - 0.091 (5-year average) Tritium – 2035 (5-year average) Dissolved/Entrained Gases – 1.82 (5-year average) Gross Alpha – 0 (5-year average)	Source: : Reference 2.9S-8 to 2.9S-12
Liquid pathway collective dose (mrem)	Unit 1 – 1.31 (5-year average) Unit 2 – 1.28 (5-year average)	Source: : Reference 2.9S-8 to 2.9S-12
Solid radiological waste volume	527 m3/yr (5-year average)	Source: : Reference 2.9S-8 to 2.9S-12
Solid radiological waste radioactivity	464.8 curies/yr (5-year average)	Source: : Reference 2.9S-8 to 2.9S-12
Worker collective dose	YearDose 2002 – 329.1 rem 2003 – 143.5 rem 2004 – 119.8 rem 2005 – 247.7 rem 2006 – 150.3 rem Average 198 rem/year	Source: Reference 2.9S-13
Nonradiological Impacts		
Air emissions	Tons per year of criteria pollutants (2006) NO _x = 43 tons/year SO ₂ = 0.75 tons/year PM ₁₀ = 0.96 tons/year PM _{2.5} = 0.96 tons/year CO = 11.5 tons/year	Source: Reference 2.9S-14
Noise	Not Measured	Not applicable
Building height	Containment dome: 203 feet above grade Primary Met tower: 197 feet above grade	Source: Reference 2.9S-1

Table 2.9S-1 Plant Parameters and Site Characteristics for STP 1 & 2 (Continued)

Parameter	Quantity and Units	Explanation/Source
Other		
Megawatts thermal	3,853 MWt per unit	Source: Reference 2.9S-1
Gross megawatts electrical	1,329 MWe per unit	Source: Reference 2.9S-1
mrem = millirem (1/1000 rem.) NOx – oxides of nitrogen SO2 – sulphur dioxide PM10 – Particulate matter <10 microns in diameter PM2.5 – Particulate matter <2.5 microns in diameter CO – carbon monoxide		

