

### 1.3.3 Meteorology

Climatology information is based on *Climatology of the United States No. 60, Climate of South Carolina* (DOC [U.S. Department of Commerce] 1977) published by the National Climatic Data Center and Section 1.4.1 of the SRS GSAR (WSRC 1999c). It is also based on long-term meteorological data collected by the National Weather Service at Bush Field in Augusta, Georgia (Bush Field is located approximately 12 mi [19.3 km] northwest of SRS), as summarized by the National Climatic Data Center. Normals, means, and extremes of temperature, precipitation, and wind speed are taken from the National Oceanic and Atmospheric Administration (NOAA). Data on tornado occurrences and hurricanes are derived from *Significant Tornadoes 1680 – 1991, Tornado Project of Environmental Films* (Grazulis 1993) and *Natural Phenomena Hazards Design Criteria and Other Characterization Information for the Mixed Oxide (MOX) Fuel Fabrication Facility at Savannah River Site (U)* (WSRC 2000b).

#### 1.3.3.1 Local Wind Patterns and Average and Maximum Wind Speeds

Winds in the SRS region are generally light to moderate with the highest speeds occurring during spring, with an average of approximately 7 mph (11.3 km/hr) for those months at Bush Field. The lightest winds occur in the summer and fall, with the lowest monthly average wind speed of 5.1 mph (8.2 km/hr) occurring in August. The highest monthly average wind speed of 7.7 mph (12.4 km/hr) occurs in March, and the long-term average wind speed for the year is 6.2 mph (10 km/hr) measured at Bush Field. The prevailing wind direction at Augusta is generally from the northwest during the winter months, from the southeast during the late spring and early autumn, and from the southwest in the summer. There is no overall prevailing wind direction because it is variable throughout the year.

A meteorological database, comprised of data from the eight SRS meteorological towers at SRS, for the 10-year period 1987 to 1996 is currently used for the safety analysis. As indicated by this database, there is no strongly prevailing wind direction at SRS. Northeasterly winds occurred approximately 10% of the time, and west to southwest winds occurred about 8% of the time. Annual average wind speeds at each of the towers ranged from 9.4 mph (15.1 km/hr) to 8.0 mph (12.9 km/hr). The maximum one-minute wind since 1950 was 83 mph (134 km/hr) measured on May 28, 1950. The observed annual fastest one-minute wind speeds for SRS are listed in Table 1.3.3-1.

The peak wind gust at Augusta is 60 mph (96.5 km/hr) from the northwest based on 10 years of observations.

#### 1.3.3.2 Annual Amounts and Forms of Precipitation

Annual average precipitation for SRS over the 30-year period 1967 to 1996 is 49.5 in (126 cm), and the average precipitation for Augusta is slightly less (44.7 in [114 cm]) (Table 1.3.3-2).

Monthly precipitation extremes for SRS range from a maximum of 19.62 in (50 cm), recorded in October 1990, to a trace observed in October 1963. The greatest observed rainfall for a 24-hour period was 7.5 in (19 cm) in October 1990. Hourly observations at Augusta indicate that rainfall