# Nuclear Plant
# Site Selection Study Report

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## Prepared for:
## South Carolina Electric & Gas Company

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# 1. Background and Introduction

South Carolina Electric and Gas Company (SCE&G) and the South Carolina Public Service Authority (Santee Cooper) operate the Virgil C. Summer Nuclear Station (VCSNS) in Fairfield County, South Carolina. VCSNS began commercial operation in 1982 with a single unit. Demand for electricity within the service area has grown sufficiently to warrant the construction of two AP 1000 nuclear units.

This study compares potential sites within the SCE&G service area for siting the two AP 1000 nuclear units. The study evaluates 20 sites for which information was developed in two previous studies (Dames & Moore 1974, McCallum-Turner 2005): 15 greenfield sites, 3 existing fossil-fired sites, 1 existing commercial nuclear site (VCSNS), and 1 existing Federal nuclear site (the Savannah River Site, SRS). New data was collected and analyzed for each site, and the top four sites were identified as candidate sites, as suggested by NUREG-1555.

The 1974 study (Dames & Moore 1974) was commissioned with the specific objective of identifying a separate location for a second SCE&G nuclear plant. The study examined the SCE&G service territory and offshore locations for potential nuclear plant sites. The study identified 18 potential locations for a nuclear plant within the SCE&G service territory. The study did not numerically rank the sites for favorability; instead the sites were classified as primary, secondary, or tertiary. Primary sites were those that appeared to be licensable with no apparent economic or environmental constraints. Secondary sites were sites that appeared to be licensable with one or two economic or environmental constraints that potentially could be dismissed by a detailed study. Tertiary sites were sites that appeared to be licensable with multiple economic or environmental constraints.

The 2005 study (McCallum-Turner 2005) was commissioned to identify suitable sites within the SCE&G service territory to locate new nuclear units. This study was conducted in accordance with the overall process outlined in the Electric Power Research Institute (EPRI) Siting Guide: *Site Selection and Evaluation Criteria for an Early Site Permit Application, March 2002* (EPRI 2002). The study reviewed 18 sites previously identified as potential nuclear power plant sites (Dames & Moore 1974), VCSNS, and SRS.

SRS was identified as a potential site in the 2005 study because it is within the SCE&G service territory and it is being promoted by local officials for consideration in order to provide new missions for the SRS and its experienced workforce. SRS has also been evaluated in other recent studies and combined operating license applications (COLAs), during which extensive information was developed on geologic/seismic suitability, ecological resources, and impacts on aesthetics and the local transportation network.

During the 2005 siting study, the information presented in the 1974 study was reviewed. Results of this review indicated that none of the 18 sites would be "obviously superior" to VCSNS as the site for a new nuclear power plant. VCSNS has benefits including extensive information developed on environmental conditions and environmental impacts, a previous National Environmental Policy Act (NEPA)-mandated review, existing infrastructure, a workforce with relevant nuclear experience, and a record of community acceptance and support. Accordingly, the balance of the 2005 study focused on a comparison of VCSNS and SRS as candidate sites for the SCE&G COL.

Using available data and criteria developed based on the EPRI general site criteria, detailed site suitability evaluations of VCSNS and SRS were conducted. Weight factors reflecting the relative importance of each criterion were applied and overall composite site suitability scores were developed for the two sites. The preferred site for the SCE&G COL application was selected based on these composite scores and other applicable considerations that relate to the SCE&G and Santee Cooper business plans. Because the 18 sites identified in the 1974 study were screened out early in the process, site suitability scores were not developed for those sites.

NUREG-1555 suggests that a minimum of 4 sites be evaluated in the environmental report for the COL application. Because the 2005 site selection study performed an in-depth evaluation of only 2 sites, SCE&G determined that 2 additional sites would need to be identified and evaluated in Section 9.3 of the environmental report. The focus of the Section 9.3 alternative sites evaluation is a determination of whether an environmentally preferred site exists among the candidate sites. SCE&G determined that the best way to demonstrate that no environmentally preferred site existed would be to choose a representative greenfield site and a representative fossil-fired site from the 18 sites identified in the 1974 nuclear power plant siting study (Dames & Moore 1974). In both cases, SCE&G updated the information in the 1974 siting study with publicly available data in order to identify the most suitable site from an environmental perspective. Based on this review, the Saluda site, an undeveloped property owned by SCE&G, which is located in Saluda County on the Saluda River arm of Lake Murray at the confluence with Mill Creek, was identified as the representative greenfield site and the Cope Generating Station, a 430-MWe coal-fired facility located in Orangeburg County, SC, was identified as the representative fossil-fired site.

Acceptance review of the SCE&G COL application generated the following comment from NRC staff:

> "The alternate site selection process described in the ER is unclear on how the preferred site was determined, and contains descriptions of different deterministic processes for the Cope Generating Station/Saluda Site evaluation as compared to the Savannah River Site/VC Summer Site evaluation. Alternate sites should be determined by way of an adequate site selection process established in accordance with ESRP Section 9.3 and Regulatory Guide 4.2, Part B, Section 9."

This study provides detail regarding the methodology and criteria used for comparing the SRS Site and the 18 potential sites identified in the 1974 study to the South Carolina Electric and Gas (SCE&G) Virgil C. Summer Nuclear Station, Units 2 and 3 (VCSNS) Site. The objectives of this comparison were:

1) to verify that a reasonable suite of viable candidate sites was considered using a single methodology and set of criteria, and
2) to determine if there were any obviously superior sites among the candidate sites for siting and operation of two AP 1000 nuclear reactors.

This study was conducted in accordance with the overall site-selection process outlined in the EPRI Siting Guide (EPRI 2002) using screening criteria and weight factors that were developed for the 2005 siting study (McCallum-Turner 2005). Because a larger set of sites was evaluated in this study, additional screening metrics were developed for some criteria (e.g., cooling water supply) to differentiate site scores. The 20 sites were evaluated on a single set of criteria, in order to confirm the site selection consistent with the intent of NUREG-1555 and Regulatory Guide 4.2. The study involved reviewing existing data from the 1974 and 2005 studies, updating this data, and supplementing the dataset with additional Geographical Information Systems (GIS) information, to facilitate data collection and analysis.

# 2. Siting Process Overview

Site selection was conducted in accordance with the overall process outlined in the EPRI Siting Guide: *Site Selection and Evaluation Criteria for an Early Site Permit Application* (Siting Guide), March 2002.

An initial set of data was collected on all 20 potential sites. The data collected included: general site characteristics, flood elevation, onsite land use, proximity to protected areas, population centers and density, water availability, geologic characteristics, climatology, and proximity to avoidance areas (i.e., dams, military bases, mines/quarries, pipelines, airports).

Exclusionary criteria were developed based on Table 2-2 of the EPRI Siting Guide (EPRI 2002) in order to reduce the number of sites by eliminating sites that have undesirable attributes. Based on results of the evaluation of the twenty potential sites against the exclusionary criteria, nine sites were eliminated and eleven sites were down-selected for further evaluation.

Using available data and the suitability criteria, detailed site-suitability evaluations of the eleven remaining sites were conducted and site-suitability scores were developed. The weight factors based on relative importance of each suitability criterion that were developed for the 2005 siting study were then applied and overall composite site suitability scores were developed for each site. Individual site scores are provided in Appendix A. A recommended site for the new nuclear plant was identified based on the composite score.

# 3. Description of Sites

As discussed in Section 1, a total of 20 potential sites were considered in this siting study. The intent was to evaluate the full spectrum of possible sites, including undeveloped parcels and sites with commercial development and the attendant infrastructure. Each site is described below and Figure 1 shows the general location of the sites. Site descriptions were developed using Environmental Systems Research Institute (ESRI) geographic information system (GIS) data for roads, places, water bodies, population, and railroads; US Geological Survey (USGS) 7.5 Minute Topographic maps for South Carolina Quadrangles; and National Oceanic and Atmospheric Administration (NOAA) and Southeast Regional Climate Center (SERCC) weather data for South Carolina (ESRI 2006, NOAA 2008c, NOAA 2008d, SCDNR 2008e and SERCC 2008).

## *3.1. Greenfield Sites*

Greenfield sites are defined as agricultural or forest land, or land left in the natural state that has never been developed for commercial or industrial purposes. Fifteen potential greenfield sites were considered in this siting study. These sites are located in Allendale, Barnwell, Charleston, Colleton, Fairfield, Georgetown, Jasper, McCormick, Newberry, Saluda, and Williamsburg counties.

### *3.1.1 Site Al-1*

Site Al-1 is an undeveloped, greenfield site located in the western portion of Allendale County, South Carolina, about 3 miles east of the Savannah River (Figure 2). Site Al-1 is located approximately 48 miles southeast of Augusta, GA, and 45 miles southeast of Aiken, SC. The closest populated place to Site Al-1, Allendale, SC, is located about 8.5 miles to the northeast of the site and had a 2000 Census population of 4,052 people. State Highway 301, which runs in an east/west direction, is located just north of the site while County Road 3 runs north/south and is located just east of the site. Approximately 7 miles north of the site are CSX Transportation railroad lines that run northwest/southeast between Augusta, GA, and Allendale, SC. The site ranges in elevation from approximately 100 feet to 170 feet above mean sea level (msl) and is primarily forested with a small amount of wetlands, cropland, and pastures. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 107°F and extreme lows have reached 1°F.

### *3.1.2 Site Al-2*

Site Al-2 is an undeveloped, greenfield site located in the northwestern portion of Allendale County, SC, about 1.5 miles northeast of the Savannah River (Figure 3).

The site is located approximately 38 miles southeast of Augusta, GA; 35 miles southeast of Aiken, SC; and 45 miles southeast of Martinez, GA. The closest populated place to Site Al-2 is Girard, SC, located about 10.5 miles to the west of the site, which had a 2000 Census population of 227 people. State Highway 125 runs east/west along the north border of the site and State Highway 3 is located approximately 6 miles east of the site. Approximately 1 mile north of the site are CSX Transportation railroad lines that run northwest/southeast between Augusta, GA and Allendale, SC. The site is relatively flat with elevation ranging from approximately 85 to 100 feet above msl. The site is a mixture of forest and wetlands with a small amount of cropland and pastures. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 110°F and extreme lows have reached -1°F.

### *3.1.3 Site Br-1*

Site Br-1 is an undeveloped, greenfield site located just below the Barnwell County line in the northern portion of Allendale County, SC, about 8 miles northeast of the Savannah River (Figure 4). The site is located about 37 miles southeast of Augusta, GA; 31 miles southeast of Aiken, SC; and 44 miles southeast of Martinez, GA. The closest populated place to Site Br-1 is Snelling, SC, located about 7 miles to the north-northeast of the site, which had a 2000 Census population of 246 people. State Highway 3 runs north/south about 1.3 miles east of the site. Approximately 5 miles south of the site is a CSX Transportation rail line that runs between Augusta, GA, and Allendale, SC. The site is located on relatively high ground with elevations ranging from approximately 200 to 250 feet above msl. It is primarily forest with some cropland and pasture as well as a small amount of wetlands and residential land use. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 111°F and extreme lows have reached -3°F.

### *3.1.4 Site Ch-1*

Site Ch-1 is an undeveloped, greenfield site located in the western portion of Charleston County, SC, approximately 10 miles northwest of the Atlantic Ocean (Figure 5). It is bordered on the north, south, and west by the South Edisto River. Site Ch-1 is located about 28 miles southwest of Charleston, SC; 37 miles northeast of Hilton Head, SC; and 29 miles southwest of Summerville, SC. The closest populated place to Site Ch-1 is Meggett, SC, located about 9.5 miles to the northeast of the site, which had a 2000 Census population of 1230 people. State Highway 174 runs north/south approximately 2.5 miles east of the site. There are CSX Transportation railroad lines located approximately 9 miles north of site that run east/west between Yemassee, SC, and Charleston, SC. The site is located in a low-lying coastal area with an average elevation of 5 feet above msl, which is below the 100-year flood zone elevation. Site Ch-1 is located within the Ace Basin National Wildlife Refuge and is primarily wetlands and open water with small

amounts of forest, croplands, and pastures. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 102°F and extreme lows have reached 7°F.

### *3.1.5 Site Co-1*

Site Co-1 is an undeveloped, greenfield site located in the southern portion of Colleton County, SC, approximately 10 miles northwest of the Atlantic Ocean (Figure 6). It is bordered on the west by the Combahee River. Site Co-1 is located about 38 miles southwest of Charleston, SC; 30 miles northeast of Hilton Head, SC; 48 miles northeast of Savannah, GA; and 37 miles southwest of Summerville, SC. The closest populated place to Site Co-1, Beaufort, SC, is located about 12 miles to the southwest of the site and had a 2000 Census population of 12,950 people. State Highway 17 runs east/west approximately 6 miles northwest of the site. There are CSX Transportation railroad lines located approximately 10 miles north of site that run east/west between Yemassee, SC, and Charleston, SC. The site is located in a low lying coastal area with elevations ranging from approximately 5 to 20 feet above msl. The site is primarily forest with some wetlands, cropland and pastures. Portions of the ACE Basin National Wildlife Refuge are located within 10 miles of the site and Beaufort County Airport is about 11 miles southwest of the site. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 102°F and extreme lows have reached 7°F.

### *3.1.6 Site Fa-1*

Site Fa-1 is an undeveloped, greenfield site located in the western portion of Fairfield County, SC, about 1 mile west of the Monticello Reservoir and 2 miles north of the Parr Reservoir (Figure 7). It is located on the eastern bank of the Broad River. Site Fa-1 is located about 31 miles northwest of Columbia, SC, and about 45 miles southwest of Rock Hill, SC. The nearest town, Pomaria, SC, is about 6.9 miles to the southwest and has a population of approximately 177 people. State Highway 301 runs east/west and is located north of the site and County Road 3 runs north/south and is located east of the site. There are Norfolk Southern railroad lines that run north/south between Carlisle, SC, and Columbia, SC, along the western boundary of the site. The Fa-1 site is composed of rolling hills and steep stream valleys with elevations ranging from approximately 300 to 480 feet above msl. The site is primarily forest with small amounts of open water, wetlands and residential areas. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 107°F and extreme lows have reached -1°F.

### *3.1.7 Site Ge-1*

Site Ge-1 is an undeveloped, greenfield site located in the southern portion of Georgetown County, SC, approximately 5.5 miles northwest of the Atlantic Ocean (Figure 8). It is bordered on the south by the Santee River. Site Ge-1 is located about 40 miles northeast of Mount Pleasant, SC, and 47 miles northeast of Charleston, SC. The closest populated place to Site Ge-1, McClellanville, SC, is located about 11 miles to the southwest of the site and had a 2000 Census population of 459 people. State Highway 17 runs in a north/south direction approximately 4.5 miles west of the site. There are CSX Transportation railroad lines that run northwest/southeast from Georgetown, SC, approximately 9.8 miles northwest of the site. The site is located in a low-lying coastal area with an average elevation of 5 feet above msl, which is below the 100-year flood zone elevation. The site is primarily wetlands with a small amount of open water. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds and hail. Extreme highs around the area have reached 104°F and extreme lows have reached 4°F.

### *3.1.8 Site Ja-2*

Site Ja-2 is an undeveloped, greenfield site located in the northern portion of Jasper County, SC, approximately 11.5 miles northeast of the Savannah River and approximately 9.5 miles southwest of the Coosawhatchie River (Figure 9). The site is located approximately 2 miles south of the Jasper/Hampton County line. Site Ja-2 is about 40 miles northwest of Hilton Head, SC, and 40 miles north of Savannah, GA. The nearest town, Furman, SC, is about 5.5 miles to the northwest and had a 2000 Census population of 286 people. State Highway 601 runs north/south and is located approximately 3 miles west of the site. There are CSX Transportation railroad lines located approximately 7.8 miles west of the site that run north/south between Fairfax, SC, and Savannah, GA. This site is located in a relatively flat coastal plain with elevations ranging from approximately 90 to 100 feet above msl. Jasper County is one of the eight counties that comprise the SC coastal zone. The land within the site is primarily forest with small amounts of cropland, pasture, and wetlands. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 107°F and extreme lows have reached 2°F.

### *3.1.9 Site Mc-1*

Site Mc-1 is an undeveloped, greenfield site located in the western portion of McCormick County, SC, along the eastern shore of J. Strom Thurmond Lake (Figure 10). The site is located northeast of the Landam Branch. Site Mc-1 is located about 24 miles north-northwest of Martinez, GA; 31 miles north-northwest of Augusta, GA; and about 37 miles northwest of Aiken, SC. The closest populated place to Site Mc-1, Plum Branch, SC, is located about 2 miles to the northeast of

the site and had a 2000 Census population of 98 people. State Highway 221 and the CSX Transportation railroad lines are located east of the site and run north/south between McCormick, SC, and Augusta, GA. The site ranges in elevation from approximately 350 to 450 feet above msl. There are numerous stream valleys located within the site. The site is located in the Sumter National Forest and is covered with mixed upland forests. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 109°F and extreme lows have reached -2°F.

### *3.1.10 Site Mc-2*

Site Mc-2 is an undeveloped, greenfield site located in the southern portion of McCormick County, SC, along the southern shore of J. Strom Thurmond Lake, below the lake's dam (Figure 11). Site Mc-2 is about 9 miles northwest of Martinez, GA; 16 miles northwest of Augusta, GA; and about 27 miles northwest of Aiken, SC. The closest populated place to Site Mc-2, Clarks Hill, SC, is located about 2 miles to the northeast of the site and had a 2000 Census population of 376 people. State Highway 221 runs east/west along the northern boundary of the site. Highway 28 and CSX Transportation railroad lines are located along the eastern border of the site and run north/south between McCormick, SC, and Augusta, GA. The site consists of rough, forested terrain, with elevations ranging from approximately 250 to 450 feet above msl. There are numerous stream valleys located within the site. The site is located within the Sumter National Forest and is covered with mixed upland forests. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 109°F and extreme lows have reached -2°F.

### *3.1.11 Site Ne-1*

Site Ne-1 is an undeveloped, greenfield site located in the southern portion of Newberry County, SC, along the shores of the Saluda River (Figure 12). The site is located on a northern peninsula of the Lake Murray shoreline. Site Ne-1 is located about 35 miles west of Columbia, SC, and about 45 miles north of Aiken, SC. The closest populated place to Site Ne-1, Prosperity, SC, is located about 7 miles to the northeast of the site and had a 2000 Census population of 1,047 people State Highway 76 runs northwest/southeast and is located 7 miles northeast of the site. There are Norfolk Southern railroad lines located about 8 miles northeast of the site that run in a northwestern/southeastern direction between Greenwood, SC, and Newberry, SC. Site elevations range from approximately 350 to 450 feet above msl with moderately steep slopes on the eastern portion of the site. The site is primarily cropland and pasture with some forest and open water. Severe weather in the vicinity of the site includes tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 108°F and extreme lows have reached -8°F.

### *3.1.12 Site Ne-2*

Site Ne-2 is an undeveloped, greenfield site located in the southern portion of Newberry County, SC, less than two miles from the shores of the Saluda River (Figure 13). Site Ne-2 is about 45 miles north of Aiken, SC, and about 45 miles west of Columbia, SC. The closest populated place to Site Ne-2, Silverstreet, SC, is located about 3.5 miles to the east-northeast of the site and had a 2000 Census population of 216 people. State Highway 121 runs northwest/southeast approximately 2.7 miles northeast of the site. There are Norfolk Southern railroad lines located approximately 2 miles northeast of the site that run in a southwest/northeast direction to Newberry, SC. The site lies on high ground with elevations ranging from approximately 400 to 500 feet above msl. The site is a mixture of forest and cropland. Severe weather in the vicinity of the site includes tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 108°F and extreme lows have reached -8°F.

### *3.1.13 Saluda Site*

The Saluda Site is an approximately 800- to 900-acre undeveloped, greenfield property owned by SCE&G located in the northern portion of Saluda County (Figure 14). It is located on the Saluda River arm of Lake Murray at the confluence with Mill Creek. The Saluda Site is about 42 miles north of Aiken, SC, and about 43 miles west of Columbia, SC. The closest populated place to the Saluda Site, Silverstreet, SC, is located about 4 miles to the northeast of the site and had a 2000 Census population of 216 people. State Highway 121 runs along the eastern border of the site. State Highway 34 runs in a northwest/southeast direction approximately 2.7 miles and 1.4 miles northwest of the site, respectively. There are Norfolk Southern railroad lines located approximately 3 miles northeast of the site that run in a southwest/northeast direction to Newberry, SC. The Saluda Site is located on relatively high ground surrounded by fairly rough terrain with elevations ranging from approximately 400 to 500 feet above msl. The site is predominantly forested and has numerous stream valleys with slopes ranging from moderate to steep. Severe weather in the vicinity of the site includes tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 108°F and extreme lows have reached -8°F.

### *3.1.14 Site Wi-1*

Site Wi-1 is an undeveloped, greenfield site located in the southern portion of Williamsburg County, SC (Figure 15). Site Wi-1 is about 29 miles southeast of Goose Creek, SC; 36 miles northeast of Mount Pleasant, SC; and 40 miles northeast of Charleston, SC. The closest populated place to Site Wi-1, Jamestown, SC, is located about 3 miles to the south-southeast of the site and had a 2000 Census population of 97 people. State Highway 17 and CSX Transportation lines are located approximately 2.7 miles east of the site and run in a

northeastern/southwestern direction. The site is predominantly wetlands and is bordered on the south by the Santee River. It is located in a relatively flat area within the Santee Swamp with an average elevation of 20 feet above msl. The site's elevation is below the 100-year flood zone elevation. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds and hail. Extreme highs around the area have reached 104°F and extreme lows have reached 8°F.

### *3.1.15 Site Wi-2*

Site Wi-2 is an undeveloped, greenfield site located in the southwestern portion of Williamsburg County, SC, along the northern shore of the Santee River (Figure 16). Site Wi-2 is about 35 miles north of Summerville, SC; 36 miles southeast of Sumter, SC; and about 48 miles north of Charleston, SC. The closest populated place to Site Wi-2, Greeleyville, SC, is located about 6 miles to the north of the site and had a 2000 Census population of 452 people. State Highway 52 is located approximately 2.4 miles east of the site and runs in a north/south direction. State Highway 17 and CSX Transportation lines are located about 6 miles north of the site and run in a northwestern/southeastern direction between Manning, SC, and Lane, SC. The site is relatively flat with an average elevation of 30 feet above msl. The site's elevation is below the 100-year flood zone elevation. The majority of the site is forested with some wetlands and open water. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 104°F and extreme lows have reached 8°F.

## *3.2. Existing fossil-fired sites*

Three sites that currently have coal- or gas-fired facilities were evaluated in this siting study.

### *3.2.1 Cope Site*

The 1974 study evaluated a greenfield site located in Barnwell County, SC, across the South Fork Edisto River from the Cope Site. Because the original greenfield site has nearly identical characteristics to the Cope Site, and the Cope Site has existing transmission and railroad facilities, SCE&G evaluated the Cope site in this study. The Cope Generating Station is an SCE&G-owned 430-MWe coal-fired facility located in a sparsely populated, rural area of western Orangeburg County, SC (Figure 17). The South Fork Edisto River flows approximately 1 mile south of the existing power plant. The Cope Site is located about 42 miles southeast of Aiken, SC, and 45 miles southwest of Columbia, SC. The closest populated place to the Cope Site, Cope, SC, is located about 1.6 miles to the northeast of the site and had a 2000 Census population of 107 people. State Highway 301 runs north/south and is located east of the site. There are CSX Transportation railroad

lines that run to the Cope Generating Station. The site is located on relatively flat land with elevations ranging from approximately 150 to 175 feet above msl. The portion of the site that is not occupied by Cope Generating Station is a mixture of cropland, pasture, wetlands, and forest. The wetlands are limited almost entirely to the floodplain of the South Fork Edisto River and along Roberts Swamp Creek and Sam Branch. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 109°F and extreme lows have reached 2°F.

### *3.2.2 Jasper Site*

The Jasper Site was evaluated as a greenfield in the 1974 study. In 2003, SCE&G built an 875-MWe gas-fired facility on the site. The Jasper Generating Station is located in a sparsely populated, largely rural area of western Jasper County, SC (Figure 18). The Savannah River flows approximately 1 mile southwest of the existing power plant. The closest populated place to the Jasper Site, Hardeeville, SC, is located about 6 miles to the south-southeast of the site and had a 2000 Census population of 1,793 people. State Highway 321 runs north/south and is located approximately one mile east of the site. A CSX Transportation rail line that runs in a northeast/southwest direction between Ridgeland, SC, and Savannah, GA, is located approximately 5 miles east of the site. Two natural gas transmission pipelines enter the Jasper Site, one from the northeast and one from the northwest. The majority of the site not occupied by the Jasper Generating Station is forest with some wetlands and small amounts of croplands and pastures. Most of the wetlands are located along the western portion of the site, directly adjacent to the Savannah River. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 107°F and extreme lows have reached 2°F.

### *3.2.3 Wateree Site*

The Wateree Generating Station is a SCE&G-owned 700-MWe coal-fired facility located in the western portion of Richland County, SC, along the eastern bank of the Wateree River (Figure 19). The Wateree Site is about 17 miles southwest of Sumter, SC, and about 26 miles southeast of Columbia, SC. The closest populated place to the Wateree Site, Eastover, SC, is located about 5 miles to the northwest of the site and had a 2000 Census population of 830 people. McCords Ferry Road runs in a north/south direction and is located west of the site and intersects State Highway 378 north of the site. A railroad spur runs to the Wateree Site from a CSX Transportation Line that runs between Columbia, SC and Sumter, SC. A second railroad spur runs to the Wateree Site from a Norfolk Southern line that runs between Columbia, SC and Charleston, SC. The Congaree National Park is approximately 4 miles southwest of the site. The site elevation ranges from 90 to 150 feet above msl with the highest elevations located in the northwest portion of the site decreasing as it approaches the Wateree River. The portion of the site that is not occupied by Wateree Generating Station has equal portions of

forest, wetlands, and cropland or pasture. Severe weather in the vicinity of the site includes hurricanes, tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 107°F and extreme lows have reached 2°F.

## *3.3. Existing Federal Nuclear Site*

The SRS, the only Federal nuclear facility in SCE&G's service area, was evaluated in this siting study.

### *3.3.1 SRS Site*

The SRS site is an undeveloped site located in Aiken County, SC, within the Savannah River Site (SRS), a federal nuclear facility owned by the U.S. Department of Energy (Figure 20). The SRS site is about 17 miles south of Aiken, SC; about 25 miles southeast of Augusta, GA; and about 32 miles southeast of Martinez, GA. The closest populated place to the SRS Site, New Ellenton, SC, is located about 8.5 miles to the northwest of the site and had a 2000 Census population of 2,250 people. SRS is not open to the public, but specific access is permitted for guided tours, controlled hunts, and environmental studies. In addition, the public can traverse portions of the site along established transportation corridors, which includes a rail line corridor. These corridors include a rail line for CSX Transportation Inc. Railroad and road traffic are routed along State Route 125 (SRS Road A), Route 278, and SRS Road 1 near the northern edge of the site. Site elevation ranges from 250 to 350 feet above msl and the land cover is primarily forest. Severe weather in the vicinity of the site includes tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 111°F and extreme lows have reached -3°F.

## *3.4. Existing Commercial Nuclear Site*

The VC Summer Nuclear Station, the only existing commercial nuclear facility in SCE&G's service area, was evaluated in this siting study.

### *3.4.1 VCSNS*

The V. C. Summer Nuclear Station (VCSNS) Site is a SCE&G-owned 966-MWe nuclear facility located in southwestern portion of Fairfield County, SC (Figure 21). The VCSNS site is located on the east side of the Broad River and on the south shore of Monticello Reservoir. VCSNS is about 25 miles northwest of Columbia, SC, and 48 miles southwest of Rock Hill, SC. The closest populated place to the VCSNS Site, Peak, SC, is located about 3 miles to the south of the site and had a 2000 Census population of 61 people. State Highway 213 runs in a north/south direction west of the site. A railroad spur runs to the site from the Norfolk Southern Transportation line that runs between Columbia, SC, and Spartanburg, SC. The site is located on relatively high ground and surrounded by moderate to steep

slopes. Elevation ranges from approximately 300 to 450 feet above msl. The portion of the site that is not occupied by the nuclear power plant is predominantly forested and has numerous stream valleys. Severe weather in the vicinity of the site includes tropical storms, tornados, strong winds, and hail. Extreme highs around the area have reached 107°F and extreme lows have reached -1°F.

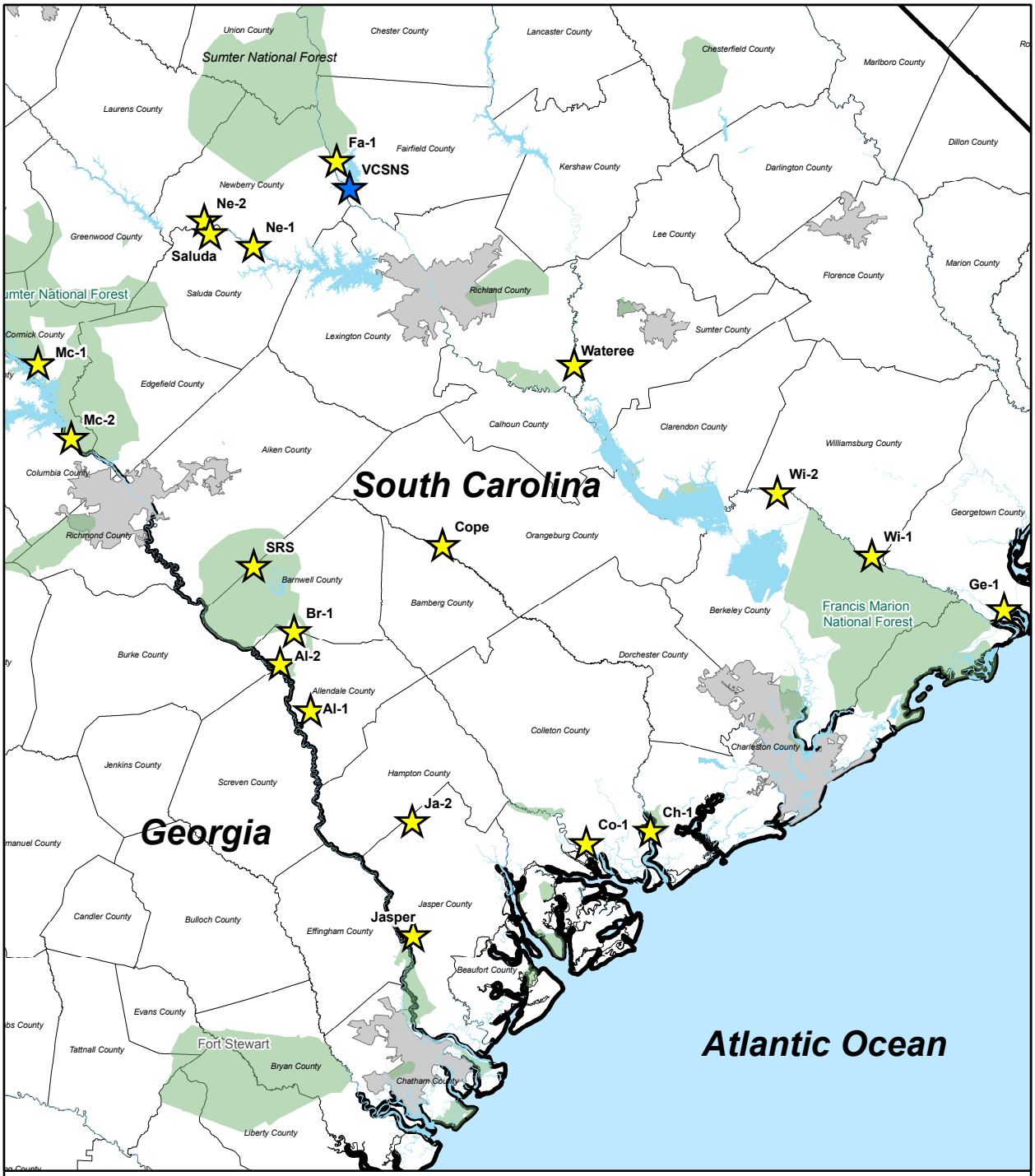


Figure 1: Potential Site Locations

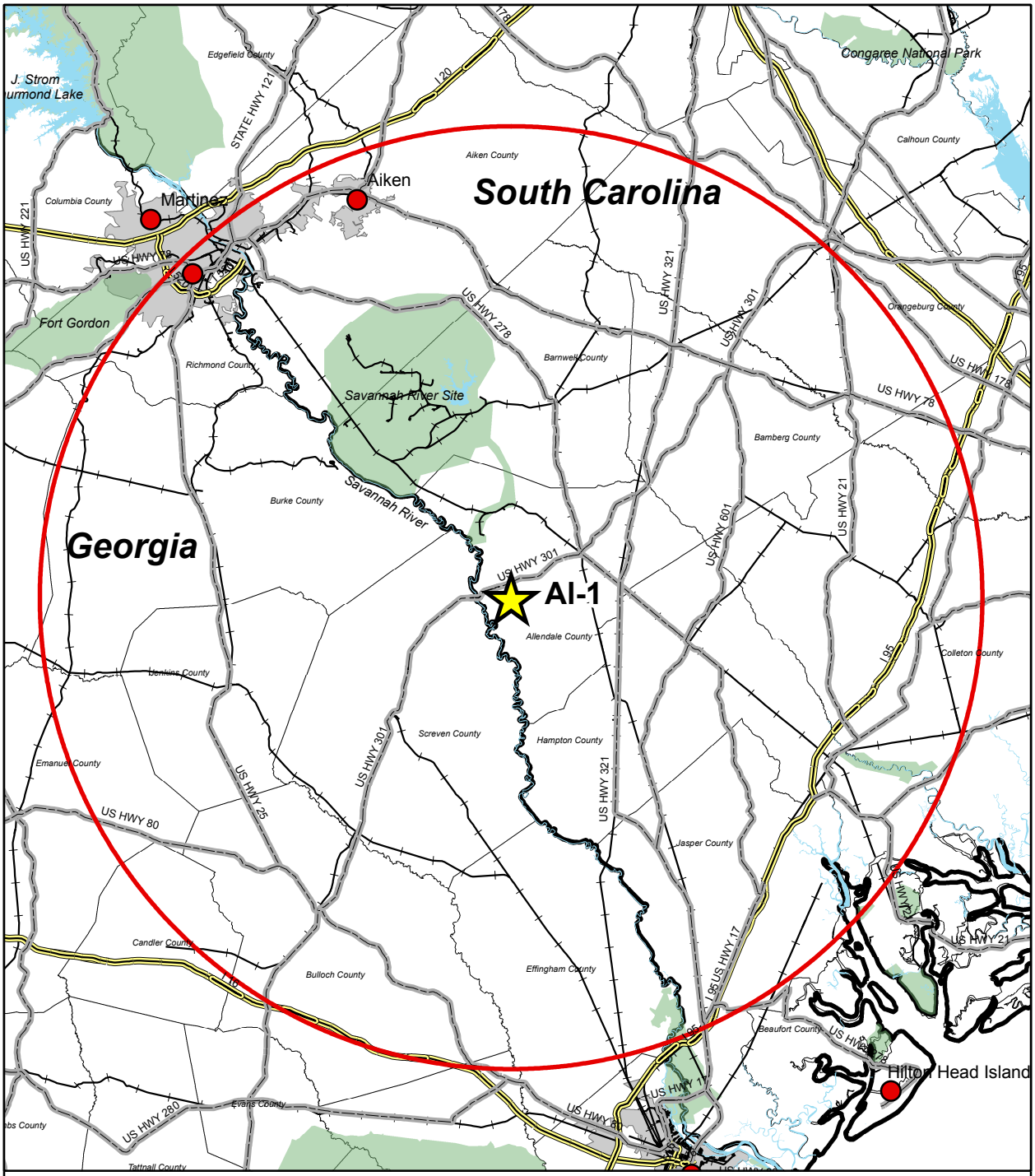


Figure 2: Site Al-1 Location

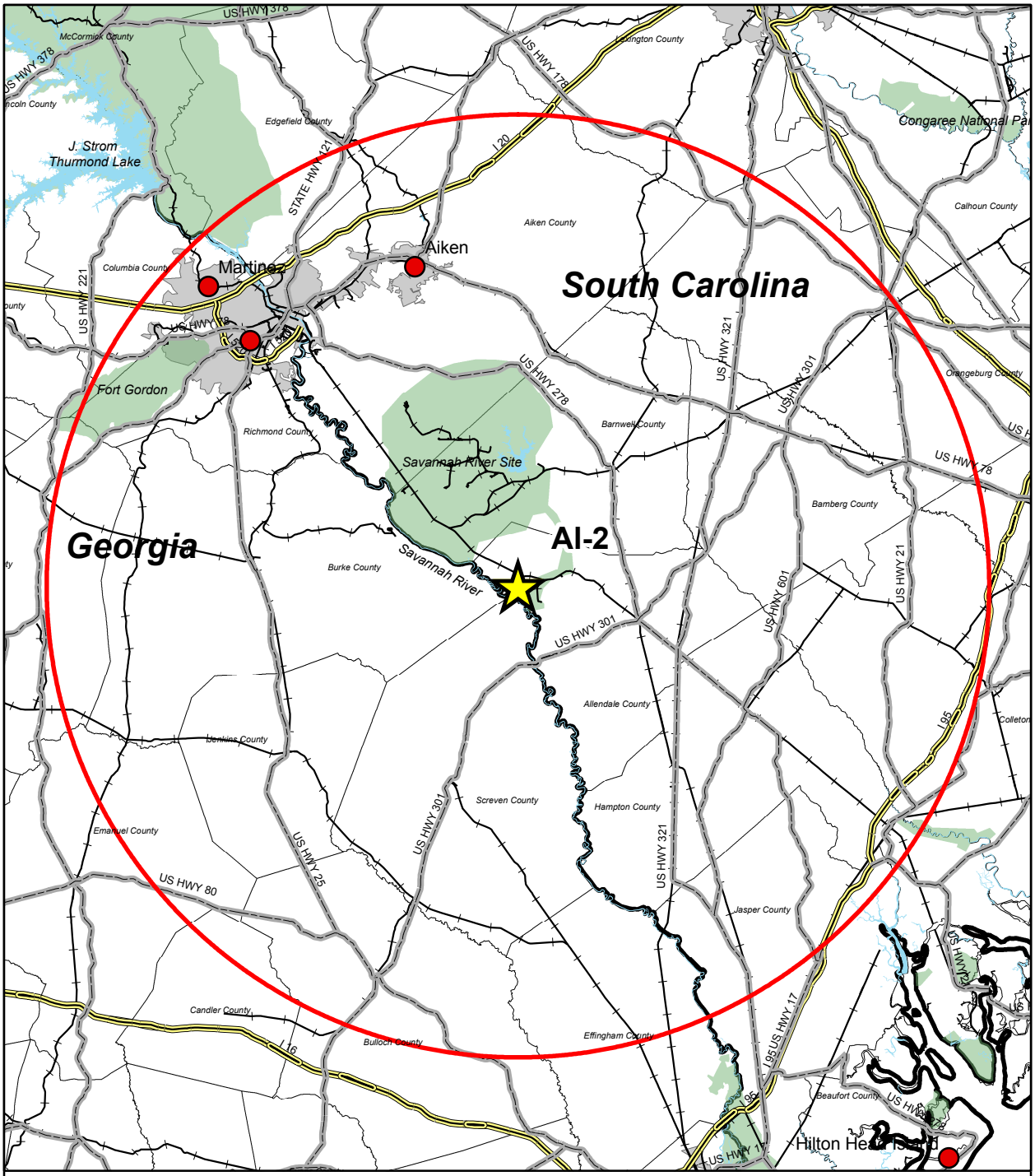


Figure 3: Site Al-2 Location

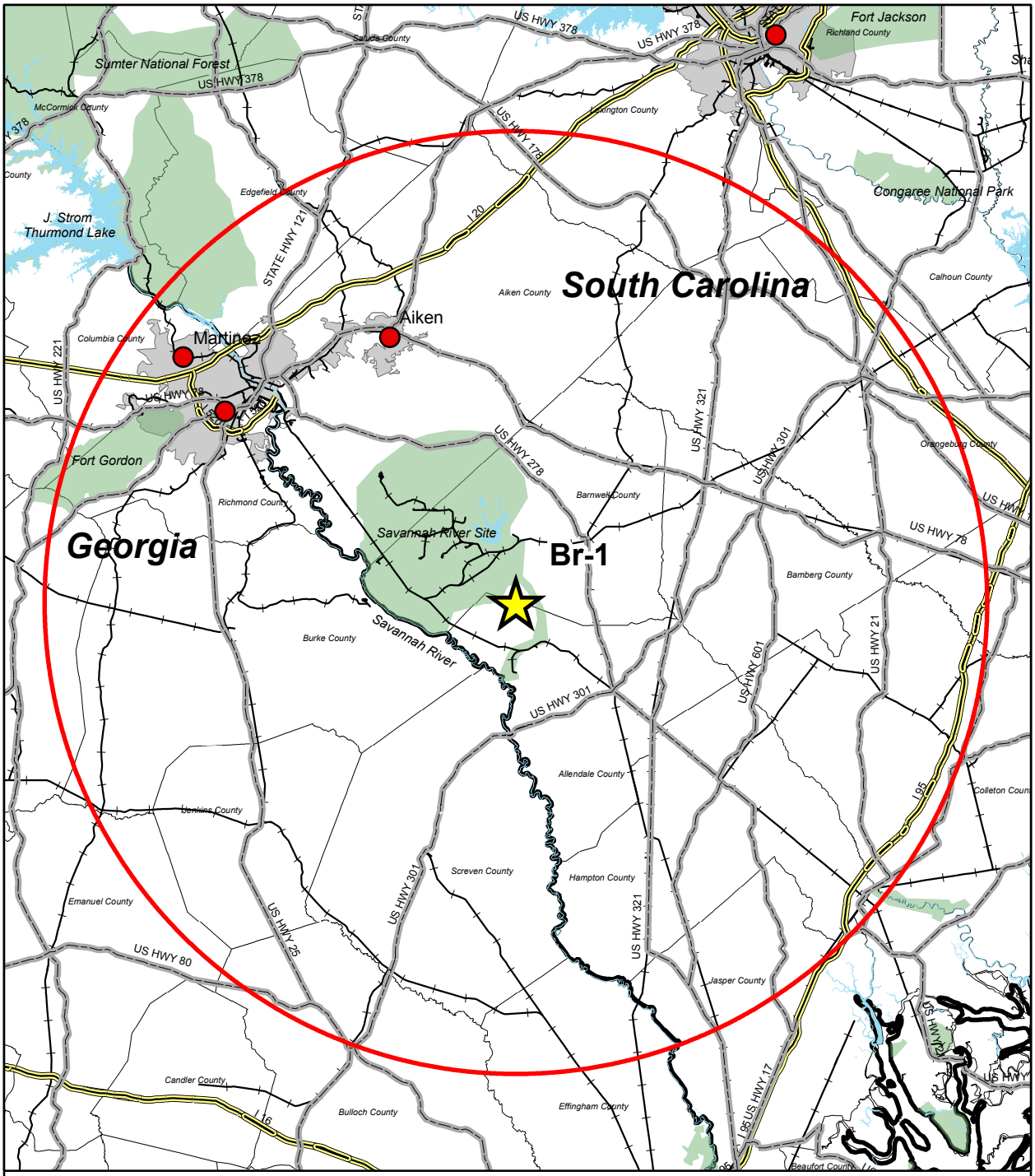


Figure 4: Site Br-1 Location

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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0 5 10 20 Miles


Figure 5: Site Ch-1

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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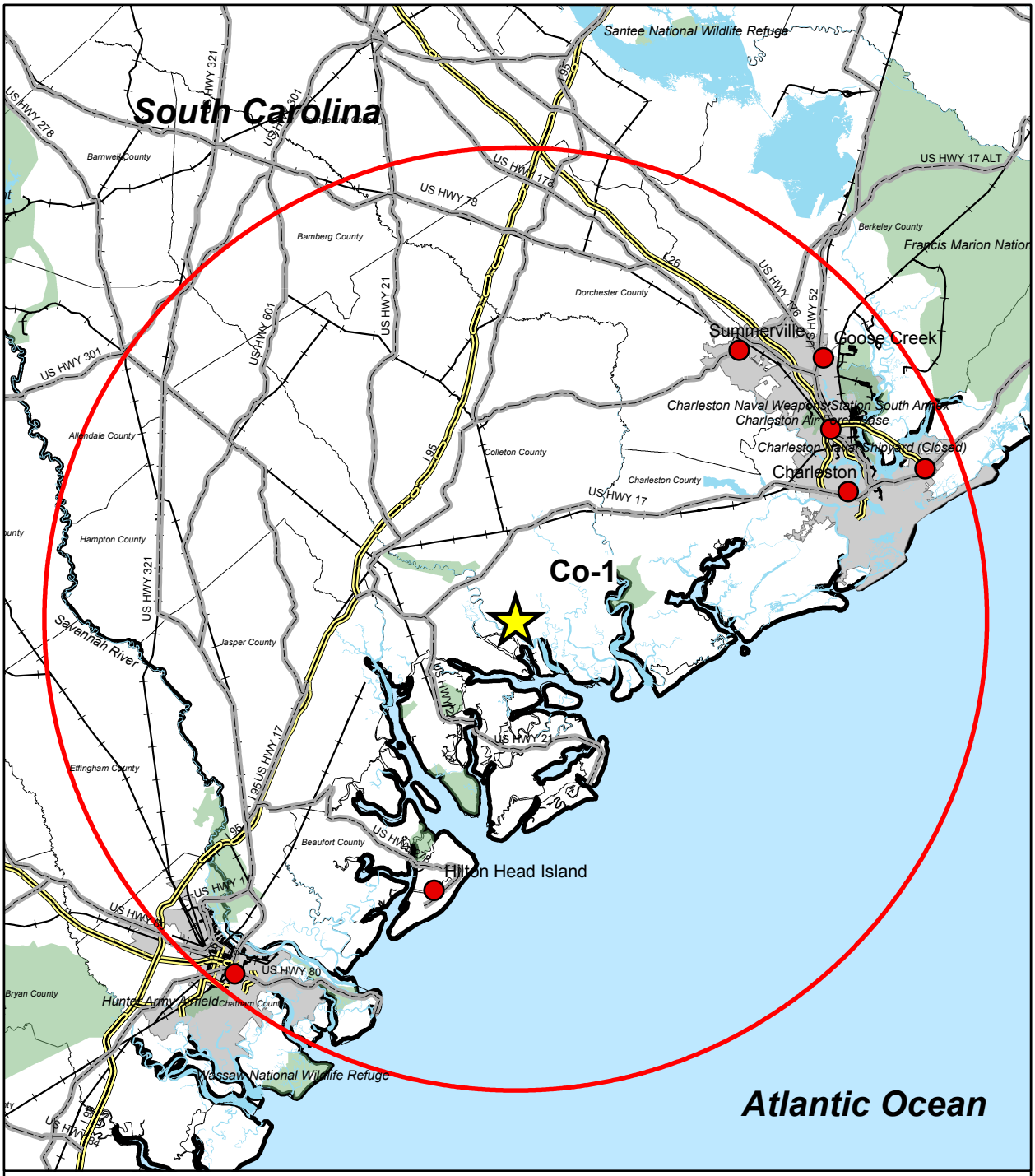


Figure 6: Site Co-1

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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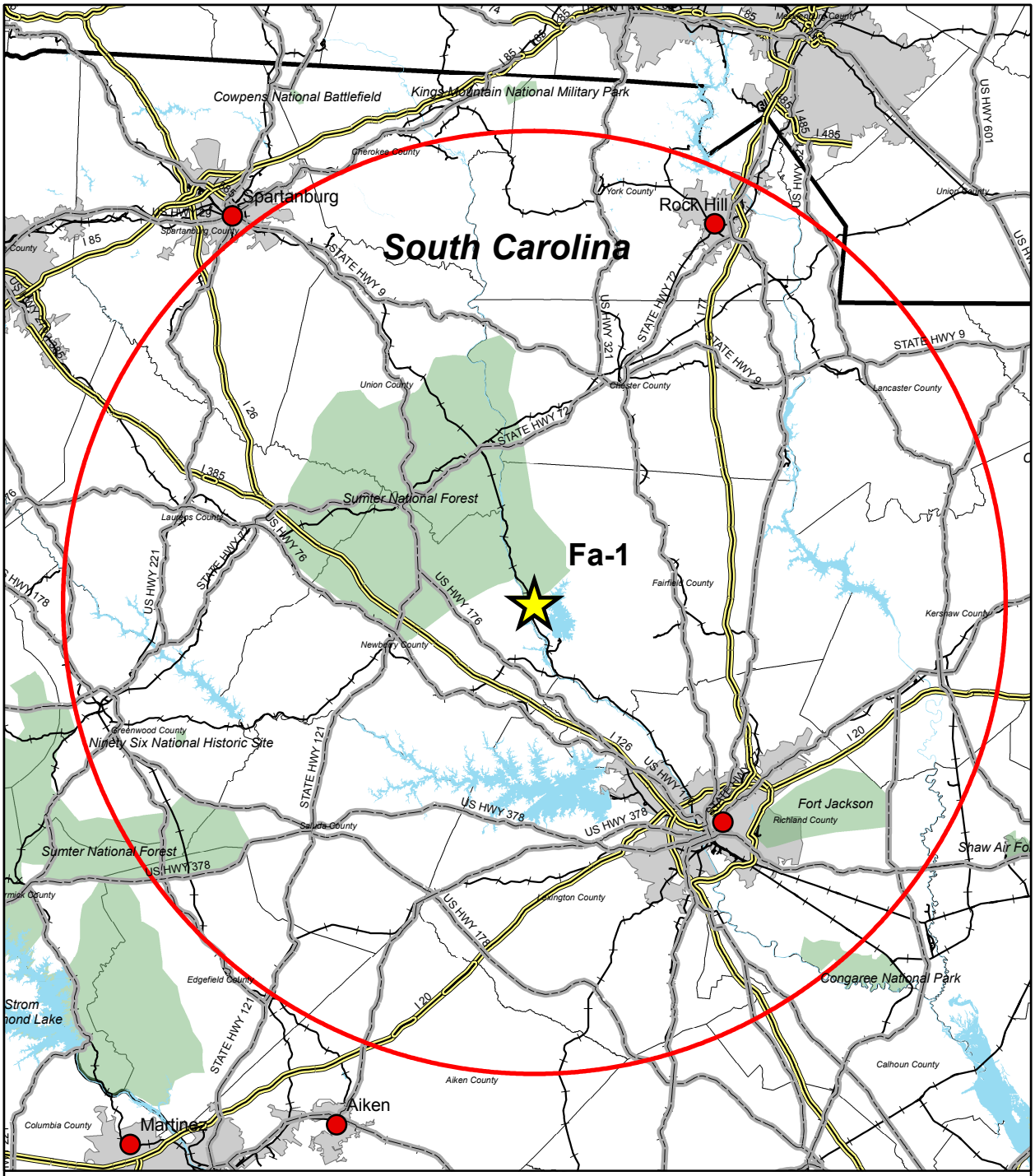



Figure 7: Site Fa-1 Location

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

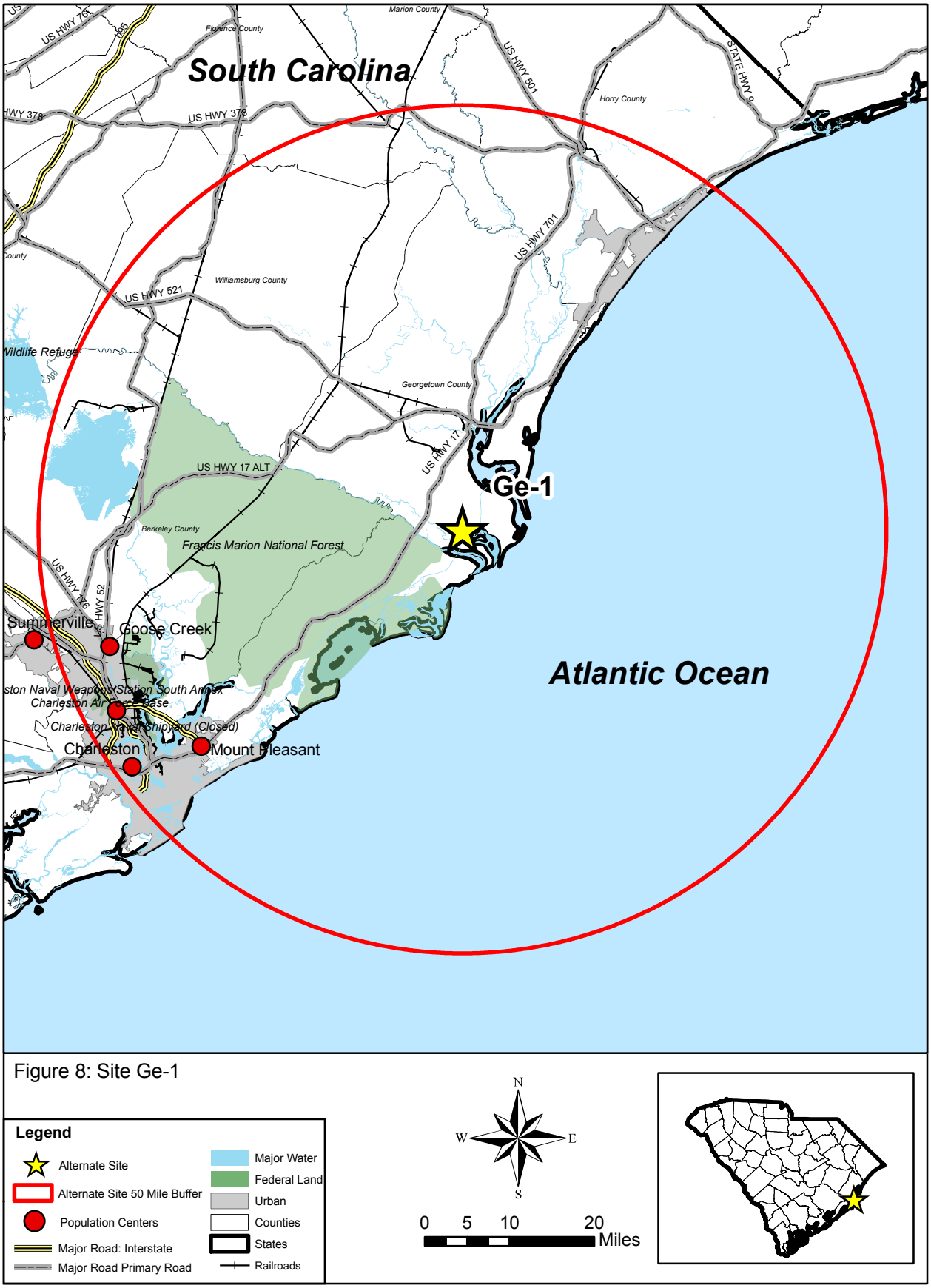



Figure 8: Site Ge-1

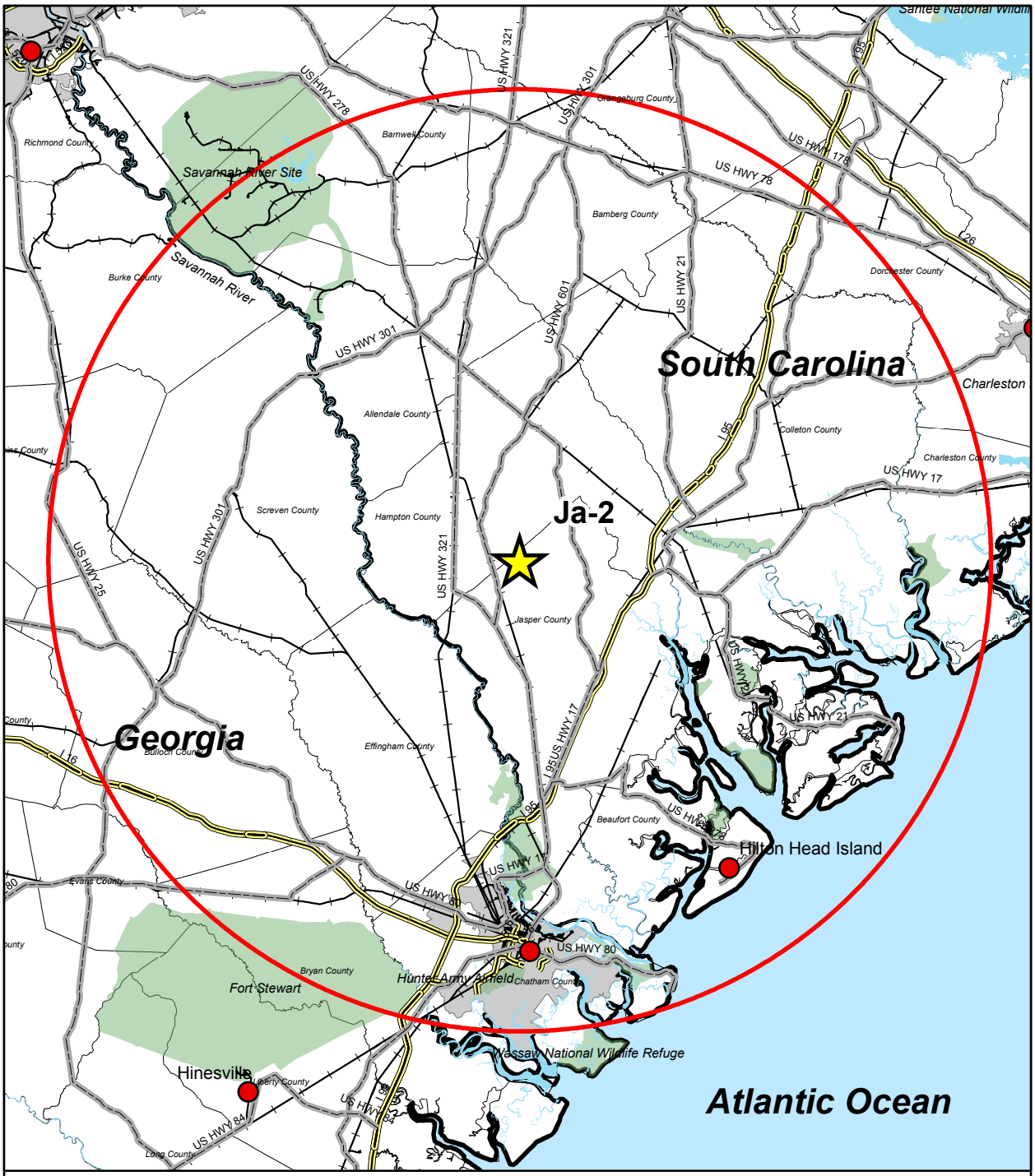



Figure 9: Site Ja-2 Location

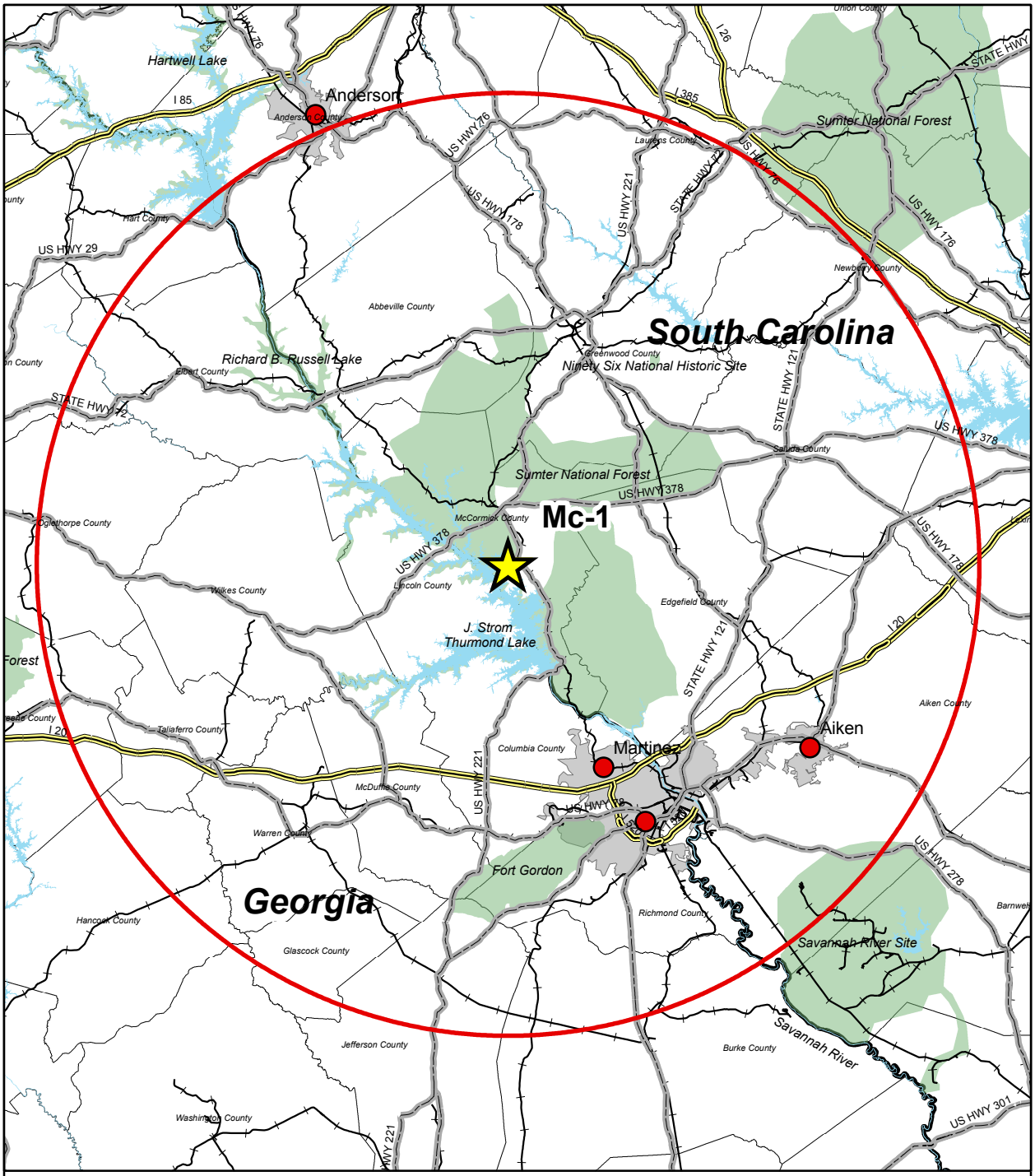
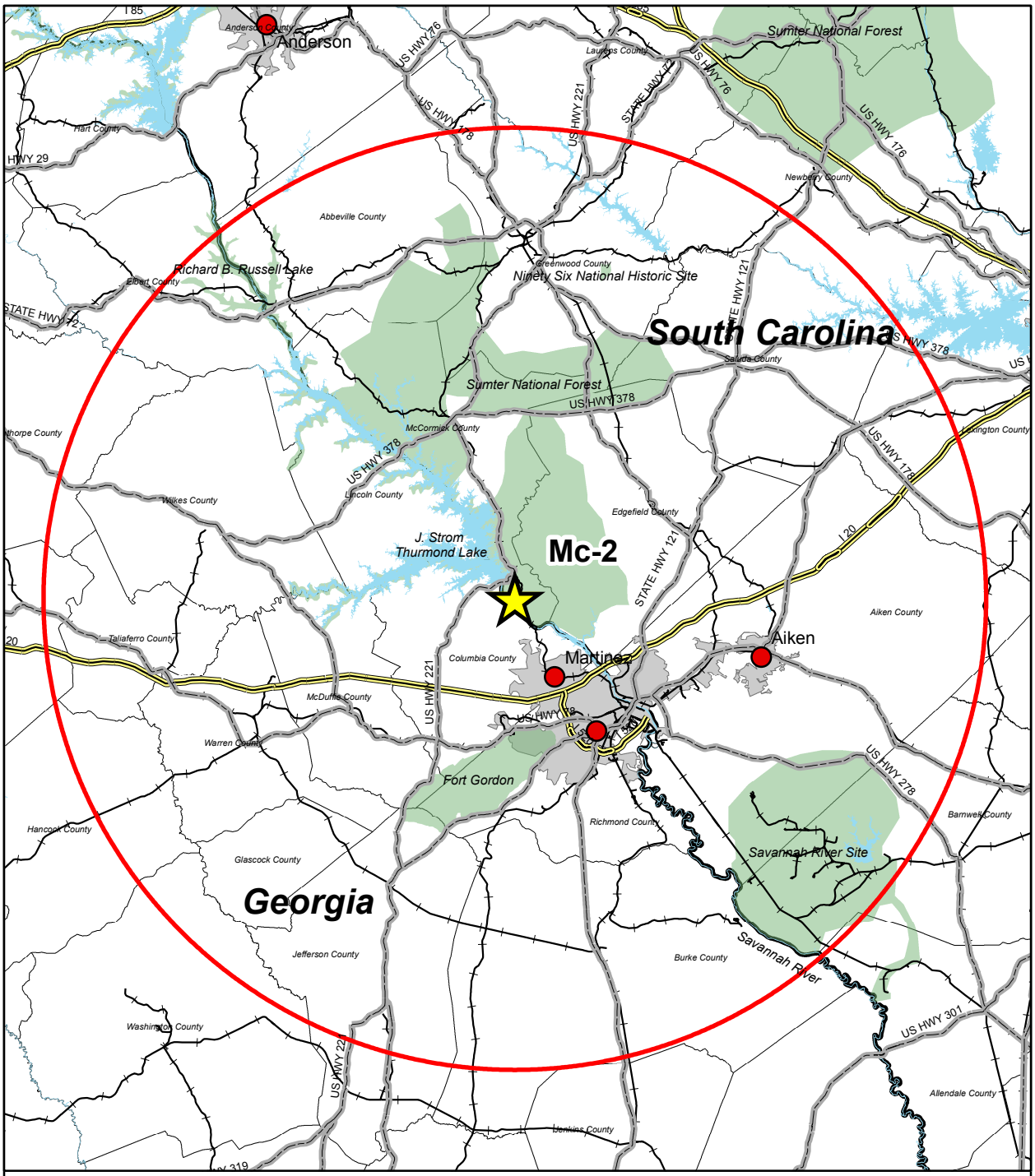



Figure 10: Site Mc-1 Location


Anderson
Sumter National Forest
Richard B. Russell Lake
Ninety Six National Historic Site
South Carolina
Sumter National Forest
J. Strom Thurmond Lake
Mc-2
Aiken
Martinez
Fort Gordon
Savannah River Site
Georgia
Savannah River
US HWY 76
US HWY 178
US HWY 221
STATE HWY 121
US HWY 176
US HWY 378
US HWY 278
US HWY 301
I 85
I 20
HWY 29
Anderson County
Hart County
Abbeville County
Greenwood County
Newberry County
Laurens County
Ebert County
Saluda County
McCormick County
Lincoln County
Wilkes County
Edgefield County
Aiken County
Columbia County
McDuffie County
Warren County
Richmond County
Barnwell County
Hancock County
Glascock County
Jefferson County
Burke County
Washington County
Allendale County
Figure 11: Site Mc-2 Location
Legend
Alternate Site
Alternate Site 50 Mile Buffer
Population Centers
Major Road: Interstate
Major Road Primary Road
Major Water
Federal Land
Urban
Counties
States
Railroads
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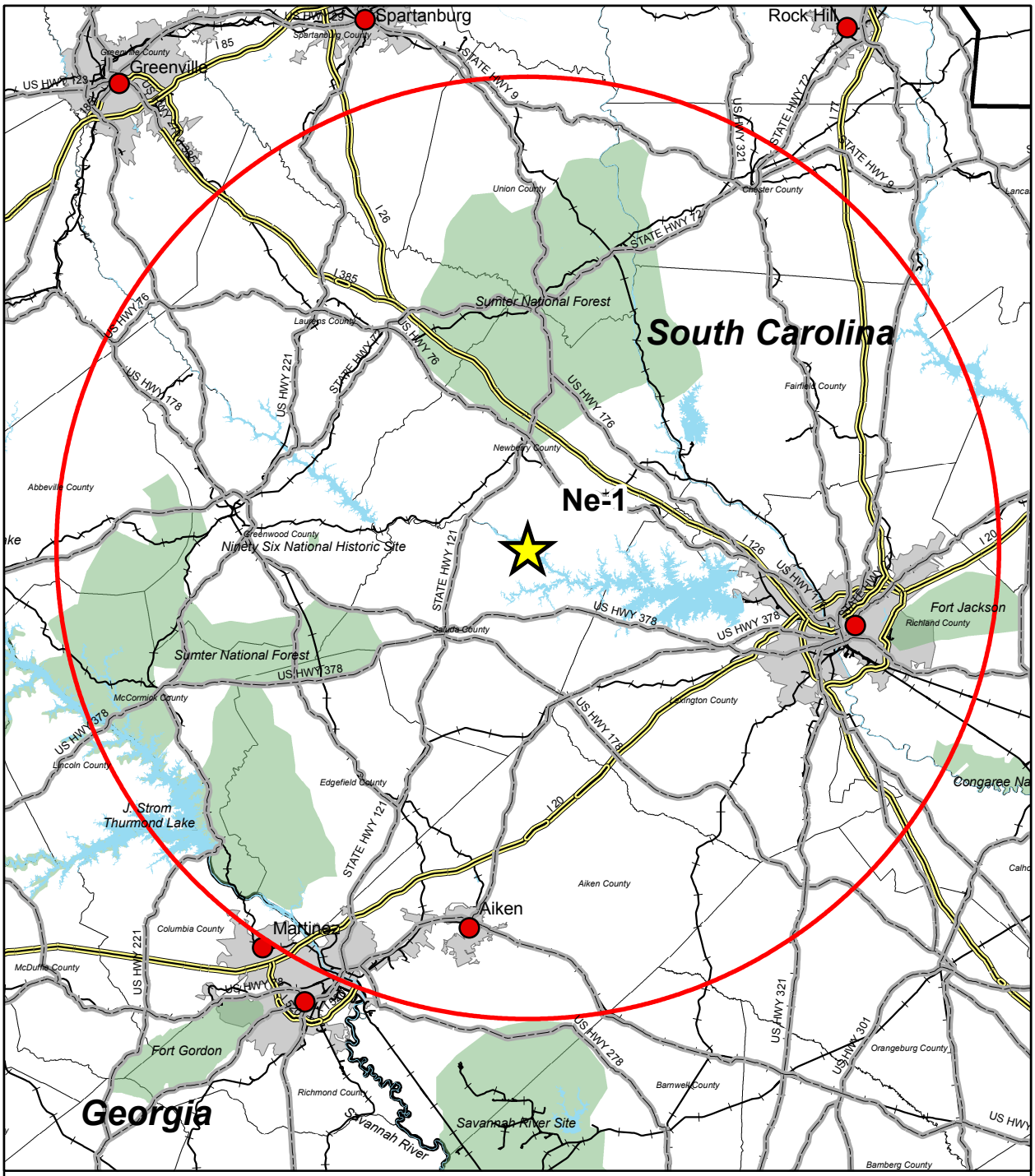


Figure 12: Site Ne-1 Location

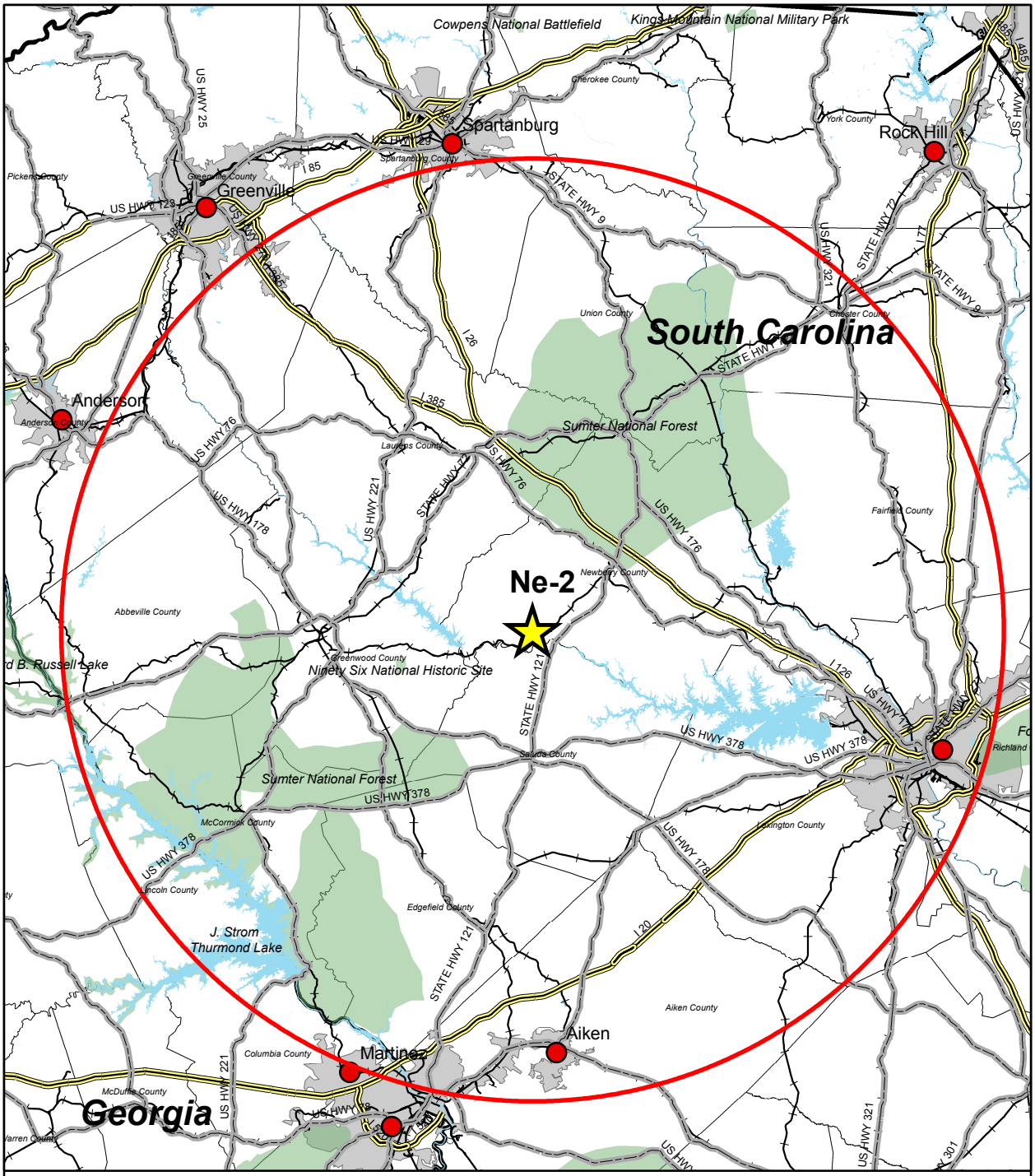


Figure 13: Site Ne-2 Location

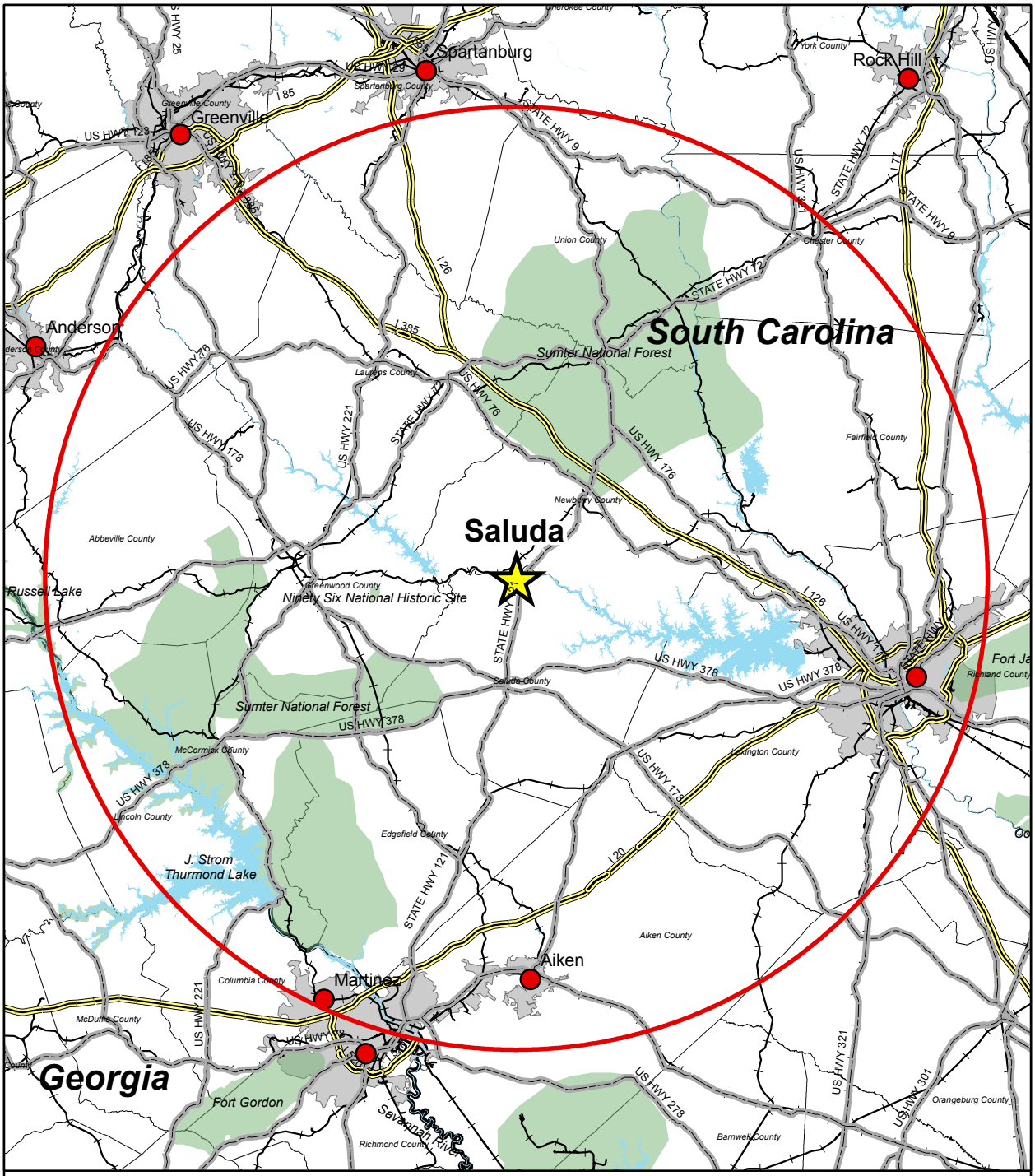


Figure 14: Saluda Site Location

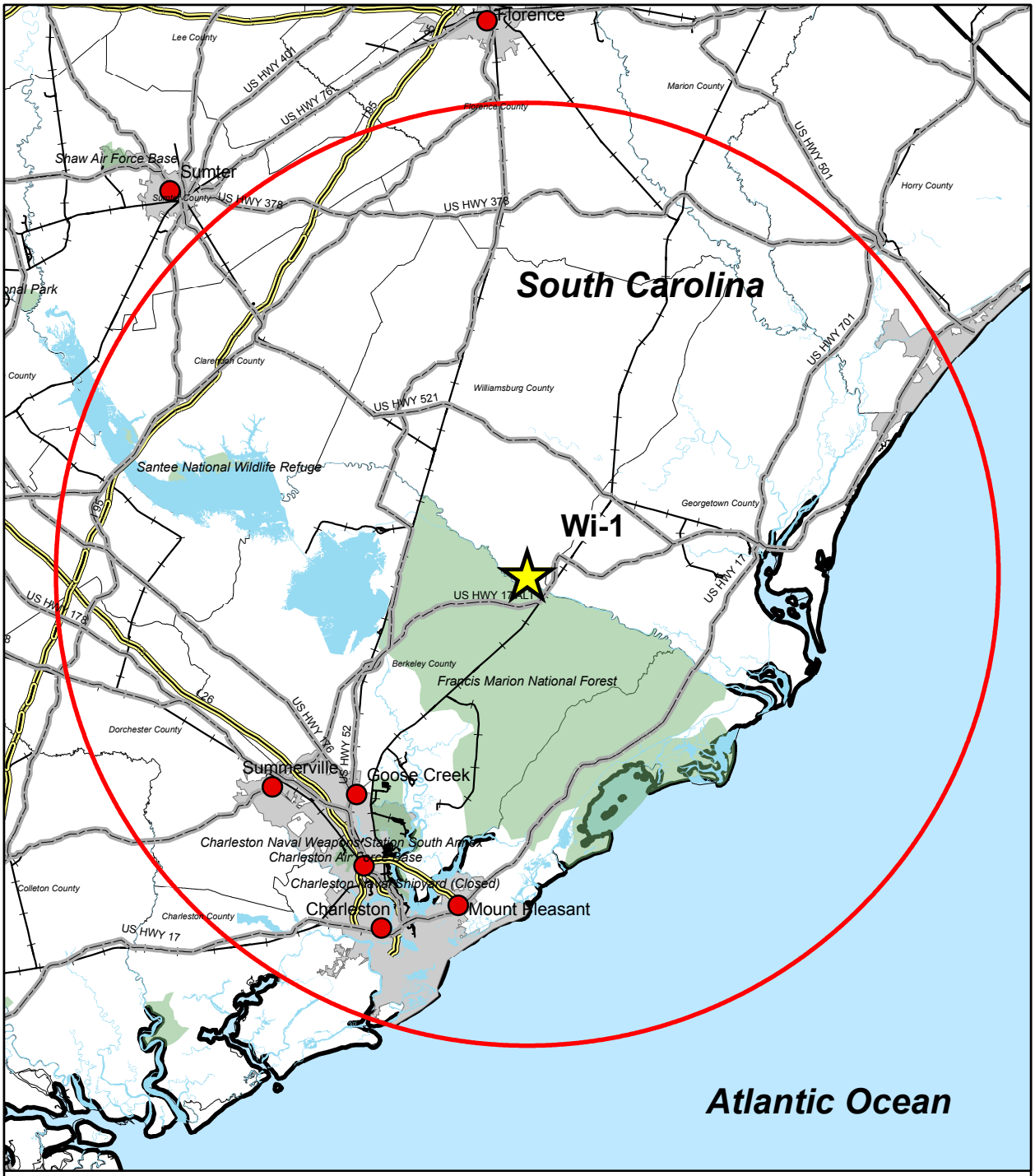


Figure 15: Site Wi-1

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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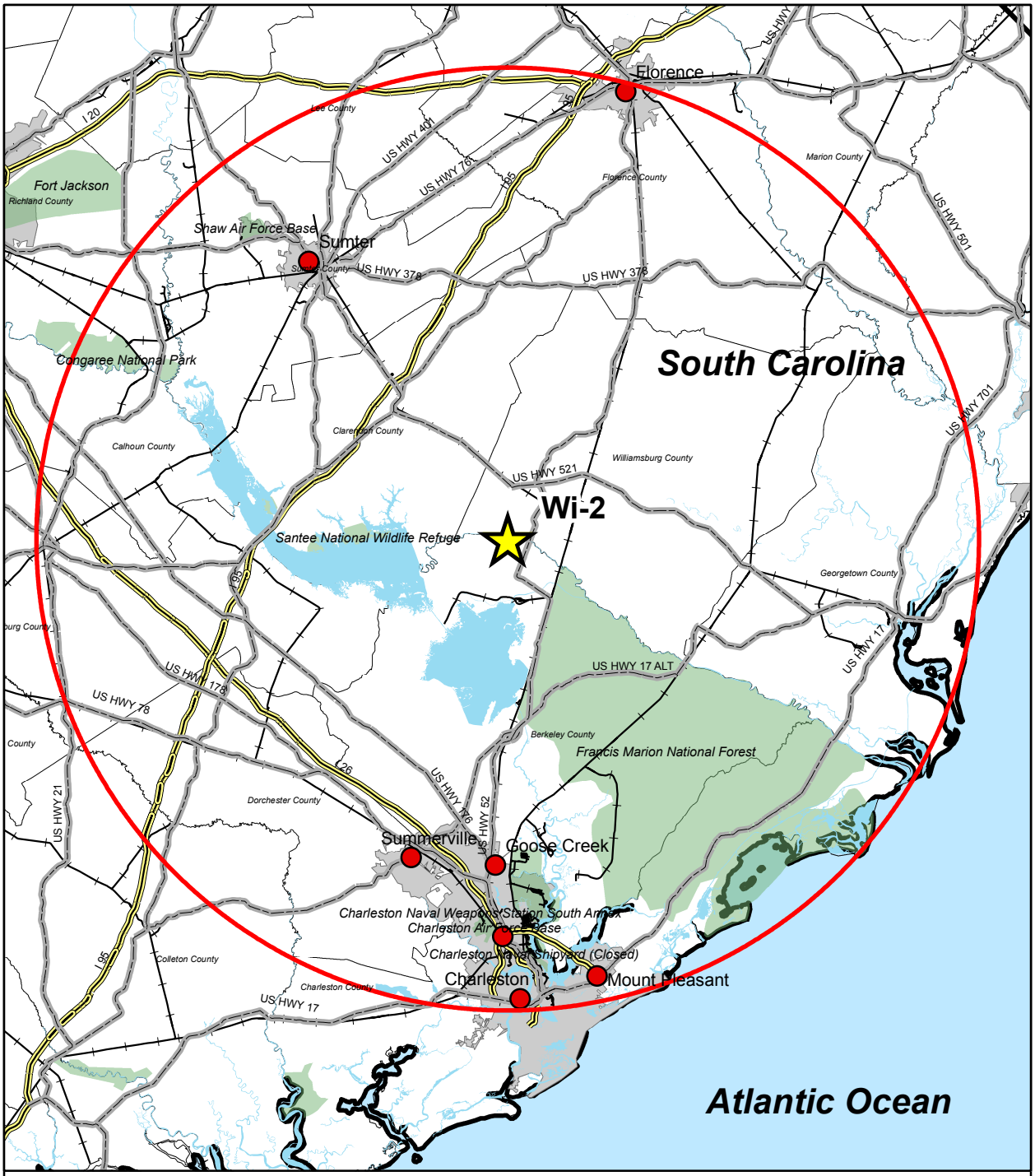


Figure 16: Site Wi-2

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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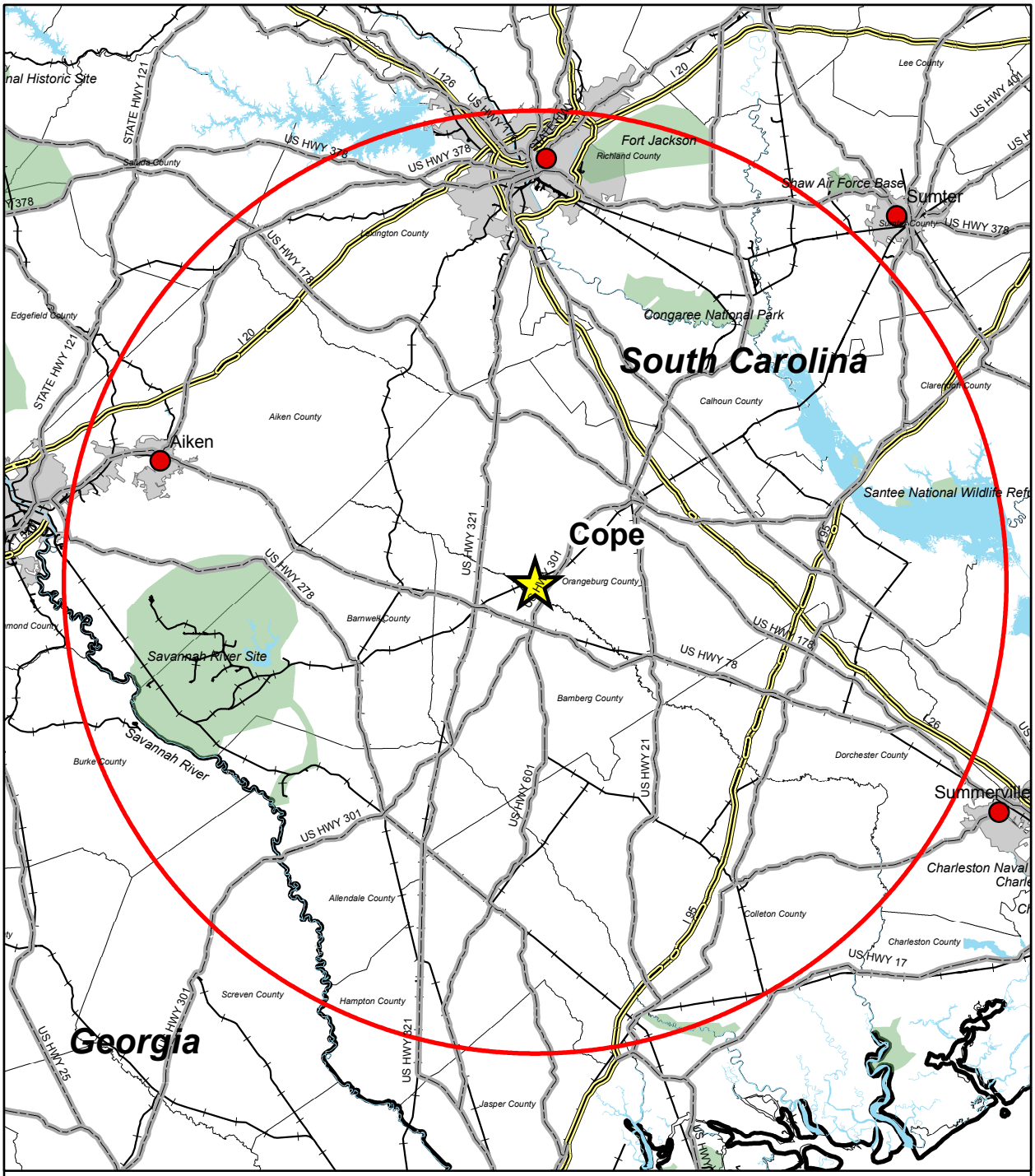


Figure 17: Cope Site

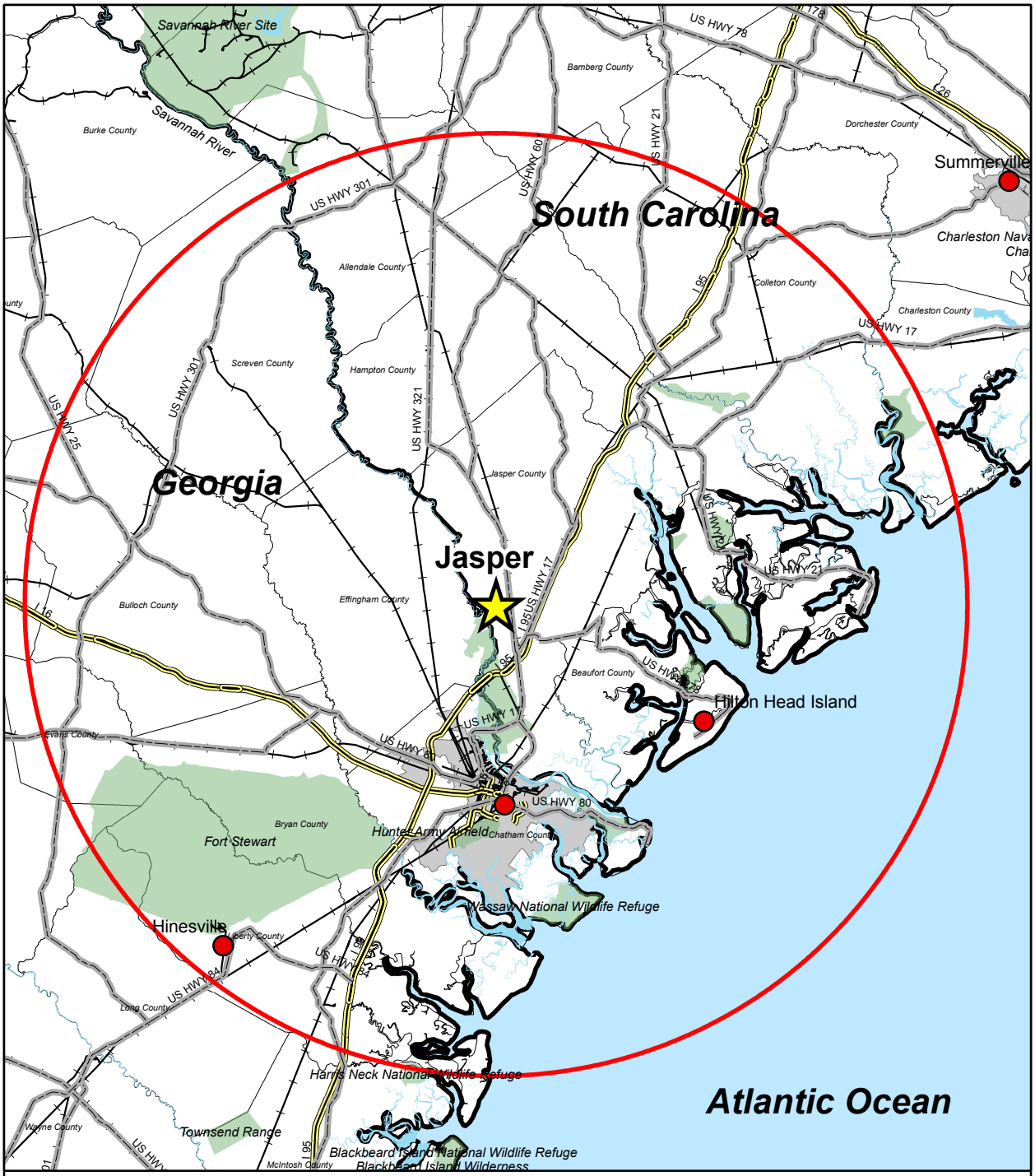


Figure 18: Jasper Site

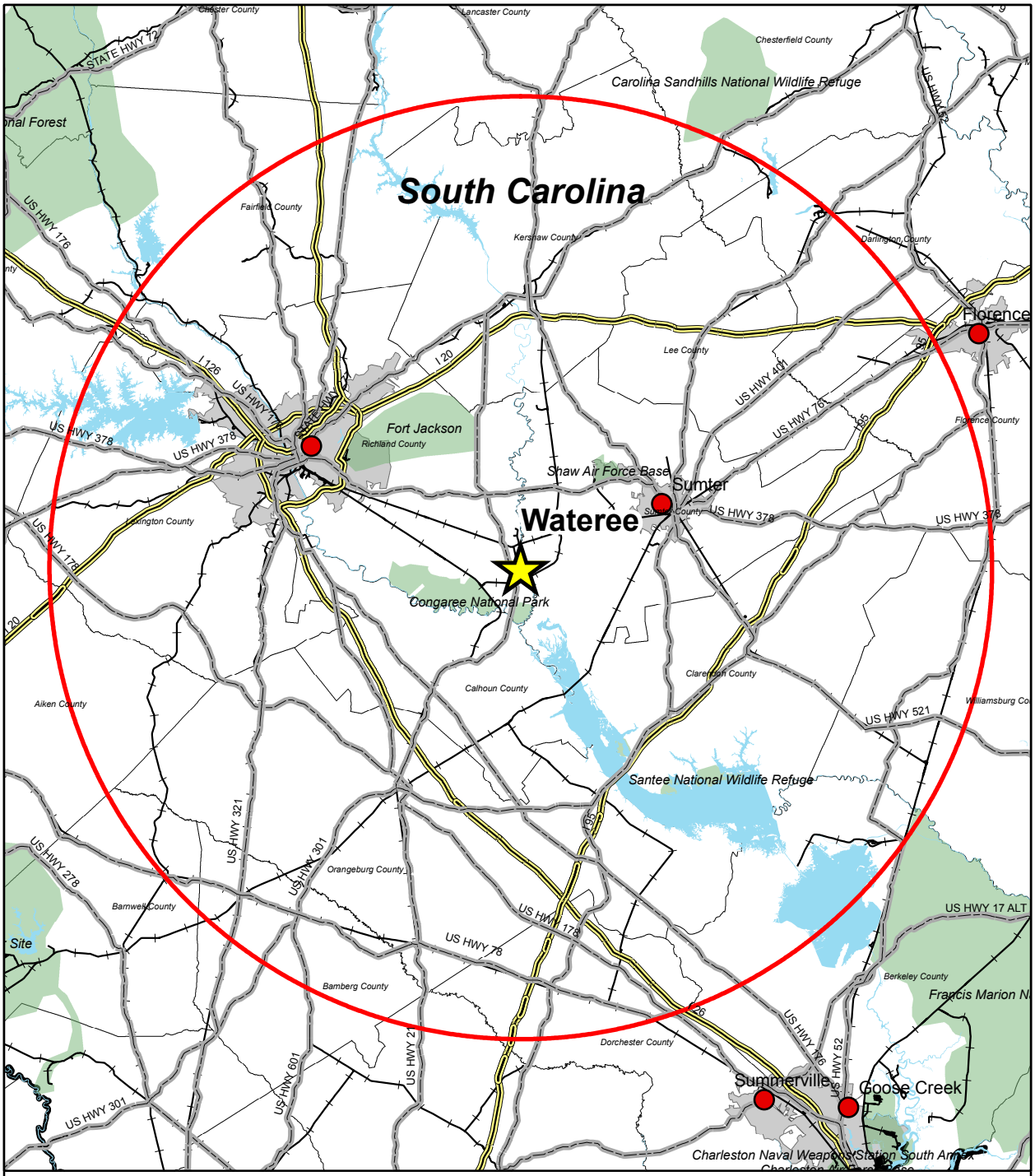


Figure 19: Wateree Site Location

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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0 5 10 20 Miles

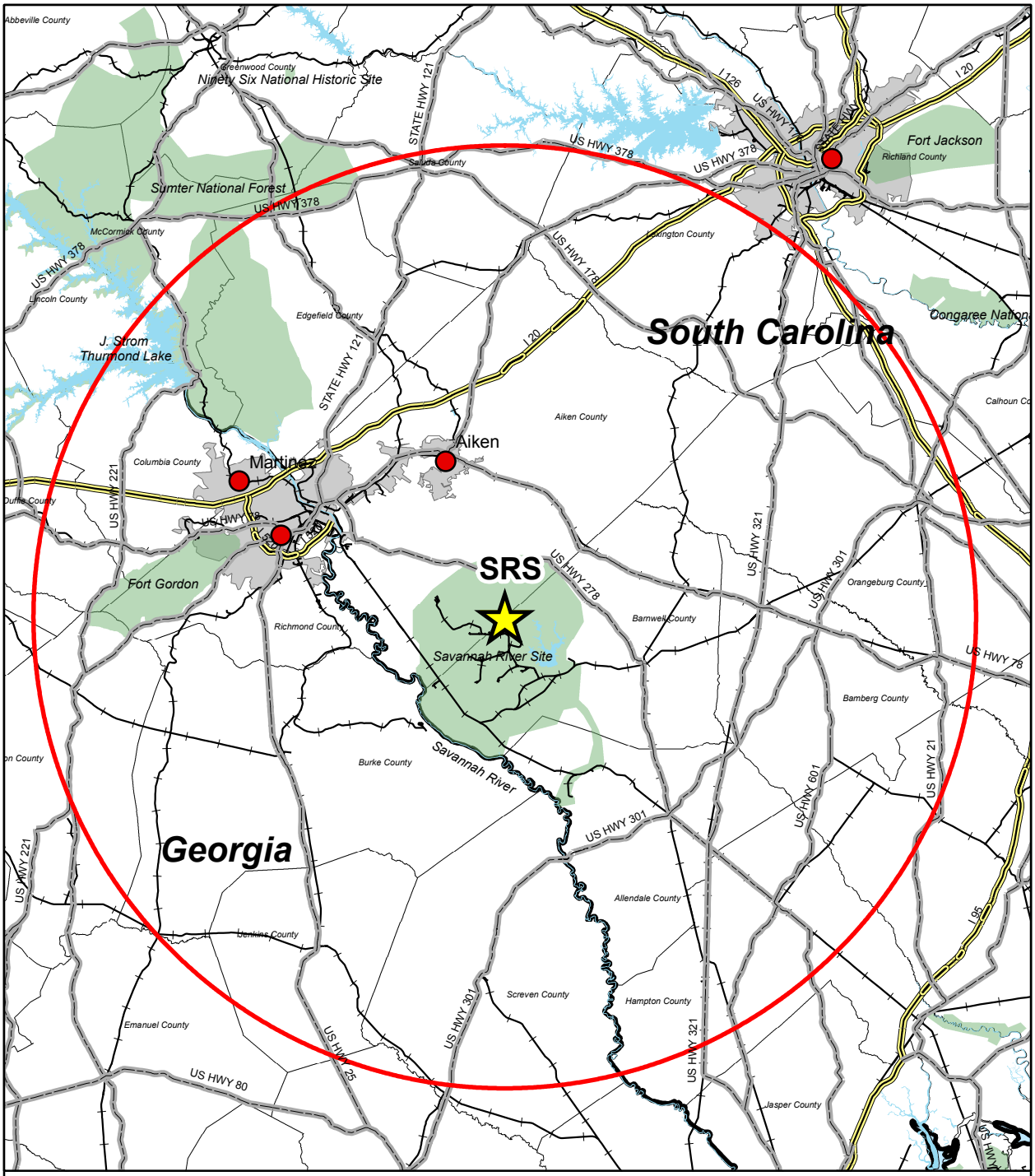


Figure 20: SRS Site Location

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

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W E
S

0 5 10 20 Miles

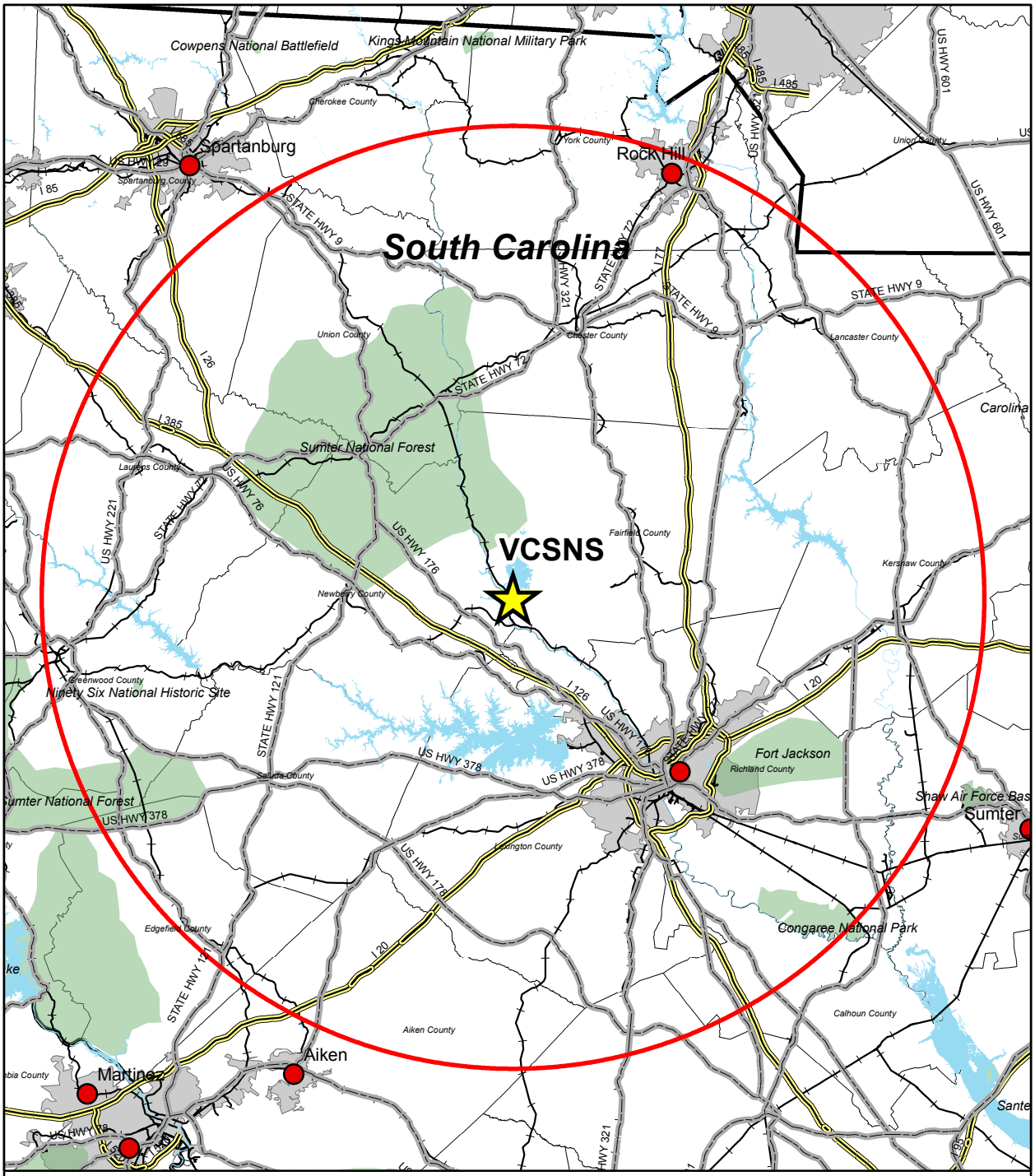


Figure 21: VCSNS Site

**Legend**

- Alternate Site
- Alternate Site 50 Mile Buffer
- Population Centers
- Major Road: Interstate
- Major Road Primary Road
- Major Water
- Federal Land
- Urban
- Counties
- States
- Railroads

# 4. Initial Data and Exclusions

As discussed in Section 2, all twenty potential sites were evaluated against exclusionary criteria to eliminate sites that have undesirable attributes. The exclusionary criteria are presented in Table 1.

Based on this evaluation, nine sites were eliminated from further consideration. The sites and the reasons for elimination are as follows:

- ***Site Ch-1***: This site was excluded based on the following criteria:
  - the peak ground acceleration is greater than 0.40 g
  - it is located within the 100-year flood elevation
  - it is located within the maximum probable hurricane storm surge
  - it is located within a National Wildlife Refuge
  - it has a large number of wetland areas that would be unavoidable

- ***Site Co-1***: This site was excluded based on the following criteria:
  - the peak ground acceleration is greater that 0.40 g

- ***Site Ge-1***: This site was exluded based on the following criteria:
  - the peak ground acceleration is greater than 0.40 g
  - it is located within the 100-year flood elevation
  - it is located within the maximum probable hurricane storm surge
  - the land cover is composed of unavoidable open water and wetlands

- ***Jasper Site:*** This site was excluded based on the following criteria:
  - the site is presently a natural gas plant; therefore, the number of gas lines surrounding the area would be unavoidable and would create a hazardous risk during construction.

- ***Site Mc-1:*** This site was excluded based on the following criteria:
  - the site is on land owned by the U.S. Forest Service, and although acquiring the land would be possible, the time frame for land acquisition through the U.S. Forest Service would not meet the time frame required for this project

- ***Site Mc-2:*** This site was excluded based on the following criteria:
  - the site is on land owned by the U.S. Forest Service, and although acquiring the land would be possible, the time frame for land acquisition through the U.S. Forest Service would not meet the time frame required for this project

- ***Wateree Site:*** This site was excluded based on the following criteria:
  - the site is located within 4 miles of the Congaree National Park

- ***Site Wi-1:*** This site was excluded based on the following criteria:
  - the peak ground acceleration is greater than 0.40 g
  - it is located within the 100-year flood elevation
  - the land cover is composed of unavoidable open water and wetlands

- ***Site Wi-2:*** This site was excluded based on the following criteria:
  - the peak ground acceleration is greater than 0.40 g
  - it is located within the 100-year flood elevation

| | | |
|---|---|---|
| **Geology/Seismology** | | |
| Vibratory Ground Motion | Peak Ground acceleration >0.40g at probability of exceedance of 2% in 50 years | |
| Capable Faults | **Distance from site (miles)** | **Fault length (miles)** |
| | 0 to 20 | ≥ 1 |
| | >20 to 50 | ≥ 5 |
| | >50 to 100 | ≥ 10 |
| | >100 to 150 | ≥ 20 |
| | >150 to 200 | ≥ 40 |
| **Hydrology** | | |
| Flooding | Elevation ≤ 100-year flood level<br>Elevation ≤ maximum probable hurricane storm surge (coastal areas) | |
| **Demographic** | | |
| Population Centers | **Population Center Size** | **Exclusionary Distance** |
| | 25,000 | 4 miles |
| | 100,000 | 10 miles |
| | 500,000 | 20 miles |
| | 1,000,000 | 30 miles |
| **Aquatic Ecology** | | |
| Disruption of Important Species/Habitats | Designated critical habitats for endangered species | |
| **Terrestrial Ecology** | | |
| Disruption of Important Species/Habitats | Designated critical habitats for endangered species | |
| Wetlands | Major Wetlands as shown on 1:250,000 scale topographic/National Wetlands Inventory maps | |
| **Land Use** | | |
| Construction/Operation Effects | Federal, state, and local protected areas<br>Areas within 10 miles of National Parks/Monuments | |
| Topography | Areas characterized as mountainous terrain (excessive relief) | |
| Hazardous Land Uses | Areas with a high density of hazardous land uses | |

**Table 1: Exclusionary Criteria**

# 5. Screening Level Evaluation of Candidate Sites

Screening level criteria developed from the EPRI Existing Site Criteria (Table 5.2 of the EPRI Siting Guide) were applied to the evaluation of the eleven remaining sites.

Each site was assigned a score of 1 (least suitable) to 5 (most suitable) for each of the criteria shown in Table 2. Discussion of each criterion and the rationale used to rate each site is discussed in sections 5.1 through 5.11. The source of the data and information used to rate each criterion is also discussed. Each criterion was assigned a weight factor according to its relative importance in siting a nuclear power plant. The weight factors used in this study were the same that were developed and used in the 2005 siting study (McCallum-Turner 2005). Weight factors assigned ranged from 1 (least important) to 10 (most important) as shown in Table 2. Site criterion weighted scores were calculated using the criterion site score and the weight factor (Criterion Site Score * Weight = Weighted Score). The weighted scores were then summed to calculate the site score. The site scores provide insight into the overall suitability of each site. Results of the screening level criterion evaluation are presented in Table 28 of Section 5.11.

| Criterion | Weight Factor |
|---|---|
| Cooling Water Supply | 9.8 |
| Flooding | 4.4 |
| Population | 8.6 |
| Hazardous Land Uses | 5.9 |
| Ecology | 5.6 |
| Wetlands | 5.6 |
| Railroad Access | 6.7 |
| Transmission Access | 7.4 |
| Geology/Seismic | 9.8 |
| Land Acquisition | 6.3 |

**Table 2: Criterion Score Weight Factors**

## *5.1. Cooling Water Supply*

### *5.1.1 Criterion Evaluation*

Cooling system requirements are important siting considerations for new power-generating facilities. The objective of this criterion is to rate the candidate sites with respect to their ability to satisfy specific cooling system requirements. The evaluation of adequacy of water supply is based upon comparisons between the design basis water consumption rate for the facility and 1) site-specific average flow (when regulated or on reservoirs) for each site; and 2) low-flow conditions of the water body.

The US Geological Survey compiles data on the 7-day average low-flow for a recurrence interval of 10 years (7Q10), 7-day minimum flow for the drought year 2002, and the average flow for streams and rivers throughout the US. 7Q10 and 7-day minimum data from typical streams in the Carolinas were plotted on a graph with ranges of 0 to 900 cfs and 0 to 450 cfs, respectively. The graph was inspected for inherent divisions that were used to define the score numbers shown in Table 3.

Sites located on both an existing lake/reservoir and a river were given the highest ranking of 4 because these sites would theoretically have the most cooling water supply. Sites located on only an existing lake/reservoir were given a score of 3 and sites located on only a river were given a score of 2. These scores are shown in Table 3.

A twin-unit AP1000 plant with a closed-loop cooling water system requires approximately 31,100 gpm (69 cfs) of makeup water. A common assumption noted in EPRI Siting Guide is that states typically do not permit more than 10 percent of the “dependable flow” to be withdrawn for consumptive use. This equates to a “10x” water source requirement of 690 cfs that was used as a midpoint (a score of 3) for scoring the sites. Sites with water sources that could provide more than 690 cfs were ranked higher than sites that could not and would require makeup water from other sources. For lakes and reservoirs, the comparison considers the type of reservoir (capacity, and ability to maintain reservoir levels) as well as historic average and low flow rates. For sites with both a lake/reservoir and a river option, the higher score was used.

The cooling water supply sub-criterion scores were averaged to calculate the overall criterion score.

| Sub-Criterion | Cooling Water Supply Evaluation Criteria | Score |
|---|---|---|
| 7Q10 in cfs | > 800 | 5 |
| | 550 to 799 | 4 |
| | 400 to 549 | 3 |
| | 200 to 399 | 2 |
| | < 200 | 1 |
| 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 | 5 |
| | 250 to 349 | 4 |
| | 150 to 249 | 3 |
| | 75 to 149 | 2 |
| | <75 | 1 |
| Lake or River | Site is located on both a Lake/Reservoir and River | 4 |
| | Site is located on an existing lake or reservoir | 3 |
| | Site is located on a river | 2 |
| Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir | 5 |
| | > 5000 cfs or > 5000 acre reservoir | 4 |
| | > 690 cfs (minimum) or > 2500 acre reservoir | 3 |
| Distance to Water Source | < 1.5 miles | 5 |
| | 1.5 to 2.9 miles | 4 |
| | 3 to 4.9 miles | 3 |
| | 5 to 6.9 miles | 2 |
| | ≥ 7 miles | 1 |

**Table 3: Cooling Water Supply Center Scores**

### *5.1.2 Site AI-1*

Site AI-1 is approximately 3.2 miles east of the Savannah River. The Burtons Ferry Bridge gauging station (02197500) is the closest gauging station to Site AI-1. For the period 1940–2007, the average flow at the Burtons Ferry Bridge gauging station was 10,180 cfs and the 7-day minimum flow in drought year 2002 was 4,040 cfs. The 7Q10 at the Augusta gauging station (02197000), which is located more than 30 miles upstream of the site, is 3,746 cfs (USGS 2007). Although the Augusta gauging station is a large distance away from the site, the magnitude of the 7Q10 flow at the Site AI-1 intake would likely be similar to the 7Q10 flow at the Augusta gauging station. Site AI-1 received a criterion score of 3.8.

### *5.1.3 Site AI-2*

Site Al-2 is approximately 2 miles northeast of the Savannah River. The Burtons Ferry Bridge gauging station (02197500) is the closest gauging station to Site Al-2. For the period 1940–2007, the average flow at the Burtons Ferry Bridge gauging station was 10,180 cfs and the 7-day minimum flow in drought year 2002 was 4,040 cfs. The 7Q10 at the Augusta gauging station (02197000), which is located more than 30 miles upstream of the site, is 3,746 cfs (USGS 2007). Although the Augusta gauging station is a large distance away from the site, the magnitude of the 7Q10 flow at the Site Al-2 intake would likely be similar to the 7Q10 flow at the Augusta gauging station. Site Al-2 received a criterion score of 4.

### *5.1.4 Site Br-1*

Site Br-1 is approximately 8.4 miles northeast of the Savannah River. The Burtons Ferry Bridge gauging station (02197500) is the closest gauging station to Site Br-1. For the period 1940–2007, the average flow at the Burtons Ferry Bridge gauging station was 10,180 cfs and the 7-day minimum flow in drought year 2002 was 4,040 cfs. The 7Q10 at the Augusta gauging station (02197000), which is located more than 30 miles upstream of the site, is 3,746 cfs (USGS 2007). Although the Augusta gauging station is a large distance away from the site, the magnitude of the 7Q10 flow at the Site Br-1 intake would likely be similar to the 7Q10 flow at the Augusta gauging station. Site Br-1 received a criterion score of 3.6.

### *5.1.5 Cope Site*

The South Fork Edisto River, which flows through the Cope site approximately 1 mile south of the existing power plant, Cope Generating Station (CGS), is used as a backup source of water for CGS. The amount of water consumed from the river, when needed, is about 4 percent of the normal river flow (SCE&G 2006). The 7-day minimum in drought year 2002 was 91 cfs at nearby gauging station 02173030 near Cope, South Carolina (USGS 2007). The average flow of the South Fork Edisto River at the Cope gauging station is 694 cfs for the period of 1991–2007. The 7Q10 at the Denmark, South Carolina, gauging station (02173000), which is located approximately 6.5 miles upstream of the Cope Site, is 200 cfs (USGS 2007). SCE&G assumed that the proposed project at CGS would withdraw make-up water from on-site wells with the South Fork Edisto River used as a backup water supply. The Cope site received a criterion score of 2.8.

### *5.1.6 Site Fa-1*

Site Fa-1 is approximately 1.3 miles from the western shore of the Monticello Reservoir, 1.7 miles from the northern end of Parr Reservoir, and 0.7 miles from the eastern bank of the Broad River. The Monticello Reservoir is a 6,500-acre impoundment built to supply cooling water to the existing power plant and to provide an upper reservoir for the Fairfield Pumped Storage Facility (FPSF). Previous studies indicate that the Monticello Reservoir can provide 2,160 cfs for

cooling of two once-through plants even though only one was constructed at the VCSNS site. Cooling water is withdrawn for the existing VCSNS at a rate of 1,143 cfs; it is then passed through the condensers and is ultimately returned to Monticello Reservoir. Monticello Reservoir has no net recharge, so loss from evaporation is made up from water pumped from the Broad River. Monticello Reservoir storage capacity is about 380,000 acre-feet. This volume of stored water, combined with the ability to provide makeup water from the Broad River provides abundant water supply for new nuclear units. The Broad River was impounded in 1914 for a small hydroelectric plant (Parr Hydro). The impoundment, Parr Reservoir, currently has a surface area of 4,400 acres. The daily cycle of operation at FPSF transfers up to 14,700 cfs of water from Parr Reservoir to Monticello Reservoir and back. Low-flow data for Broad River based on the 7Q10 data at the Alston gauging station (02161000) equals 853 cfs for the period 1938-2003. The annual 7-day minimum in drought year 2002 was 200 cfs (USGS 2007). The Fa-1 site received a criterion score of 4.4.

### *5.1.7 Site Ja-2*

Site Ja-2 is about 12 miles northeast of the Clyo gauging station (02198500) on the Savannah River (USGS 2007). Based on data from the Clyo gauging station, the 7-day minimum flow in drought year 2002 is 4,510 cfs and the average flow for the period 1930 – 2007 is 11,620 cfs (USGS 2007). The 7Q10 at the Augusta gauging station (02197000), which is located approximately 70 miles upstream of the Clyo gauging station, is 3,746 cfs (USGS 2007). Although the Augusta gauging station is a large distance away from the site the magnitude of the 7Q10 flow at Site Ja-2 intake would likely be similar to the 7Q10 flow at the Augusta gauging station. The Ja-2 site received a criterion rating of 3.6.

### *5.1.8 Site Ne-1*

Site Ne-1 Is located on a peninsula in one of the northwestern fingers of Lake Murray near the confluence of the Saluda River and the Bush River. The 7Q10 at the Chappells gauging station (02167000) located 14 miles upstream of the site is 225 cfs (USGS 2007). The 7-day minimum flow in drought year 2002 is 278 cfs and the average flow of the Saluda River at this gauging station is 1,869 cfs for the period of 1927–2007. Lake Murray was impounded in the late 1920s with the construction of the Saluda Dam near Irmo, SC. Lake Murray has approximately 500 miles of shoreline and covers about 50,000 acres of land. The lake contains approximately 2,200,000 acre-feet of gross storage and has a usable storage capacity of 1,056,000 acre-feet of water. The 7-day low flow in drought year 2002 at the Saluda gauging station (02168504) directly below the dam is 437 cfs (USGS 2007). The average flow out of Lake Murray is 2,386 for the period of 1988-2007. Site Ne-1 received a criterion score of 4.

### 5.1.9 Site Ne-2

Site Ne-2 is located near the north bank of the Saluda River near its confluence with the Little River. The 7Q10 at the Chappells gauging station (02167000) is 225 cfs (USGS 2007). The 7-day minimum flow in drought year 2002 is 278 cfs and the average flow of the Saluda River at the Chappells gauging station is 1,869 cfs for the period of 1927-2007. Lake Murray was impounded in the late 1920s with the construction of the Saluda Dam near Irmo, SC. Lake Murray about 500 miles of shoreline and covers about 50,000 acres of land. The lake contains approximately 2,200,000 acre-feet of gross storage and has a usable storage capacity of 1,056,000 acre-feet of water. The 7-day low flow in drought year 2002 at Saluda gauging station (02168504) directly below the dam is 437 cfs (USGS 2007). The average flow out of Lake Murray is 2,386 for the period of 1988–2007. Site Ne-2 received a criterion score of 3.8.

### 5.1.10 Saluda Site

The Saluda Site is located on the Saluda River arm of Lake Murray at the confluence with Mill Creek. The 7Q10 at the Chappells gauging station (02167000) is 225 cfs (USGS 2007). The 7-day minimum flow in drought year 2002 is 278 cfs and the average flow of the Saluda River at the Chappells gauging station is 1,869 cfs for the period of 1927-2007. Lake Murray was impounded in the late 1920s with the construction of the Saluda Dam near Irmo, SC. Lake Murray about 500 miles of shoreline and covers about 50,000 acres of land. The lake contains approximately 2,200,000 acre-feet of gross storage and has a usable storage capacity of 1,056,000 acre-feet of water. The 7-day low flow in drought year 2002 at Saluda gauging station (02168504) directly below the dam is 437 cfs (USGS 2007). The average flow out of Lake Murray is 2,386 for the period of 1988-2007. The Saluda site received a criterion score of 4.

### 5.1.11 SRS Site

The principal surface-water body associated with SRS is the Savannah River, which flows along the site's southwest border. The following six principal tributaries to the Savannah River can be found on SRS: Upper Three Runs Creek, Beaver Dam Creek, Four Mile Branch, Pen Branch, Steel Creek, and Lower Three Runs Creek (Dominion 2002). The 7Q10 at the gauging station at Augusta (02197000) located 15 miles upstream of SRS, is 3,746 cfs (USGS 2007). The 7-day minimum flow in drought year 2002 is 3,840 cfs, also at the Augusta gauging station upstream of SRS. The average flow in the Savannah River at Augusta, GA, is 9,135 cfs for the period of 1952–2007. Total consumptive water use at SRS was 120 cfs in 2002, much less than the historic highs of 1,350 cfs. The SRS impoundment closest to the site is Par Pond with a surface area of approximately 2,700 acres. Par Pond is reported to be highly contaminated and would not be a viable cooling water source. The SRS Site received a criterion score of 3.4.

### *5.1.12 VCSNS Site*

The VCSNS site is on the south shore of the Monticello Reservoir and about 1.5 miles east of the Broad River. The Monticello Reservoir is a 6,500-acre impoundment built to supply cooling water to the existing power plant and to provide an upper reservoir for the Fairfield Pumped Storage Facility (FPSF). Previous studies indicate that Monticello Reservoir can provide 2,160 cfs for cooling of two once-through plants even though only one was constructed. Cooling water is withdrawn for the existing power plant at a rate of 1,143 cfs, then passed through the condensers, and ultimately returned to Monticello Reservoir. Monticello Reservoir has no net recharge, so loss from evaporation is made up from water pumped from the Broad River. Monticello Reservoir storage capacity is about 380,000 acre-feet. This volume of stored water, combined with the ability to provide makeup water from the Broad River, provides abundant water supply for new nuclear units. The Broad River was impounded in 1914 for a small hydroelectric plant (Parr Hydro). The impoundment, Parr Reservoir, currently has a surface area of 4,400 acres. The daily cycle of operation at FPSF transfers up to 14,700 cfs of water from Parr Reservoir to Monticello Reservoir and back. Low flow data for Broad River based on the 7Q10 data at the Alston gauging station (02161000) equals 853 cfs for the period 1938-2003. The annual 7-day minimum in drought year 2002 was 200 cfs (USGS 2007). The VCSNS site received a criterion score of 4.4.

### *5.1.13 Summary of Cooling Water Supply Criterion Data and Scores*

Table 4 includes the overall criterion scores for the cooling water system suitability analysis. The sub-criterion scores for each site were averaged to calculate the site criterion scores. This was then multiplied by the criterion weight factor of 9.8, shown in Table 2, to calculate the site weighted score. VCSNS and Site Fa-1 had the highest weighted score of 43.12. The Cope site had the lowest weighted score of 27.44.

| | 7Q10 | 7-Day Minimum | Lake or River | Average Flow | Distance to Water Source (miles) | Score | Weighted Score |
|---|---|---|---|---|---|---|---|
| **Al-1** | 5 | 5 | 2 | 5 | 2 | 3.8 | 37.24 |
| **Al-2** | 5 | 5 | 2 | 5 | 3 | 4 | 39.2 |
| **Br-1** | 5 | 5 | 2 | 5 | 1 | 3.6 | 35.28 |
| **Cope** | 2 | 2 | 2 | 3 | 5 | 2.8 | 27.44 |
| **Fa-1** | 5 | 3 | 4 | 5 | 5 | 4.4 | 43.12 |
| **Ja-2** | 5 | 5 | 2 | 5 | 1 | 3.6 | 35.28 |
| **Ne-1** | 2 | 4 | 4 | 5 | 5 | 4 | 39.2 |
| **Ne-2** | 2 | 4 | 4 | 5 | 4 | 3.8 | 37.24 |
| **Saluda** | 2 | 4 | 4 | 5 | 5 | 4 | 39.2 |
| **SRS** | 5 | 5 | 2 | 4 | 1 | 3.4 | 33.32 |
| **VCSNS** | 5 | 3 | 4 | 5 | 5 | 4.4 | 43.12 |

**Table 4: Cooling Water Supply Summary of Scores**

## 5.2. Flooding

### 5.2.1 Criterion Evaluation

The flooding criterion was rated by evaluating the difference between the site elevation and the 100-year base flood elevation. Mean site elevations were obtained by averaging the topographic contours in the vicinity of the proposed site.The difference between mean site elevation and the mean 100-year base flood elevation was calculated from FEMA Flood Insurance Rate Maps (FIRM) and USGS maps. Sites with a mean elevation less than 50 feet from the mean 100-year base flood elevation were given a criterion score of 1; sites with a mean elevation between 50 and 100 feet were given a criterion score of 3; and those sites with a mean elevation more than 100 feet above the mean 100-year base flood elevation were given a criterion score of 5, as shown in Table 5.

| Flooding Evaluation Criteria | Score |
|---|---|
| Difference between mean site elevation and mean water elevation from USGS maps is less than 50 feet | 1 |
| Difference between mean site elevation and mean water elevation from USGS maps is between 50 and 100 feet | 3 |
| Difference between mean site elevation and mean water elevation from USGS maps is more than 100 feet | 5 |

**Table 5: Flooding Criterion Scores**

### 5.2.2 Site AI-1

The average elevation for Site AI-1 is 170 feet, resulting in a difference of 90 feet elevation between the site and the 100-year base flood elevation for Little Brier Creek, which is 80 feet based on evaluation of the USGS topographic map (USGS 1978) and the FEMA FIRM map for the Site (FEMA 2008). Little Brier Creek is a tributary of the Savannah River and is located less than a mile west of the site. Site AI-1 is located between 50 and 100 feet above the 100-year base flood elevation and was given a criterion score of 3.

### 5.2.3 Site AI-2

The average elevation for Site AI-2 is 100 feet, resulting in a difference of 15 feet elevation between the site and the 100-year base flood elevation for The Big Bay, which is 85 feet based on evaluation of the USGS topographic map (USGS 1964) and the FEMA FIRM map for the site (FEMA 2008). The Big Bay is a small tributary of the Lower Three Runs Creek and bounds the site to the south. Site AI-

2 is located less than 50 feet above the 100-year base flood elevation and was given a criterion score of 1.

### *5.2.4 Site Br-1*

The average elevation for Site Br-1 is 245 feet, resulting in a difference of 95 feet elevation between the site and the 100-year base flood elevation for the Lower Three Runs Creek, which is 150 feet based on evaluation of the USGS topographic map (USGS 1979a) and the FEMA FIRM map for the site (FEMA 2008). The Lower Three Runs Creek is a tributary of the Savannah River and is located about 1.5 miles east of the site. Site Br-1 is located between 50 and 100 feet above the 100-year base flood elevation and was given a criterion score of 3.

### *5.2.5 Cope Site*

The average elevation for the Cope Site is 170 feet, resulting in a difference of 10 feet elevation between the site and the 100-year base flood elevation for the South Fork River, which is 160 feet based on evaluation of the USGS topographic map (USGS 1979b) and the FEMA FIRM map for the site (FEMA 2008). The South Fork River is located about a 1.5 miles south of the site. The Cope Site is located less than 50 feet above the 100-year base flood elevation and was given a criterion score of 1.

### *5.2.6 Site Fa-1*

The average elevation for Site Fa-1 is 390 feet, resulting in a difference of 90 feet elevation between the site and the 100-year base flood elevation for the Broad River, which is 300 feet based on evaluation of the USGS topographic map (USGS 1988) and the FEMA FIRM map for the site (FEMA 2008). The Broad River is located about 0.5 miles south of the site, while a small, unnamed tributary of the Broad River is located approximately 0.25 miles north of the site. Site Fa-1 is located between 50 and 100 feet above the 100-year base flood elevation and was given a criterion score of 3.

### *5.2.7 Site Ja-2*

The average elevation for Site Ja-2 is 95 feet, resulting in a difference of 20 feet elevation between the site and the 100-year base flood elevation for Big Cypress Creek, which is 75 feet based on evaluation of the USGS topographic map (USGS 1969) and the FEMA FIRM map for the site (FEMA 2008). Big Cypress Creek is located about 2 miles north of the site, while a small, unnamed tributary of the creek is located approximately 0.25 miles north of the site. Site Ja-2 is located less than 50 feet above the 100-year base flood elevation and was given a criterion score of 1.

### 5.2.8 Site Ne-1

The average elevation for Site Ne-1 is 450 feet, resulting in a difference of 70 feet elevation between the site and the 100-year base flood elevation for the Bush River and Saluda River arms of Lake Murray, which is 380 feet based on evaluation of the USGS topographic map (USGS 1969) and the FEMA FIRM map for the site (FEMA 2008). The Ne-1 site is located on a peninsula formed at the convergence of the Bush and Saluda Rivers as they meet to form Lake Murray, which is located approximately 0.4 miles west and east of the site. Site Ne-1 is located between 50 and 100 feet above the 100-year base flood elevation and was given a criterion score of 3.

### 5.2.9 Site Ne-2

The average elevation of Site Ne-2 is 470 feet, resulting in a difference of 90 feet elevation between the site and the 100-year base flood elevation for Little River, which is 380 feet based on evaluation of the USGS topographic map (USGS 1971) and the FEMA FIRM map for the site (FEMA 2008). Little River is located about 0.5 miles northeast of the site. Site Ne-2 is located between 50 and 100 feet above the 100-year base flood elevation and was given a criterion score of 3.

### 5.2.10 Saluda Site

The average elevation of the Saluda Site is 490 feet, resulting in a difference of 110 feet elevation between the site and the 100-year base flood elevation for the Saluda River, which is 380 feet based on evaluation of the USGS topographic map (USGS 1971) and the FEMA FIRM map for the site (FEMA 2008). The Saluda River is located about 0.7 miles north of the site. The Saluda Site is located more than 100 feet above the 100-year base flood elevation and was given a criterion score of 5.

### 5.2.11 SRS Site

The average elevation for the SRS site is 310 feet, resulting in a difference of 120 feet elevation between the site and the 100-year base flood elevation for the Upper Three Runs Creek, which is 190 feet based on evaluation of the USGS topographic map (USGS 1963) and the FEMA FIRM map for the site (FEMA 2008). Major flooding sources for the site are from Upper Three Runs Creek (about 1.2 miles west of site), Tinker Creek (tributary of Upper Three Runs Creek and about 1 mile northwest of site), and Mill Creek (tributary of Tinker Creek and about 0.7 miles northeast of site). The proposed site elevation is more than 120 feet above all of these existing streams. The SRS Site is located more than 100 feet above the 100-year base flood elevation and was given a criterion score of 5.

### 5.2.12 VCSNS Site

The average elevation of the VCSNS Site is 400 feet, resulting in a difference of 110 feet elevation between the site and the 100-year base flood elevation for the Parr Reservoir/Broad River, which is 290 feet based on evaluation of the USGS topographic map (USGS 1969) and the FEMA FIRM map for the site (FEMA 2008). Parr Reservoir/Broad River is located about a mile west-southwest of the site. The VCSNS Site is located more than 100 feet above the 100-year base flood elevation and was given a criterion score of 5.

### 5.2.13 Summary of Flooding Criterion Data and Scores

Table 6 includes the overall scores for the flooding criterion analysis. These criterion scores were multiplied by the criterion weight factor of 4.4 as shown in Table 2. Three sites (Saluda, SRS, and VCSNS) all had the highest weighted score of 22. Three sites (Al-2, Cope, and Ja-2) had the lowest weighted scores of 4.4.

| | Al-1 | Al-2 | Br-1 | Cope | Fa-1 | Ja-2 | Ne-1 | Ne-2 | Saluda | SRS | VCSNS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Site Score** | 3 | 1 | 3 | 1 | 3 | 1 | 3 | 3 | 5 | 5 | 5 |
| **Weighted Site Score** | 13.2 | 4.4 | 13.2 | 4.4 | 13.2 | 4.4 | 13.2 | 13.2 | 22 | 22 | 22 |

**Table 6: Flooding Summary of Scores**

## 5.3. Population

### 5.3.1 Criterion Evaluation

Population densities and site distance to population centers must be evaluated in siting a nuclear plant in order to assess sites with respect to the effects of design-related accidents. NRC Regulatory Guide 4.7 states that “Areas of low population density are, in general, preferred” (NRC 2002). Population centers of about 25,000 or more residents should be no closer than 4 miles to the reactor because a density of 500 persons per square mile within this distance would yield a total population of 25,000 persons. Similarly, a city of 100,000 or more should be no closer than about 10 miles; a city of 500,000 or more should be no closer than about 20 miles; and a city of 1,000,000 or more should be no closer than about 30 miles.

The highest population density of the 11 alternate sites analyzed within a 20-mile radius was 125.54 persons per square mile. This is well below the Regulatory Guide 4.7 guidance that a reactor should not be located within a 20-mile radial

distance where the population density exceeds 500 persons per square mile. Therefore, the scores were based only on consideration of distances to nearby population centers (Census 2000 population of 25,000 or more persons). Radii of 5, 10, 20, and 30 miles were mapped around each of the alternate sites and assigned a score between 1 and 5, as shown in Table 7.

| Distance to Population Center | Score |
|---|---|
| Distance to Population Center > 30 miles | 5 |
| 20 Miles < Distance to Population Center ≤ 30 miles | 4 |
| 10 Miles < Distance to Population Center ≤ 20 miles | 3 |
| 5 Miles < Distance to Population Center ≤ 10 miles | 2 |
| Distance to Population Center ≤ 5 miles | 1 |

**Table 7: Population Center Scores**

### *5.3.2 Site Al-1*

The closest population centers to Site Al-1 are Aiken, SC, and Augusta-Richmond County, GA. Aiken, SC, is located approximately 45 miles to the north-northwest of the site and Augusta-Richmond County, GA, is located approximately 48 miles to the northwest of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 30.23 persons per square mile. Based on the distances to the closest population centers, Site Al-1 was given a criterion score of 5.

### *5.3.3 Site Al-2*

The closest population centers to Site Al-2 are Aiken, SC, Augusta-Richmond County, GA, and Martinez, GA. Aiken, SC, is located approximately 35 miles to the north-northwest of the site; Augusta-Richmond County, GA, is located approximately 38 miles to the northwest of the site; and Martinez, GA, is located 45 miles northwest of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 24.6 persons per square mile. Based on the distances to the closest population centers, Site Al-2 was given a criterion score of 5.

### *5.3.4 Site Br-1*

The closest population centers to Site Br-1 are Aiken, SC, Augusta-Richmond County, GA, and Martinez, GA. Aiken, SC, is located approximately 31 miles to the north-northwest of the site; Augusta-Richmond County, GA, is located approximately 37 miles to the northwest of the site; and Martinez, GA, is located 44

miles northwest of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 29.27 persons per square mile. Based on the distances to the closest population centers, Site Br-1 was given a criterion score of 5.

### *5.3.5 Cope Site*

The closest population centers to the Cope Site are Aiken, SC, and Columbia, SC. Aiken, SC, is located approximately 42 miles to the west-northwest of the site and Columbia, SC, is located approximately 42 miles to the north-northeast of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 76.05 persons per square mile. Based on the distances to the closest population centers, the Cope Site was given a criterion score of 5.

### *5.3.6 Site Fa-1*

The closest population centers to Site Fa-1 are Columbia, SC, and Rock Hill, SC. Columbia, SC, is located approximately 31 miles to the southeast of the site and Rock Hill, SC, is located approximately 45 miles to the north-northeast of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 67.51 persons per square mile. Based on the distances to the closest population centers, Site Fa-1 was given a criterion score of 5.

### *5.3.7 Site Ja-2*

The closest population centers to Site Ja-2 are Hilton Head Island, SC, and Savannah, GA. Hilton Head Island, SC, is located approximately 39 miles to the south-southeast of the site and Savannah, GA, is located approximately 41 miles to the south of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 33.24 persons per square mile. Based on the distances to the closest population centers, Site Ja-2 was given a criterion score of 5.

### *5.3.8 Site Ne-1*

The closest population centers to Site Ne-1 are Aiken, SC, and Columbia, SC. Aiken, SC, is located approximately 40 miles to the south-southwest of the site and Columbia, SC, is located approximately 35 miles to the east-southeast of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile

radius is 68.28 persons per square mile. Based on the distances to the closest population centers, Site Ne-1 was given a criterion score of 5.

### *5.3.9 Site Ne-2*

The closest population centers to Site Ne-2 are Aiken, SC, and Columbia, SC. Aiken, SC, is located approximately 44 miles to the south of the site and Columbia, SC, is located approximately 45 miles to the east-southeast of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 63.51 persons per square mile. Based on the distances to the closest population centers, Site Ne-2 was given a criterion score of 5.

### *5.3.10 Saluda Site*

The closest population centers to the Saluda Site are Aiken, SC, Columbia, SC, and Martinez, GA. Aiken, SC, is located approximately 42 miles to the south of the site; Columbia, SC, is located approximately 43 miles to the east-southeast of the site; and Martinez, GA, is located 49 miles south-southwest of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 54.39 persons per square mile. Based on the distances to the closest population centers, the Saluda Site was given a criterion score of 5.

### *5.3.11 SRS Site*

The closest population centers to the SRS Site are Aiken, SC, Augusta-Richmond County, GA, and Martinez, GA. Aiken, SC, is located approximately 17 miles to the north-northwest of the site; Augusta-Richmond County, GA, is located approximately 25 miles to the west-northwest of the site; and Martinez, GA, is located 32 miles west-northwest of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 79.76 persons per square mile. Because the closest population center to the SRS Site is located between 10 and 20 miles from the site, the SRS Site was given a criterion score of 3.

### *5.3.12 VCSNS Site*

The closest population centers to the VCSNS Site are Columbia, SC, and Rock Hill, SC. Columbia, SC, is located approximately 25 miles to the southeast of the site and Rock Hill, SC, is located approximately 48 miles to the north-northeast of the site. There are numerous small towns within the 30-mile radius, none of which has a population greater than 25,000 persons. The population density within a 20-mile radius is 125.54 persons per square mile. Because the closest population

center to the VCSNS Site is located between 20 and 30 miles from the site, the VCSNS Site was given a criterion score of 4.

### *5.3.13 Summary of Population Criterion Data and Scores*

Table 8 includes the overall scores for the population analysis. These were multiplied by the criterion weight factor of 8.6 as shown in Table 2. All of the sites resulted in weighted scores of 43 with the exception of SRS and VCSNS which resulted in weighted scores of 25.8 and 34.4, respectively.

| | | Distance (miles) and Direction to Population Center from Site | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population Center** | **Population** | **AI-1** | **AI-2** | **Br-1** | **Cope** | **Fa-1** | **Ja-2** | **Ne-1** | **Ne-2** | **Saluda** | **SRS** | **VCSNS** |
| **Aiken, SC** | **25,337** | 45/NNW | 35/NNW | 31/NNW | 42/WNW | | | 40/SSW | 44/S | 42/S | 17/NNW | |
| **Augusta-Richmond County, GA** | **195,182** | 48/NW | 38/NW | 37/NW | | | | | | | 25/WNW | |
| **Columbia, SC** | **116,278** | | | | 45/NNE | 31/SE | | 35/ESE | 45/ESE | 43/ESE | | 25/SE |
| **Goose Creek, SC** | **29,208** | | | | | | | | | | | |
| **Hilton Head Island, SC** | **33,862** | | | | | | 39/SSE | | | | | |
| **Martinez, GA** | **27,749** | | 45/NW | 44/NW | | | | | | 49/SSW | 32/WNW | |
| **Rock Hill, SC** | **49,765** | | | | | 45/NNE | | | | | | 48/NNE |
| **Savannah, GA** | **131,510** | | | | | | 41/S | | | | | |
| **Sumter, SC** | **39,643** | | | | | | | | | | | |
| **Population Density Radius** | | **Population Density (persons/mi$^2$)** | | | | | | | | | | |
| **20-mile radius** | | 30.23 | 24.6 | 29.27 | 76.05 | 67.51 | 33.24 | 68.28 | 63.51 | 54.39 | 79.76 | 125.54 |
| | | **Population Scores** | | | | | | | | | | |
| **Site Score** | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 4 |
| **Weighted Score** | | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 43 | 25.8 | 34.4 |

**Table 8: Population Summary of Results and Scores**

## 5.4. Hazardous Land Uses

### 5.4.1 Criterion Evaluation

As stated in the EPRI Siting Guide, "the purpose of this criterion is to incorporate NRC guidance on site suitability consideration regarding the nature and proximity of man-related hazards (e.g. airports, dams, transportation routes, and military and chemical facilities) into the site selection process." Data on the location of airports, dams, mining and quarrying operations, military bases, and pipelines were used to develop the scores for this criterion. Only mining and quarrying operations that would possibly include blasting were considered in developing the scores; borrow and fill dirt pits were not considered. Alternate sites were given a score from 1 to 5 based on the number of hazardous land uses within 5 and 10 miles, as shown below in Table 9. GIS data was used to evaluate this criterion (ESRI 2006, USC 2008a, and USC 200b). A summary of the scores for each site is shown in Table 10.

| Hazardous Land Uses/Avoidance Areas | Score |
|---|---|
| Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | 1 |
| Three to four small airports or pipelines within 5 miles | 2 |
| Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) within 10 miles or mines within 5 miles | 3 |
| One to two small airports or pipelines within 10 miles or mines within 10 miles | 4 |
| No hazardous land uses within 10 miles | 5 |

**Table 9: Hazardous Land Uses/Avoidance Areas Scores**

### 5.4.2 Site AI-1

There are no known hazardous land uses or avoidance areas within 5 miles of Site AI-1. Within 10 miles, there are pipelines as well as three small airports/airstrips. The pipelines are located to the northeast of the site. The Groton Plantation airport/airstrip is located to the southeast of the site, the Sugar Hill airport/airstrip is located to the northeast of the site, and one unnamed airport/airstrip is also located to the northeast of the site. Because there are pipelines as well as numerous small airports/airstrips located within 10 miles of the site, AI-1 was given a criterion score of 4.

### 5.4.3 Site AI-2

There are no known hazardous land uses or avoidance areas within 5 miles of Site AI-2. Within 10 miles of the site, there are pipelines located to the east. Because

there are pipelines located within 10 miles of the site, Al-2 was given a criterion score of 4.

### *5.4.4 Site Br-1*

There are no known hazardous land uses or avoidance areas within 5 miles of Site Br-1. Within 10 miles of the site, there are pipelines located to the east and two airports/airstrips. The Barnwell County Airport is located to the northeast of the site, and the Walker airport/airstrip is located to the east-southeast. Because there are pipelines and small airports/airstrips located within 10 miles of the site, Br-1 was given a criterion score of 4.

### *5.4.5 Cope Site*

There are no known hazardous land uses or avoidance areas within 5 miles of the Cope Site. Within 10 miles of the site there are pipelines located to the north and two small airports/airstrips. The Carlisle Airport is located to the northwest of the site, and the Bamberg County airport is located to the southeast. Because there are pipelines and small airports/airstrips located within 10 miles of the Cope Site, it was given a criterion score of 4.

### *5.4.6 Site Fa-1*

There are two granite-mining operations within five miles of Site Fa-1. The Philips Brooks Quarry is located to the northwest of the site, and the Monticello Quarry is located to the east-southeast of the site. There are also two granite mines within 10 miles of the site. The Blair Quarry is located to the north-northeast of the site, and the Anderson Quarry is located to the east-southeast of the site. Because there are mines within 5 miles of the site, Fa-1 was given a criterion score of 3.

### *5.4.7 Site Ja-2*

There are no known hazardous land uses or avoidance areas within 5 miles of Site Ja-2. There are two small airports/airstrips within 10 miles of the site. The Gravel Hill Airport is located to the west of the site, and the Harper Airport is located to the northwest of the site. Because there are two small airports within 10 miles of the site, Ja-2 was given a criterion score of 4.

### *5.4.8 Site Ne-1*

There are no known hazardous land uses or avoidance areas within 5 or 10 miles of site Ne-1. This site was given a criterion score of 5.

### *5.4.9 Site Ne-2*

There are no known hazardous land uses or avoidance areas within 5 miles of Site Ne-2. There are pipelines, one small airport, and two shale-mining operations within 10 miles of the site. The pipelines are located to the west of the site, and the Connelly Airport is located to the north. The Werts Mine and the Bozard Mine are both located to the southwest of the site. Because of the avoidance areas within 10 miles of the Ne-2 site, it was given a criterion score of 4.

### *5.4.10 Saluda Site*

There are no known hazardous land uses or avoidance areas within 5 miles of the Saluda Site. There are pipelines, one small airport, and three shale mines located within 10 miles of the site. The pipelines are located to the west of the site and the Connelly Airports is located to the north. The Werts Mine is located to the west-southwest of the site and both the Bozard Mine and Bauknight Mine are located to the southwest of the site. Because of the avoidance areas within 10 miles of the Saluda Site, it was given a criterion score of 4.

### *5.4.11 SRS Site*

There are no known hazardous land uses or avoidance areas within 5 miles of the SRS Site. However, SRS does have a number of facilities within 10 miles of the site that have potentially hazardous industrial activities (e.g., fuel and plutonium storage facilities and target fabrication facilities, nuclear material production reactors, chemical separation plants, a uranium fuel processing area, liquid high-level waste tank farms, a waste vitrification facility, etc.). While on-site activities would be conducted within the highest government safety standards, there are still some associated risks. This site was given a criterion score of 4.

### *5.4.12 VCSNS Site*

There is one granite-mining operation within 5 miles of the VCSNS Site. The Monticello Quarry is located to the northeast of the site. There are two granite-mining operations located within 10 miles of the site. The Phillips Brooks Quarry is located to the northwest, and the Anderson Quarry is located to the northeast. Because of the avoidance areas located within 5 and 10 miles of the site, the VCSNS Site was given a criterion score of 3.

### 5.4.13 Summary of Hazardous Land Use/Avoidance Areas Criterion Data and Scores

Table 10 includes the overall scores for the hazardous land use/avoidance areas analysis. These were multiplied by the criterion weight factor of 5.9 as shown in Table 2. Site Ne-1 resulted in the highest weighted score of 29.5, and the Fa-1 Site and VCSNS Site resulted in the lowest scores of 17.7.

| | Al-1 | Al-2 | Br-1 | Cope | Fa-1 | Ja-2 | Ne-1 | Ne-2 | Saluda | SRS | VCSNS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Site Score** | 4 | 4 | 4 | 4 | 3 | 4 | 5 | 4 | 4 | 4 | 3 |
| **Weighted Site Score** | 23.6 | 23.6 | 23.6 | 23.6 | 17.7 | 23.6 | 29.5 | 23.6 | 23.6 | 23.6 | 17.7 |

**Table 10: Hazardous Land Uses/Avoidance Areas Summary of Scores**

## 5.5. Ecology

### 5.5.1 Criterion Evaluation

Evaluation of "ecology" during the site selection process is based primarily on the known occurrence of threatened and endangered (T&E) species on the proposed site (based on state GIS occurrence layers), the potential habitat for these species (based on state GIS coverages), and the ability to position the proposed nuclear plant within the site and avoid known occurrences of T&E species. For this evaluation, T&E species includes bald eagles, which have been de-listed under the Endangered Species Act but still receive federal protection under the Bald and Golden Eagle Protection Act. The sub-criterion and scores used in the ecology evaluation are detailed in Table 11. The sub-criterion scores were averaged to calculate the overall criterion score.

| Sub-Criterion | Ecology Criteria Evaluation | Score |
|---|---|---|
| Number of protected species within the 400 acres. | 0 species | 5 |
| | 1-2 species | 4 |
| | 3-4 species | 3 |
| | 4-5 species | 2 |
| | >5 species | 1 |
| Habitat: Professional judgment of the amount and quality of habitat available for species. | Poor habitat | 5 |
| | Fair habitat | 4 |
| | Adequate habitat | 3 |
| | Good habitat | 2 |
| | Excellent habitat | 1 |
| Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility. | No species present | 5 |
| | Plenty of room | 4 |
| | Adequate room | 3 |
| | Site is somewhat constricting | 2 |
| | Insufficient room | 1 |

**Table 11: Ecology Criterion Scores**

### *5.5.2 Site AI-1*

There are six federal T&E species listed for Allendale County, although none are known to occur within the proposed Site AI-1 boundary. Adequate to fair habitat occurs within the AI-1 boundary for the following T&E species: red-cockaded woodpecker, flatwoods salamander, and bald eagle. Since none of the listed species are known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant site. Site AI-1 received a criterion score of 4.33.

### *5.5.3 Site AI-2*

There are six federal T&E species listed for Allendale County, although none are known to occur within the proposed Site AI-2 boundary. Adequate to fair habitat occurs within the AI-2 boundary for red-cockaded woodpecker and bald eagle. Since no T&E species are known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant site. Site AI-2 received a criterion score of 4.33.

### *5.5.4 Site Br-1*

There are nine federal T&E species listed for Allendale and Barnwell counties, although none are known to occur within the proposed Site Br-1 boundary. Small amounts of habitat occur within the Br-1 boundary for red-cockaded woodpecker and bald eagle. Since no T&E species are known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant site. Site Br-1 received a criterion score of 5.

### *5.5.5 Cope Site*

There are six federal T&E species listed for Orangeburg and Bamberg counties, although none are known to occur within the proposed Cope Site boundary. Adequate to fair habitat occurs within the Cope boundary for red-cockaded woodpecker, flatwoods salamander, and bald eagle. Since no T&E species are known occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant site. The Cope Site received a criterion score of 4.67.

### *5.5.6 Site Fa-1*

There are three federal T&E species listed for Fairfield County, although none are known to occur within the proposed Site Fa-1 boundary. Adequate amounts of habitat occur within the Fa-1 boundary for the bald eagle. Since it is not known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant site. Site Fa-1 received a criterion score of 4.33.

### *5.5.7 Site Ja-2*

There are ten federal T&E species listed for Jasper and Hampton counties, not including the Florida manatee and four listed species of sea turtles that occur in marine waters. None are known to occur within the proposed Site Ja-2 boundary. Small amounts of habitat occur within the Ja-2 boundary for red-cockaded woodpecker and bald eagle. Since no T&E species occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant. Site Ja-2 received a criterion score of 4.

### *5.5.8 Site Ne-1*

There are five federal T&E species listed for Newberry and Saluda counties, and none are known to occur within the proposed Site Ne-1 boundary. Good habitat

for the bald eagle occurs within the Ne-1 boundary. Since no T&E species are known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations when locating the plant. Site Ne-1 received a criterion score of 4.

### *5.5.9 Site Ne-2*

There are two federal T&E species listed for Newberry County, and none are known to occur within the proposed Site Ne-2 boundary. Small amounts of habitat occur within the Ne-2 boundary for the bald eagle. Since no species occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats. Site Ne-2 received a criterion score of 5.

### *5.5.10 Saluda Site*

There are five federal T&E species listed for Newberry and Saluda counties, but none are known to occur within the proposed Saluda Site boundary. Small amounts of habitat occur within the Saluda boundary for the bald eagle. Since no T&E species are known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the plant site. The Saluda Site received a criterion score of 4.67.

### *5.5.11 SRS Site*

There are ten federal T&E species listed for Aiken and Barnwell counties, and none are known to occur within the proposed SRS Site boundary. Fair habitat occurs within the SRS boundary for red-cockaded woodpecker and bald eagle. Since no T&E species occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the site. The SRS Site received a criterion score of 4.67.

### *5.5.12 VCSNS Site*

There are three federal T&E species listed for Fairfield County, and none are known to occur within the proposed VCSNS Site boundary. Small amounts of habitat occur within the VCSNS boundary for bald eagle, and eagles nest on other portions of the VCSNS outside the 6000-acre boundary. Since no T&E species are known to occur on site and given the distribution of the potential habitat, there are no concerns with having to avoid known locations or potential habitats when locating the site. The VCSNS Site received a criterion score of 5.

### 5.5.13 Summary of Ecology Criterion Data and Scores

Table 12 includes the overall scores for the ecology analysis. These were multiplied by the criterion weight factor of 5.6 as shown in Table 2. Sites Br-1, Ne-2 and VCSNS received the highest weighted scores of 28.00 while the Ja-2 and Ne-1 sites received the lowest weighted scores of 22.40.

| Site | # Species | Habitat | Flexibility | Score | Weighted Score |
|---|---|---|---|---|---|
| **AI-1** | 5 | 3 | 5 | 4.33 | 24.27 |
| **AI-2** | 5 | 3 | 5 | 4.33 | 24.27 |
| **Br-1** | 5 | 5 | 5 | 5.00 | 28.00 |
| **Cope** | 5 | 4 | 5 | 4.67 | 26.13 |
| **Fa-1** | 5 | 3 | 5 | 4.33 | 24.27 |
| **Ja-2** | 4 | 4 | 4 | 4.00 | 22.40 |
| **Ne-1** | 5 | 2 | 5 | 4.00 | 22.40 |
| **Ne-2** | 5 | 5 | 5 | 5.00 | 28.00 |
| **Saluda** | 5 | 4 | 5 | 4.67 | 26.13 |
| **SRS** | 5 | 4 | 5 | 4.67 | 26.13 |
| **VCSNS** | 5 | 5 | 5 | 5.00 | 28.00 |

**Table 12: Ecology Summary of Scores**

## 5.6. Wetlands

### 5.6.1 Criterion Evaluation

Evaluation of potential wetland impacts within the site-selection process is based primarily on (1) the total wetland acreage within the proposed 400-acre plant site, (2) the acreage of higher quality wetlands (e.g., forested wetlands) within the 6000-acre overall plant boundary, and (3) the estimation that the plant could be sited within the boundary so as to avoid wetland habitats. Wetland data sources include GIS coverages from the South Carolina Department of Natural Resources (SCDNR) and NOAA, as well as USGS topographic maps. Sites were given scores of 1 to 5 for each of the three sub-criteria as shown in Table 13. These scores were averaged to calculate the criterion score.

| Sub-Criterion | Wetlands Criterion Evaluation | Score |
|---|---|---|
| Total acreage of wetland within the 400 acres, not including the lake or reservoir that would be the primary source of cooling water. | < 1 acres | 5 |
| | 1 to 2.5 acres | 4 |
| | 2.6 to 5.0 acres | 3 |
| | 5.1 to 10 acres | 2 |
| | > 10 acres | 1 |
| Acreage of higher quality wetlands i.e. forested wetland, within the 6000 acres. | <1 acres | 5 |
| | 1 to 2.5 acres | 4 |
| | 2.6 to 5.0 acres | 3 |
| | 5.1 to 10 acres | 2 |
| | > 10 acres | 1 |
| Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility. | No or very few wetlands, easily avoided | 5 |
| | Few wetlands, easily avoided. | 4 |
| | Numerous wetlands, moderately difficult to avoid | 3 |
| | Numerous wetlands difficult to avoid | 2 |
| | Too many wetland or insufficient space to avoid. | 1 |

**Table 13: Wetlands Criterion Scores**

### *5.6.2 Site AI-1*

Approximately 32 acres of wetlands occur within the proposed 400-acre plant site. Approximately 1087 acres of quality wetlands were documented within the 6000-acre plant boundary, including portions of the Savannah River floodplain, stream drainages, and depression wetlands (Carolina bays). Given the large amount and broad distribution of wetlands within the boundary, wetlands would be difficult to avoid during the construction of the facility (SCDNR 2008c). Site AI-1 received a criterion score of 1.33.

### *5.6.3 Site AI-2*

Approximately 35 acres of wetlands occur within the proposed 400-acre plant site. Approximately 2554 acres of quality wetlands were documented within the 6000-acre plant boundary, including the Savannah River, its floodplain, stream drainages, and Carolina bays. Given the large amount and broad distribution of wetlands within the boundary, wetlands would be impossible to avoid during the construction of the facility (NOAA 2008a). Site AI-2 received a criterion score of 1.

### 5.6.4 Site Br-1

No wetlands were documented within the proposed 400-acre plant site. Approximately 1095 acres of quality wetlands were documented within the 6000-acre plant boundary, including a major stream drainage (Lower Three Runs) and ponds. Given the small amount and wide distribution of wetlands within the boundary, wetlands would be easy to avoid during the construction of the facility (USFWS 2008c). Site Br-1 received a criterion score of 3.33.

### 5.6.5 Cope Site

Approximately 24 acres of wetlands were documented within the proposed 400-acre plant site. Approximately 2364 acres of quality wetlands were documented within the 6000-acre plant boundary, including the Edisto River and its floodplain, swamps, Carolina bays, and ponds. Although the site has a large amount of wetlands within the boundary, the wetlands are limited almost entirely to the floodplain of the South Fork Edisto River and along Roberts Swamp Creek and Sam Branch and would be easy to avoid during the construction of the facility (SCDNR 2008c, SCE&G 1991). The Cope Site received a criterion score of 2.

### 5.6.6 Site Fa-1

Approximately 27 acres of wetlands occur within the proposed 400-acre plant site. Approximately 182 acres of quality wetlands were documented within the 6000-acre plant boundary, including the Broad River and its floodplain and a stream drainage. Given the small amount and wide distribution of wetlands within the boundary, wetlands would be easy to avoid during the construction of the facility (SCDNR 2008c). Site Fa-1 received a criterion score of 2.

### 5.6.7 Site Ja-2

Approximately 11 acres of wetlands occur within the proposed 400-acre plant site. Approximately 729 acres of quality wetlands were documented within the 6000-acre plant boundary, including a stream drainage and Carolina bays. Given the amount and distribution of wetlands within the boundary, wetlands would be difficult to avoid during the construction of the facility (SCDNR 2008c). Site Ja-2 received a criterion score of 1.33.

### 5.6.8 Site Ne-1

No wetlands were found to occur in the proposed 400-acre plant site. Approximately 9 acres of quality wetlands were documented within the 6000-acre plant boundary, including portions the Saluda and Bush river drainages. Given the small amount and distribution of wetlands within the boundary, wetlands would be

easy to avoid during the construction of the facility (UIdaho 2008). Site Ne-1 received a criterion score of 3.67.

### *5.6.9 Site Ne-2*

No wetlands were found to occur in the proposed 400-acre plant site. Approximately 83 acres of quality wetlands were documented within the 6000-acre plant boundary, including portions of Little River and several stream drainages. Given the small amount and distribution of wetlands within the boundary, wetlands would be easy to avoid during the construction of the facility (UIdaho 2008). Site Ne-2 received a criterion score of 3.33.

### *5.6.10 Saluda Site*

No wetlands were observed in the proposed 400-acre plant site. Approximately 90 acres of quality wetlands were documented within the 6000-acre plant boundary, including portions of the Saluda River and its floodplain, Little River, and stream drainages. Given the amount and distribution of wetlands within the boundary, wetlands would be easy to avoid during the construction of the facility (UIdaho 2008). The Saluda Site received a criterion score of 3.33.

### *5.6.11 SRS Site*

No wetlands were observed in the proposed 400-acre plant site. Approximately 205 acres of quality wetlands occur within the 6000-acre plant boundary. Given the amount and wide distribution of wetlands within the boundary, wetlands would be easy to avoid during the construction of the facility (NOAA 2008a). The SRS Site received a criterion score of 3.33.

### *5.6.12 VCSNS Site*

Approximately 2 acres of wetlands were determined for the proposed 400-acre plant site. Approximately 6 acres of quality wetlands occur within the 6000-acre plant boundary. Given the small amount and wide distribution of wetlands within the boundary, wetlands would be easy to avoid during the construction of the facility (SCDNR 2008c). The VCSNS Site received a criterion score of 3.33.

### *5.6.13 Summary of Wetlands Criterion Data and Scores*

Table 14 includes the overall scores for the wetlands analysis. These were multiplied by the criterion weight factor of 5.6 as shown in Table 2. The Ne-1 Site received the highest weighted score of 20.53 while the Cope and Al-2 Sites both received the lowest weighted scores of 5.6.

| Site | Acres of Wetlands | High Quality Wetlands | Flexibility | Score | Weighted Score |
|---|---|---|---|---|---|
| **Al-1** | 1 | 1 | 2 | 1.33 | 7.47 |
| **Al-2** | 1 | 1 | 1 | 1 | 5.6 |
| **Br-1** | 5 | 1 | 4 | 3.33 | 18.67 |
| **Cope** | 1 | 1 | 4 | 2 | 11.2 |
| **Fa-1** | 1 | 1 | 4 | 2 | 11.2 |
| **Ja-2** | 1 | 1 | 2 | 1.33 | 7.47 |
| **Ne-1** | 5 | 2 | 4 | 3.67 | 20.53 |
| **Ne-2** | 5 | 1 | 4 | 3.33 | 18.67 |
| **Saluda** | 5 | 1 | 4 | 3.33 | 18.67 |
| **SRS** | 5 | 1 | 4 | 3.33 | 18.67 |
| **VCSNS** | 4 | 2 | 4 | 3.33 | 18.67 |

**Table 14: Wetlands Summary of Scores**

## *5.7. Railroad Access*

### *5.7.1 Criterion Evaluation*

Access to railroad lines are an important criteria in siting a nuclear plant because sufficient access must be present in order to accommodate the transport of materials that will be used in reactor construction. Rail access costs were estimated by measuring the straight-line distance from each site to the nearest existing rail lines and using an estimated cost of $3 million per mile of rail. GIS data as well as the Federal Railroad Administration online mapping tool were used to evaluate this criterion (ESRI 2006, FRA 2008). Scores between 1 and 5 were assigned based on the estimated cost of railroad line construction with the least expensive receiving a 5 and the most expensive receiving a 1, as shown in Table 15.

| Cost of Railroad Lines Construction | Score |
|---|---|
| Cost of Railroad Lines < $5,000,000 | 5 |
| $5,000,000 ≤ Cost of Railroad Lines <$10,000,000 | 4 |
| $10,000,000 ≤ Cost of Railroad Lines <$15,000,000 | 3 |
| $15,000,000 ≤ Cost of Railroad Lines <$20,000,000 | 2 |
| $20,000,000 ≤ Cost of Railroad Lines | 1 |

**Table 15: Railroad Access Construction Costs Scores**

### *5.7.2 Site Al-1*

The closest railroad tracks to Site Al-1 are owned by CSX Transportation and are located approximately 7.2 miles to the north-northwest of the site. The approximate cost to build tracks to this site would be $21.6 million; therefore, this site was given a criterion score of 1.

### *5.7.3 Site Al-2*

The closest railroad tracks to Site Al-2 are owned by CSX Transportation and are located approximately 1.2 miles to the north of the site. The approximate cost to build tracks to this site would be $3.6 million; therefore, this site was given a criterion score of 5.

### *5.7.4 Site Br-1*

The closest railroad tracks to Site Br-1 are owned by CSX Transportation and are located approximately 5 miles to the south-southwest of the site. The approximate cost to build tracks to this site would be $15 million; therefore, this site was given a criterion score of 2.

### *5.7.5 Cope Site*

There are railroad tracks owned by CSX Transportation that run to the Cope Site. The approximate cost to extend necessary tracks for this site would be minimal; therefore, this site was given a criterion score of 5.

### *5.7.6 Site Fa-1*

The closest railroad tracks to Site Fa-1 are owned by Norfolk Southern Railroad and are located approximately 0.4 miles to the west of the site. The approximate cost to build tracks to this site would be $1.2 million; therefore, this site was given a criterion score of 5.

### *5.7.7 Site Ja-2*

The closest railroad tracks to Site Ja-2 are owned by CSX Transportation and are located approximately 7 miles to the west of the site. The approximate cost to build tracks to this site would be $21 million; therefore, this site was given a criterion score of 1.

### *5.7.8 Site Ne-1*

The closest railroad tracks to Site Ne-1 are owned by Norfolk Southern Railroad and are located approximately 7 miles to the northeast of the site. The approximate cost to build tracks to this site would be $21 million; therefore, this site was given a criterion score of 1.

### *5.7.9 Site Ne-2*

The closest railroad tracks to Site Ne-2 are owned by Norfolk Southern Railroad and are located approximately 2 miles to the southeast of the site. The approximate cost to build tracks to this site would be $6 million; therefore, this site was given a criterion score of 4.

### *5.7.10 Saluda Site*

The closest railroad tracks to the Saluda Site are owned by Norfolk Southern Railroad and are located approximately 3 miles to the northwest of the site. The approximate cost to build tracks to this site would be $9 million; therefore, this site was given a criterion score of 4.

### *5.7.11 SRS Site*

The closest railroad tracks to the SRS Site are owned by the U.S. Government and are located approximately 1.7 miles to the south of the site. The approximate cost to build tracks to this site would be $5.1 million; therefore, this site was given a criterion score of 4.

### *5.7.12 VCSNS Site*

There are railroad tracks owned by SCE&G that run to the VCSNS Site. The approximate cost to extend necessary tracks for this site would be minimal; therefore, this site was given a criterion score of 5.

### *5.7.13 Summary of Railroad Access Criterion Data and Scores*

Table 16 includes the overall scores for the railroad access analysis. The criterion scores were multiplied by the criterion weight factor of 6.7 as shown in Table 2. Four sites, Al-2, Cope, Fa-1, and VCSNS, all received the highest weighted score of 33.5 while three sites, Al-1, Ja-2, and Ne-1, received the lowest weighted score of 6.7.

| | Al-1 | Al-2 | Br-1 | Cope | Fa-1 | Ja-2 | Ne-1 | Ne-2 | Saluda | SRS | VCSNS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Distance to Closest Railroad Lines** | 7.2 | 1.2 | 5 | 0 | 0.4 | 7 | 7 | 2 | 3 | 1.7 | 0 |
| **Cost of Rail Construction (millions)** | $21.6 | $3.6 | $15 | $0 | $1.2 | $21 | $21 | $6 | $9 | $5.1 | $0 |
| **Site Score** | 1 | 5 | 2 | 5 | 5 | 1 | 1 | 4 | 4 | 4 | 5 |
| **Weighted Site Score** | 6.7 | 33.5 | 13.4 | 33.5 | 33.5 | 6.7 | 6.7 | 26.8 | 26.8 | 26.8 | 33.5 |

**Table 16: Railroad Access Summary of Scores**

## *5.8. Transmission Access*

### *5.8.1 Criterion Evaluation*

Access to an existing transmission system is an essential criterion to evaluate in siting a nuclear plant. Not only do costs increase with increasing transmission line construction to support to the new plant, but impacts to the environment also increase. The distances in this siting study were estimated by measuring the straight-line distance from each site to the nearest existing 230kV transmission line. Hard copy maps of the existing SCE&G and Santee Cooper transmission systems were used to estimate the distances from the alternate sites to existing lines (SCE&G 2002, Santee Cooper 2006). Costs were based on a linear construction cost of $2 million per mile. Assuming double circuit connections would be required for transmission, costs equal $4 million per mile to exiting lines. Scores between 1 and 5 were assigned based on the estimated transmission line construction costs, with the lowest costs receiving a 5 and the highest costs receiving a 1 as shown in Table 17.

| Cost of Transmission Lines | Score |
|---|---|
| Cost of Transmission Lines ≤ $10 Million | 5 |
| $10 Million < Cost of Transmission Lines ≤ $20 Million | 4 |
| $20 Million < Cost of to Transmission Lines ≤ $30 Million | 3 |
| $30 Million < Cost of Transmission Lines ≤ $40 Million | 2 |
| $40 Million < Cost of Transmission Lines | 1 |

**Table 17: Scores for Costs of Transmission Line Construction**

### *5.8.2 Site Al-1*

Site Al-1, located in Allendale County, is approximately 20 miles from existing 230kV transmission lines as well as a substation. The transmission lines and Barnwell Transmission Substation are owned by SCE&G and are located to the north of the site. Because the closest known lines are 20 miles from the site and

an approximate cost of $80 million would be required to install new transmission lines, Site Al-1 was given a criterion score of 1.

### *5.8.3 Site Al-2*

Site Al-2, located in Allendale County, is approximately 15 miles from existing 230kV transmission lines as well as a substation. The transmission lines and Barnwell Transmission Substation are owned by SCE&G and are located to the northeast of the site. Because the closest known lines are 15 miles from the site and an approximate cost of $60 million would be required to install new transmission lines, Site Al-2 was given a criterion score of 1.

### *5.8.4 Site Br-1*

Site Br-1, located in Allendale County, is approximately 6.5 miles from existing 230kV transmission lines as well as a substation. The transmission lines and Barnwell Transmission Substation are owned by SCE&G and are located to the northeast of the site. Because the closest known lines are 6.5 miles from the site and an approximate cost of $26 million would be required to install new transmission lines, Site Br-1 was given a criterion score of 3.

### *5.8.5 Cope Site*

The Cope Site is located at an existing coal-fired facility; therefore, there are existing 230kV and 115kV transmission lines around the site. There are 230kV transmission lines leaving the site the northeast and southwest and 115kV transmission lines leaving the site to the southwest. Because there are existing transmission lines on site and costs to install new transmission lines would be minimal, the Cope Site was given a criterion score of 5.

### *5.8.6 Site Fa-1*

Site Fa-1, located in Fairfield County, is approximately 1 mile from existing 230kV transmission lines as well as 1 mile from existing 115kV lines. The 230kV transmission lines are owned by SCE&G and are located to the west of the site and the 115kV lines are located to the east of the site. Because the closest known lines are approximately 1 mile away from the site and an approximate cost of $2 million would be required to install new transmission lines, Site Fa-1 was given a criterion score of 5.

### *5.8.7 Site Ja-2*

Site Ja-2, located in Jasper County, is approximately 9 miles from existing 230kV transmission lines. The transmission lines are owned by SCE&G and are located

to the east-southeast of the site. Because the closest known lines are approximately 9 miles from the site and an approximate cost of $36 million would be required to install new transmission lines, Site Ja-2 was given a criterion score of 2.

### *5.8.8 Site Ne-1*

Site Ne-1, located in Newberry County, is approximately 1 mile from existing 230kV transmission lines. The transmission lines are owned by Santee Cooper and are located to the east of the site. Because the closest known lines are approximately 1 mile from the site and an approximate cost of $6 million would be required to install new transmission lines, Site Ne-1 was given a criterion score of 5.

### *5.8.9 Site Ne-2*

Site Ne-2, located in Newberry County, is approximately 11–12 miles from existing 230kV transmission lines as well as a substation. The transmission lines and Kempson Bridge Substation are owned by SCE&G and are located to the east of the site. Because the closest known lines are 11–12 miles from the site and an approximate cost of $44 million would be required to install new transmission lines, Site Ne-2 was given a criterion score of 1.

### *5.8.10 Saluda Site*

The Saluda Site, located in Saluda County, is approximately 10 miles from existing 230kV transmission lines as well as a substation. The transmission lines and Kempson Bridge Substation are owned by SCE&G and are located to the east of the site. Because the closest known lines are 10 miles from the site and an approximate cost of $40 million would be required to install new transmission lines, the Saluda Site was given a score of 1.

### *5.8.11 SRS Site*

The SRS Site, located in Aiken County, is approximately 1 mile from existing 230kV and 115kV transmission lines. The transmission lines are owned by SCE&G and are located to the southwest of the site. Because the closest known lines are 1 mile from the site and an approximate cost of $4 million would be required to install new transmission lines, the SRS Site was given a criterion score of 5.

### *5.8.12 VCSNS Site*

The VCSNS Site is located at an existing nuclear power generating facility; therefore, there are existing 230kV and 115kV transmission lines throughout the

site. There are 230kV transmission lines leaving the site the southwest, northwest and south as well as 115kV transmission lines leaving the site to the south. Because there are existing transmission lines on site and the costs to construct new lines would be minimal, the VCSNS Site was given a criterion score of 5.

### *5.8.13 Summary of Transmission Line Access Criterion Data and Scores*

Table 18 includes the overall scores for the transmission line access analysis. These were multiplied by the criterion weight factor of 7.4 as shown in Table 2. Five sites (Cope, Fa-1, Ne-1, SRS, and VCSNS) all received the highest weighted score of 37 while four sites (Al-1, Al-2, Ne-2, and Saluda) received the lowest weighted score of 7.4.

| | Al-1 | Al-2 | Br-1 | Cope | Fa-1 | Ja-2 | Ne-1 | Ne-2 | Saluda | SRS | VCSNS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Approximate Cost of Transmission Lines (Millions)** | $80 | $60 | $26 | $0 | $2 | $36 | $6 | $44 | $40 | $4 | $0 |
| **Site Score** | 1 | 1 | 3 | 5 | 5 | 2 | 5 | 1 | 1 | 5 | 5 |
| **Weighted Site Score** | 7.4 | 7.4 | 22.2 | 37 | 37 | 14.8 | 37 | 7.4 | 7.4 | 37 | 37 |

**Table 18: Transmission Line Access Summary of Scores**

## *5.9. Geology/Seismic*

### *5.9.1 Criterion Evaluation*

A numerical system of weights and scores, based upon suitability criteria, were assigned to the following five sub-categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data were used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers were summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers were then given criterion scores between 1 and 5 according to Table 19.

| Index Range | Criterion Score |
|---|---|
| 5 - 21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

**Table 19: Geology/Seismic Suitability Index Range and Criteria Scores**

#### *5.9.1.1 Surface Faulting and Deformation*

No absolute exclusionary criteria were identified with regard to surface faulting and deformation. Suitability criteria were established based on the occurrence of surface and near-surface faulting and tectonic and non-tectonic structures within a 25-mile and a 5-mile radius of sites, as follows:

**Within 25 miles**

Lacking any such structures altogether (Best)
Potential non-capable structures
Potential capable structures (Least)

**Within 5 miles**

Lacking any such structures altogether (Best)
Potential non-capable structures
Potential capable structures
Fault exceeding 1,000 feet in length
Capable fault exceeding 1000 feet in length (Least)

The potential for surface or near-surface faulting or deformation primarily concerns plant design. Therefore, features identified within 5 miles of candidate sites received a higher weight.

Structural maps and data available from Structural Features Map of South Carolina (Maybin 1998), Data for Quaternary faults, liquefaction features, and possible tectonic features in the Central and Eastern United States, east of the Rocky Mountain front (Crone and Wheeler 2000), and The Geology of the Carolinas (CGS 1991) were utilized to identify capable and potentially capable tectonic sources within 200 miles of the sites. The surface faulting and deformation sub-criterion for each site was given a score according to Table 20.

| Surface Faulting and Deformation | |
|---|---|
| Five miles to within 25 miles<br>Weight=1 | |
| **Feature/Range** | **Sub-Score** |
| No structures | 0 |
| Potential non-capable structures | 1 |
| Potential capable structures | 5 |
| Within 5 miles<br>Weight=2 | |
| No structures | 0 |
| Potential non-capable structures | 2 |
| Potential capable structures | 3 |
| Fault exceeds 1,000 ft. in length | 4 |
| Capable fault exceeds 1,000 ft. in length | 5 |

**Table 20: Distance of Surface Faulting and Deformation Sub-Score**

#### *5.9.1.2 Capable Tectonic Sources*

Capable tectonic structures were addressed as avoidance criteria. No absolute exclusionary criteria were identified. The objective was to identify the existence of capable or potentially capable tectonic structures within 200 miles of the sites. The latest data available from the USGS Earthquakes Hazards Program National Seismic Hazard Mapping Project were utilized to identify capable and potentially capable tectonic sources within 200 miles of the sites.

It was assumed that capable and potential capable tectonic sources, which are Quaternary features that may generate strong ground motion, fall into two categories:

- Class A features have good geologic evidence of tectonic origin and are potentially seismogenic; and
- Class B features have geologic evidence that supports the existence of a seismogenic fault or suggests Quaternary deformation, but the currently available geologic evidence for Quaternary tectonic activity is less compelling than for a Class A feature.

A sub-score for distance from capable tectonic structures for each site was given according to Table 21.

| Capable Tectonic Structure | |
|---|---|
| Class A Features<br>Weight = 2 | |
| **Feature Range** (miles) | **Sub-Score** |
| None within 200 mi radius | 0 |
| Greater than 100 to 200 mi | 2 |
| Greater than 50 to 100 mi | 3 |
| Greater than 25 to 50 mi | 4 |
| 0 to 25 mi | 5 |
| Class B Features<br>Weight = 1 | |
| None within 200 mi radius | 0 |
| Greater than 100 to 200 mi | 2 |
| Greater than 50 to 100 mi | 3 |
| Greater than 25 to 50 mi | 4 |
| 0 to 25 mi | 5 |

**Table 21: Distance of Capable Tectonic Structure Sub-Score**

#### *5.9.1.3 Vibratory Ground Motion*

Peak ground acceleration (PGA) is a measure of the maximum force experienced by a small mass located at the surface of the ground during an earthquake and it is an index of hazard for some structures. The units for PGA are in percent of gravity (%g); i.e., an acceleration of 0.30g is expressed as 30%g. PGA used for these evaluations was for a probability of exceedance (PE) of 2% in 50 years (once in 2500 years). The latest available PGA data, obtained from the U.S. Geological Survey (USGS 2008) Earthquakes Hazards Program, National Seismic Hazard Mapping Project were used for all sites. The PGA for each site was given a sub-score according to Table 22.

| Vibratory Ground Motion (Weight = 5; Index Range = 0 – 50) | |
|---|---|
| **PGA Range (%g)** | **Sub-Score** |
| 0 – 4 | 1 |
| 4 – 6 | 2 |
| 6 – 9 | 3 |
| 9 – 12 | 4 |
| 12 – 15 | 5 |
| 15 – 18 | 6 |
| 18 – 21 | 7 |
| 21 – 24 | 8 |
| 24 – 27 | 9 |
| 27 – 30 | 10 |

**Table 22: Vibratory Ground Motion (PGA) Sub-Scores**

#### *5.9.1.4 Geologic Hazards*

Based on guidance in the EPRI Siting Guide, sites with the following geologic and man-made conditions should be avoided:

- Areas of active (and dormant) volcanic activity.
- Subsidence areas caused by withdrawal of subsurface fluids such as oil or groundwater, including areas that may be affected by future withdrawals.
- Potential unstable slope areas, including areas demonstrating paleolandslide characteristics.
- Areas of potential collapse (e.g., karst areas, salt, or other soluble formations).
- Mined areas, such as near-surface coal mined-out areas, as well as areas where resources are present and may be exploited in the future.
- Areas subject to seismic and other induced water waves and floods.
- Sites furthest away from these features are considered the most suitable sites.

The presence of geologic hazards were evaluated by reviewing USGS topographic maps, Natural Resources Conservation Service (NRCS) and US Department of Agriculture (USDA) soil surveys, USGS PGA maps, and various USGS and South Carolina Geological Survey (SCGS) reports and maps, as well as professional judgment. The geologic hazard sub-criterion for each site was given a score according to Table 23.

| Geologic Hazard<br>Weight = 1 | |
|---|---|
| **Feature** | **Sub-Score** |
| No geologic hazard present | 0 |
| Geologic hazard present | 1 |

**Table 23: Presence of Geologic Hazard Sub-Score**

#### *5.9.1.5 Soil Stability*

Certain soil properties have unfavorable characteristics in association with vibratory ground motion. These soil properties include poor mineralogy, low-density soil (lack of compaction), and high water content (or high water table). Sites with the highest values of PGA in combination with deleterious site soils received a relatively lower score. Sites having rock foundations or more suitable soil conditions were considered to be better sites. Soil stability properties were evaluated using the NRCS Soil Data Mart and available USDA county soil surveys. Soil stability for each site was given a sub-score according to Table 24.

| Soil Stability<br>Weight = 2 | |
|---|---|
| **Feature** | **Sub-Score** |
| Rock site | 0 |
| Deep soil site, no known deleterious soil conditions | 1 |
| Deep soil site, potential stability issues or inadequate information to assign a sub-score of 1 | 2 |

**Table 24: Soil Stability Sub-Score**

### *5.9.2 Site AI-1*

#### *5.9.2.1 Vibratory Ground Motion*

The location evaluated for Site AI-1 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 19.03%g (USGS 2008a). Site AI-1 was given a vibratory ground motion score of 7.

#### *5.9.2.2 Capable Faults*

There is one Class A feature within 50 to 100 miles of Site AI-1, and two within 100 to 200 miles (USGS 2008b). There are no Class B faults within 200 miles of Site AI-1. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Prehistoric sandblow craters. Located 50 to 100 miles southeast from AI-1 in the southern coast region

of South Carolina. Quaternary faulting indicated by late Holocene liquefaction features. Source faulting has not been identified (Crone and Wheeler 2000).

Charleston Liquefaction Features (Class A) – Soil liquefaction-formed sand fissures, blows, and craters. Located between 100 and 200 miles south-southeast from Al-1 in the central coast region of South Carolina. Quaternary faulting indicated by direct observations of liquefaction during the Charleston 1886 earthquake. Middle to late Holocene liquefaction features produced by prehistoric earthquakes have also been identified. Source faulting has not been identified (Crone and Wheeler 2000).

Georgetown Liquefaction Features (Class A) – Prehistoric sandblow craters. Located between 100 and 200 miles east from Site Al-1 in the central coast region of South Carolina. Quaternary faulting indicated by late Holocene liquefaction features (and possibly a few liquefaction features due to the Charleston 1886 earthquake). Source faulting has not been identified (Crone and Wheeler 2000).

Site Al-1 was given a Class A tectonic structure score of 3, and a Class B tectonic structure score of 0.

#### *5.9.2.3 Surface Faulting and Deformation*

Several linears were mapped within a 5- and 25- mile radius of Site Al-1 using geophysical data (Maybin 1998). Ground truth investigations are necessary to determine the cause of the linears. Site Al-1 has been given a structure features ranking of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

#### *5.9.2.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Site Al-1 area. Numerous sinkholes, varying from small isolated pockets to large-scale interconnected depressions, occur in the Site Al-1 area (USGS 1978). Site Al-1 was given a geologic hazards score of 1.

#### *5.9.2.5 Soil Stability*

Site Al-1 is a deep soil site that is underlain by soil belonging to the Bonneau fine sand, which is a nearly level soil found on the tops of ridges on the Coastal Plain. The upper soil layer extends to a depth of 63 inches and is characterized as fine loamy sands with moderate permeability, very slow runoff, slight hazard of erosion, and well-suited to most engineering uses (USDA 1993). The soil formed from the underlying Cooper Marl Formation extends to a depth of approximately 200 feet (CGS 1991).

The upper 100 feet of the Cooper Marl Formation consists of grayish-green marl (a calcium carbonate-rich mudstone) that is semi-plastic to plastic when wet. Solutioning activity ranging from small isolated pockets to large-scale interconnected depressions occurs in the Cooper Marl Formation. Development of sensitive facilities will require thorough investigation of any soft underlying materials as well as materials prone to dissolution. Site Al-1 was given a soil stability score of 2.

## *5.9.3 Site Al-2*

### *5.9.3.1 Vibratory Ground Motion*

The location evaluated for Site Al-2 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 18.21%g (USGS 2008a). Site Al-2 was given a vibratory ground motion score of 7.

### *5.9.3.2 Capable Faults*

There is one Class A feature within 50 to 100 miles of Site Al-2, and two within 100 to 200 miles (USGS 2008b). There are no Class B faults within 200 miles of Site Al-2. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 50 to 100 miles southeast from Al-2.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles south-southeast from Al-2.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles east from Site Al-2.

Site Al-2 was given a Class A tectonic structure score of 3, and a Class B tectonic structure score of 0.

### *5.9.3.3 Surface Faulting and Deformation*

Several linears were mapped within both a 5- and 25-mile radius of Site Al-2 using geophysical data (Maybin 1998). Ground truth investigations are necessary to determine the cause of the linears. Site Al-2 was given a structure features ranking of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

### *5.9.3.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, or potential collapse or mined areas were

identified in the Site Al-1 area. Site Al-2 was given a geologic hazards score of 0.

#### *5.9.3.5 Soil Stability*

Site Al-2 is a deep soil site that is underlain by soil belonging to the Eulonia fine sandy loam, which is a nearly level soil found on low terraces adjacent to the flood plain along the Savanna River. The upper soil layer extends to a depth of 60 inches and is characterized as fine sandy loam from the surface to a depth of 6 inches, and clay from 6 to 60 inches. The soil has moderate permeability, slow runoff, and slight hazard of erosion (USDA 1993).

The soil formed from the underlying unconsolidated sand, clayey sand, and marl extends to a depth of approximately 30 to 50 feet (CGS 1991). The unconsolidated materials are underlain by approximately 340 feet of limestone interbedded with sand and clay marls (McCallum-Turner 2005). Development of sensitive facilities will require thorough investigation of any soft underlying materials.

Site Al-2 was given a soil stability score of 2.

### *5.9.4 Site Br-1*

#### *5.9.4.1 Vibratory Ground Motion*

The location evaluated for Site Br-1 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 19.09%g (USGS 2008a). Site Br-1 was given a vibratory ground motion score of 7.

#### *5.9.4.2 Capable Faults*

There is one Class A feature within 50 to 100 miles of Site Br-1, and two within 100 to 200 miles (USGS 2008b). There are no Class B faults within 200 miles of Site Br-1. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 50 to 100 miles southeast from Br-1.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles south-southeast from Br-1.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles east from Site Br-1.

Site Br-1 was given a Class A tectonic structure score of 3, and a Class B tectonic structure score of 0.

#### *5.9.4.3 Surface Faulting and Deformation*

The Dunbarton Triassic Basin is located less than 5 miles north of Site Br-1. The Basin is considered to be a fault graben within the crystalline bedrock basement complex (Marine and Siple 1974). Subsurface investigations conducted at the Savannah River Site indicate that no movement has occurred along the fault boundary since pre-Cretaceous time (in excess of 100 million years).

Two linears have been mapped within both a 5- and 25- mile radius of Site Br-1 using geophysical data (Maybin 1998). Ground truth investigations are necessary to determine the cause of the linears. Site Br-1 has been given a structure features score of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

#### *5.9.4.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Site Br-1 area. Site Br-1 was given a geologic hazards score of 0.

#### *5.9.4.5 Soil Stability*

Site Br-1 is a deep soil site underlain by soil belonging to the Uchee sand, which forms on gentle slopes on the tops and sides of ridges on the Coastal Plain. The upper soil layer extends to a depth of 62 inches and is characterized as sand to loamy sand from the surface to a depth of 35 inches, and clay to sandy clay from 35 to 62 inches. The soil has moderately low permeability, slow runoff, and slight hazard of erosion (NRCS 2008).

The soil formed from the underlying 80- to 100-foot thick Barnwell Formation consists of dense, slightly clayey sand interfingered with thin calcareous sand marl and limestone of the Cooper Marl Formation. Solutioning activity occurs in the Cooper Marl Formation, and the development of sensitive facilities will require thorough investigation of any materials prone to dissolution. Site Br-1 was given a soil stability score of 2.

### *5.9.5 Cope Site*

#### *5.9.5.1 Vibratory Ground Motion*

The location evaluated for the Cope Site has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 27.20%g (USGS 2008a). The Cope Site was given a vibratory ground motion score of 10.

#### *5.9.5.2 Capable Faults*

There is one Class A feature within 50 to 100 miles of the Cope Site, and two within 100 to 200 miles (USGS 2008b). There are no Class B faults within 200

miles of the Cope Site. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 50 to 100 miles south from the Cope Site.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the Cope Site.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the Cope Site.

The Cope Site was given a Class A tectonic structure score of 3, and a Class B tectonic structure score of 0.

#### *5.9.5.3 Surface Faulting and Deformation*

One linear was mapped within 1.5 miles of the Cope Site using geophysical data (Maybin 1998). Ground truth investigations are necessary to determine the cause of the linears. The Cope Site was given a structure features score of 0 for the 25-mile radius, and a score of 2 for the 5-mile radius.

#### *5.9.5.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Cope Site area. Widespread sink development occurs in the Cope Site area (USGS 1979). The Cope Site was given a geologic hazards score of 1.

#### *5.9.5.5 Soil Stability*

The Cope Site is a deep soil site underlain by soil belonging to the Bonneau fine sand, which is a nearly level soil found on the tops of terraces and ridges on the Coastal Plain. The upper soil layer extends to a depth of 80 inches and is characterized as fine loamy sands from the surface to 35 inches, and clay to sandy clay from 35 to 80 inches. The soil has moderate permeability, very slow runoff, slight hazard of erosion, and well-suited to most engineering (NRCS 2008).

The soil formed from the underlying unconsolidated beach terrace deposits consists of approximately 30 to 35 feet of interbedded clay and sand. The terrace deposits are underlain by approximately 10 to 15 feet of shell hash, sand, clay, and marl belonging to the Duplin Formation. The Santee Formation, consisting of approximately 130 to 140 feet of sand and silt underlay the Duplin Formation. Site specific geotechnical data collected from the Cope Site indicates that the soils at the Site are loose to very dense. Blow counts

from standard penetration tests varied from approximately 5 to over 100 blows per count (SCE&G 1991).

The development of sensitive facilities will require thorough investigation of any loose materials. The Cope Site was given a soil stability score of 2.

## *5.9.6 Site Fa-1*

### *5.9.6.1 Vibratory Ground Motion*

The location evaluated for Site Fa-1 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 18.28%g (USGS 2008a). Site Fa-1 was given a vibratory ground motion score of 7.

### *5.9.6.2 Capable Faults*

There is one Class A feature within 50 to 100 miles of Site Fa-1, and two within 100 to 200 miles (USGS 2008b). There are no Class B faults within 200 miles of Site Fa-1. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 50 to 100 miles southwest from Fa-1.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles south from Fa-1.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from Site Fa-1.

Site Fa-1 was given a Class A tectonic structure score of 3, and a Class B tectonic structure score of 0.

### *5.9.6.3 Surface Faulting and Deformation*

A minor, unnamed fault was mapped approximately 8 to 10 miles southeast of Site Fa-1, and the Edgefield Fault, which marks the southeast boundary of the Carolina Slate Belt, is located approximately 20 miles south of the site (CGS 1991; Maybin 1998). One linear was mapped approximately 2 miles from the site. Site Fa-1 has been given a structure features score of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

### *5.9.6.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Site Fa-1 area. Fa-1 was given a geologic hazards score of 0.

#### *5.9.6.5 Soil Stability*

Site Fa-1 is a rock site overlain by a veneer of soil belonging to the Appling loamy sand, which is a deep, well-drained, sloping soil located on ridgetops and slopes at the head of and adjacent to shallow drainage ways. The upper soil layer extends to a depth of 70 inches and is characterized as loamy sands from the surface to 8 inches, and clay to loamy clay from 8 to 70 inches. The soil has moderate permeability, slow runoff, and slight hazard of erosion (USDA 1982). The soil formed from the underlying granitic gneiss and granodiorite bedrock. Site Fa-1 was given a soil stability score of 0.

### *5.9.7 Site Ja-2*

#### *5.9.7.1 Vibratory Ground Motion*

The location evaluated for Site Ja-2 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 22.49%g (USGS 2008a). Site Ja-2 was given a vibratory ground motion score of 8.

#### *5.9.7.2 Capable Faults*

There is one Class A feature within 25 to 50 miles of Site Ja-2, one within 50 to 100 miles of the Site, and one within 100 to 200 miles (USGS 2008b). There are no Class B faults within 200 miles of Site Ja-2. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 25 to 50 miles southwest from Ja-2.

Charleston Liquefaction Features (Class A) – Located between 50 and 100 miles east-southeast from Ja-2.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles east-southeast from Site Ja-2.

Site Ja-2 was given a Class A tectonic structure ranking of 4, and a Class B tectonic structure score of 0.

#### *5.9.7.3 Surface Faulting and Deformation*

A prong of the Yamacraw Ridge (basement feature) is located approximately 15 miles south of Site Ja-2, and is the only structural feature within a 25-mile radius of the Site (CGS 1991; Maybin 1998). Site Ja-2 has been given a structure features score of 1 for the 25-mile radius, and a score of 0 for the 5-mile radius.

#### *5.9.7.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Site Ja-2 area. Ja-2 was given a geologic hazards score of 0.

#### *5.9.7.5 Soil Stability*

Site Ja-2 is a deep soil site underlain by soil belonging to the Albany-Pelham-Ocilla soil association. These soils form on marine terraces and are moderately to poorly drained with slow runoff and light hazard of erosion. The upper soil layer extends to a depth of 80 inches and is characterized as loamy sand to sandy clay loam (NRCS 2008). The soil formed from the underlying unconsolidated sands, clayey sand, and sand-shell marl are approximately 100 feet thick. The unconsolidated sediments are underlain by approximately 400 feet of limestone interbedded with sand and clay marl.

The development of sensitive facilities will require thorough investigation of any loose materials. Site Ja-2 was given a soil stability score of 2.

### *5.9.8 Site Ne-1*

#### *5.9.8.1 Vibratory Ground Motion*

The location evaluated for Site Ne-1 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 18.19%g (USGS 2008a). Site Ne-1 was given a vibratory ground motion score of 7.

#### *5.9.8.2 Capable Faults*

There are three Class A features within 100 to 200 miles of Site Ne-1 (USGS 2008b). There are no Class B faults within 200 miles of Site Ne-1. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 100 to 200 miles south from Ne-1.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from Ne-1.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from Site Ne-1.

Site Ne-1 was given a Class A tectonic structure ranking of 2, and a Class B tectonic structure ranking of 0.

#### *5.9.8.3 Surface Faulting and Deformation*

The Edgefield Fault, which marks the southeast boundary of the Carolina Slate Belt, is located several miles south of the Site (CGS 1991; Maybin 1998). Several linears were mapped within a 25-mile radius of the Site. Site Ne-1 was given a structure features score of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

#### *5.9.8.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Site Ne-1 area. Ne-1 was given a geologic hazards score of 0.

#### *5.9.8.5 Soil Stability*

Site Ne-1 is rock site overlain by a veneer of soil belonging to the Cecil sandy clay loam, which occurs on interfluves. These soils are well-drained with slow runoff and light hazard of erosion. The upper soil layer extends to a depth of 60 inches and is characterized as sandy loam to sandy clay loam (NRCS 2008). The soil formed from the underlying schist bedrock. Site Ne-1 was given a soil stability score of 0.

### *5.9.9 Site Ne-2*

#### *5.9.9.1 Vibratory Ground Motion*

The location evaluated for Site Ne-2 has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 17.24%g (USGS 2008a). Site Ne-2 was given a vibratory ground motion score of 6.

#### *5.9.9.2 Capable Faults*

There are three Class A features within 100 to 200 miles of Site Ne-2 (USGS 2008b). There are no Class B faults within 200 miles of Site Ne-2. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 100 to 200 miles south from Ne-2.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from Ne-2.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from Site Ne-2.

Site Ne-2 was given a Class A tectonic structure score of 2, and a Class B tectonic structure score of 0.

#### *5.9.9.3 Surface Faulting and Deformation*

The Edgefield Fault, which marks the southeast boundary of the Carolina Slate Belt, is located several miles south of the Site (CGS 1991; Maybin 1998). Several linears were mapped within a 25-mile radius of the Site. Site Ne-2 has been given a structure features score of 1 for the 25-mile radius, and a score of 0 for the 5-mile radius.

#### *5.9.9.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Site Ne-2 area. Ne-2 was given a geologic hazards score of 0.

#### *5.9.9.5 Soil Stability*

Site Ne-2 is a rock site overlain by a veneer of soil belonging to the Cecil sandy clay loam, which occurs on interfluves. These soils are well-drained with slow runoff and light hazard of erosion. The upper soil layer extends to a depth of 60 inches and is characterized as sandy loam to sandy clay loam (NRCS 2008). The soil formed from the underlying schist bedrock. Site Ne-2 was given a soil stability score of 0.

### *5.9.10 Saluda Site*

#### *5.9.10.1 Vibratory Ground Motion*

The location evaluated for the Saluda Site has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 17.42%g (USGS 2008a). The Saluda Site was given a vibratory ground motion score of 6.

#### *5.9.10.2 Capable Faults*

There are three Class A features within 100 to 200 miles of the Saluda Site (USGS 2008b). There are no Class B faults within 200 miles of the Saluda Site. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 100 to 200 miles south from the Saluda Site.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the Saluda Site.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the Saluda Site.

The Saluda Site was given a Class A tectonic structure score of 2, and a Class B tectonic structure score of 0.

#### *5.9.10.3 Surface Faulting and Deformation*

The Edgefield Fault, which marks the southeast boundary of the Carolina Slate Belt, is located approximately 20 miles south of the Saluda Site (CGS 1991; Maybin 1998). Several linears were mapped within a 5 and 25-mile radius of the site. The Saluda Site has been given a structure features score of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

#### *5.9.10.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the Saluda Site area. The site was given a geologic hazards score of 0.

#### *5.9.10.5 Soil Stability*

The Saluda Site is a rock site overlain by a veneer of soil belonging to the Cecil sandy loam, which occurs on hill slopes. These soils are well-drained with slow runoff and light hazard of erosion. The upper soil layer extends to a depth of 60 inches and is characterized as sandy loam to sandy clay loam (NRCS 2008). The soil formed from the underlying schist bedrock. The Saluda Site was given a soil stability score of 0.

### *5.9.11 SRS Site*

#### *5.9.11.1 Vibratory Ground Motion*

The location evaluated for the SRS Site has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 17.97%g (USGS 2008a). The SRS Site was given a vibratory ground motion score of 6.

#### *5.9.11.2 Capable Faults*

There are two Class A features within 50 to 100 miles of the SRS site, and one within 100 to 200 miles of the SRS Site (USGS 2008b). There are no Class B faults within 200 miles of the site. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 50 to 100 miles south from the SRS Site.

Charleston Liquefaction Features (Class A) – Located between 50 and 100 miles southeast from the SRS Site.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the SRS Site.

The SRS Site was given a Class A tectonic structure score of 3, and a Class B tectonic structure score of 0.

#### *5.9.11.3 Surface Faulting and Deformation*

The Pen Branch Fault (Class C) occurs through the approximate center of the SRS Site (Maybin 1998; Crone and Wheeler 2000). Several minor, unnamed faults were mapped within a 5 and 25-mile radius of the Site. The SRS Site was given a structure features score of 1 for the 25-mile radius, and a score of 2 for the 5-mile radius.

#### *5.9.11.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse, or mined areas were identified in the SRS area. The SRS Site was given a geologic hazards score of 0.

#### *5.9.11.5 Soil Stability*

SRS is a deep soil site underlain by soil belonging to the Fuquay sand, which is a well-drained soil that occurs on broad ridges of the Coastal Plain. These soils have low permeability, very slow runoff, and light hazard of erosion. The upper soil layer extends to a depth of 60 inches and is characterized as sandy loam to sandy clay loam (USDA 1990). The soil formed from the underlying Santee Formation, which consists of relatively soft silty and clayey sands with low penetration resistance at depths of 100 to 150 feet. The development of sensitive facilities will require thorough investigation of any soft underlying materials. The SRS Site was given a soil stability score of 2.

### *5.9.12 VCSNS Site*

#### *5.9.12.1 Vibratory Ground Motion*

The location evaluated for the VCSNS Site has a peak ground acceleration (%g) with a 2% probability of exceedance (PE) in 50 years of 18.95%g (USGS 2008a). The VCSNS Site was given a vibratory ground motion score of 7.

#### *5.9.12.2 Capable Faults*

There are three Class A features within 100 to 200 miles of the VCSNS Site (USGS 2008b). There are no Class B faults within 200 miles of the VCSNS Site. All Class A features are Quaternary liquefaction features of the type associated with vibratory ground motion and are believed to be caused by movement along unknown faults.

Bluffton Liquefaction Features (Class A) – Located 100 to 200 miles south from the VCSNS Site.

Charleston Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the VCSNS Site.

Georgetown Liquefaction Features (Class A) – Located between 100 and 200 miles southeast from the VCSNS Site.

The VCSNS Site was given a Class A tectonic structure score of 2, and a Class B tectonic structure score of 0.

#### *5.9.12.3 Surface Faulting and Deformation*

Several minor, unnamed faults were mapped within a 25-mile radius of the VCSNS Site (Maybin 1998; Crone and Wheeler 2000). The VCSNS Site was given a structure features score of 1 for the 25-mile radius, and a score of 0 for the 5-mile radius.

#### *5.9.12.4 Geologic Hazards*

No areas of volcanic activity or subsidence due to withdrawal of subsurface fluids, potential unstable slope, potential collapse or mined areas were identified in the VCSNS area. The VCSNS Site was given a geologic hazards score of 0.

#### *5.9.12.5 Soil Stability*

VCSNS is a rock site overlain by a veneer of soil belonging to the Pacolet sandy loam, which is a deep, well-drained soil that occurs on side slopes adjacent to drainage ways. These soils have moderate permeability, slow runoff and light hazard of erosion. The upper soil layer extends to a depth of 52 inches and is characterized as sandy loam to sandy clay loam (USDA 1982). The soil formed from the underlying granitic bedrock. The VCSNS Site was given a soil stability score of 0.

### *5.9.13 Summary of Geology/Seismology Criterion Data and Scores*

Table 25 includes the overall scores for the geology/seismology analysis. The criterion scores were multiplied by the criterion weight factor of 9.8 as shown in Table 2. Ne-2 recevied the highest weighted score of 39.2 and the Cope Site received the lowest weighted score of 19.6.

| Site | Vibratory Ground Motion | Class A Capable Tectonic Structure | Class B Capable Tectonic Structure | Surface Faulting and Deformation (5-25 Miles) | Surface Faulting and Deformation (Within 5 Miles) | Geologic Hazard | Soil Stability | Index Number | Score | Weighted Score |
|---|---|---|---|---|---|---|---|---|---|---|
| **AI-1** | 7 | 3 | 0 | 1 | 2 | 1 | 2 | 51 | 3 | 29.4 |
| **AI-2** | 7 | 3 | 0 | 1 | 2 | 0 | 2 | 50 | 3 | 29.4 |
| **Br-1** | 7 | 3 | 0 | 1 | 2 | 0 | 2 | 50 | 3 | 29.4 |
| **Cope** | 10 | 3 | 0 | 0 | 2 | 1 | 2 | 65 | 2 | 19.6 |
| **Fa-1** | 7 | 3 | 0 | 1 | 2 | 0 | 0 | 46 | 3 | 29.4 |
| **Ja-2** | 8 | 4 | 0 | 1 | 0 | 0 | 2 | 53 | 3 | 29.4 |
| **Ne-1** | 7 | 2 | 0 | 1 | 2 | 0 | 0 | 44 | 3 | 29.4 |
| **Ne-2** | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 35 | 4 | 39.2 |
| **Saluda** | 6 | 2 | 0 | 1 | 2 | 0 | 0 | 39 | 3 | 29.4 |
| **SRS** | 6 | 3 | 0 | 1 | 2 | 0 | 2 | 45 | 3 | 29.4 |
| **VCSNS** | 7 | 2 | 0 | 1 | 0 | 0 | 0 | 40 | 3 | 29.4 |

**Table 25: Geology/Seismic Summary of Scores**

## 5.10. Land Acquisition

### 5.10.1 Criterion Evaluation

The costs and effects of land acquisition are important in siting a nuclear plant. In this siting study, land owned by SCE&G was given a higher score than sites not owned by SCE&G. If property is owned by the U.S. Federal Government, land exchanges or other land acquisition programs are possible where the costs would not be as high compared to acquiring land from private landowners. In some cases, eminent domain may be possible; but for this study, it was assumed land not owned by SCE&G would be purchased from the land owner with the exception of land owned by the U.S. Federal Government, which would be leased or acquired through land exchange. Sites were assigned scores of either 1 or 5 as shown in Table 26 with the exception of the Fa-1 and SRS sites, as explained below.

| Land Acquisition Potential | Score |
|---|---|
| Land Owned by SCE&G | 5 |
| Privately Owned Land | 1 |

**Table 26: Land Acquisition Scores**

### 5.10.2 Sites Al-1, Al-2, Br-1, Ja-2, Ne-1, and Ne-2

Sites Al-1, Al-2, Br-1, Ja-2, Ne-1, and Ne-2 all received a criterion score of 1 because none of the sites are owned by SCE&G and land acquisition would be necessary.

### 5.10.3 Site Fa-1

Site Fa-1 initially received a criterion score of 1 because the site is not owned by SCE&G and land acquisition would be necessary. Because the site borders the Sumter National Forest and a portion of the 6000-acre buffer lies within the National Forest, some land may need to be acquired through land exchange with the U.S. Forest Service. The required value assessments, legal investigations, and NEPA review process would involve additional expenses and could delay the project. The score of 1 was modified to a 0.5 to account for the additional expense and potential schedule delays associated with the land exchange process.

### 5.10.4 Cope Site, Saluda Site, and VCSNS Site

The Cope Site, Saluda Site, and VCSNS Site all received a criterion score of 5 because all of the sites are located on SCE&G-owned property.

### *5.10.5 SRS Site*

The SRS site is owned by the U.S. Department of Energy. It is assumed that the site property would be transferred to SCE&G for a nominal fee and that there would be no associated land acquisition costs. There may be costs associated with lease agreements and access controls. Since it is assumed there would be some costs associated with land acquisition for this site, although not on the same scale as acquiring land from private landowners, this site was given a criterion score of 4.

### *5.10.6 Summary of Land Acquisition Criterion Data and Scores*

Table 27 includes the overall scores for the land acquisition analysis. These were multiplied by the criterion weight factor of 6.3 as shown in Table 2. All of the SCE&G-owned sites, Cope, Saluda, and VCSNS received a weighted score of 31.5 while the remaining sites, with the exception of Fa-1 and SRS, received weighted scores of 6.3. Site Fa-1 received a weighted score of 3.15 while the SRS Site received a weighted score of 25.2.

| | Al-1 | Al-2 | Br-1 | Cope | Fa-1 | Ja-2 | Ne-1 | Ne-2 | Saluda | SRS | VCSNS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Site Score** | 1 | 1 | 1 | 5 | 0.5 | 1 | 1 | 1 | 5 | 4 | 5 |
| **Weighted Site Score** | 6.3 | 6.3 | 6.3 | 31.5 | 3.15 | 6.3 | 6.3 | 6.3 | 31.5 | 25.2 | 31.5 |

**Table 27: Land Acquisition Summary of Scores**

## *5.11. Summary of Findings*

This study evaluated 20 potential sites within the SCE&G service area for siting two AP 1000 nuclear units including 15 greenfield sites, 3 existing fossil-fired sites, 1 existing commercial nuclear site, and 1 existing Federal nuclear site. The 20 potential sites were evaluated against exclusionary criteria. Nine sites (7 greenfield sites and 2 existing fossil-fired sites) that exhibited undesirable characteristics were eliminated and eleven potential sites were down-selected for further evaluation based on screening level criteria.

The 11 remaining sites were evaluated based on screening level criteria. Total site scores were calculated for each site by taking the sum of the criterion weighted scores. A summary of the screening level evaluation is presented in Table 28. Figure 22 shows a graph of each site and overall site scores in order of lowest score to highest score.

The 4 sites with the highest composite scores were identified as candidate sites that would be subjected to detailed analysis in the environmental report for the COL application. Of the 11 sites evaluated, the VCSNS Site, with a composite score of 295.29, was identified as the most suitable site for locating two AP 1000 nuclear generating units. In addition to receiving the highest score, VCSNS has notable advantages found at existing nuclear sites, including existing infrastructure, experienced workforce, and extensive information on environmental impacts.

The sites receiving the 3 next highest scores were the SRS Site, with a composite score of 267.92; the Saluda Site, with a composite score of 267.7; and the Cope Site, with a composite score of 257.37. These sites were retained for evaluation in the environmental report for the COL application as alternative sites to the VCSNS site.

| Site | Site Type | Criterion Weighted Scores | | | | | | | | | | Total Site Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cooling Water Supply | Flooding | Population | Hazardous Land Uses | Ecology | Wetlands | Railroad Access | Transmission Access | Geology/ Seismic | Land Acquisition | |
| **AI-1** | Greenfield | 37.24 | 13.2 | 43 | 23.6 | 24.27 | 7.47 | 6.7 | 7.4 | 29.4 | 6.3 | 198.57 |
| **AI-2** | Greenfield | 39.2 | 4.4 | 43 | 23.6 | 24.27 | 5.6 | 33.5 | 7.4 | 29.4 | 6.3 | 216.67 |
| **Br-1** | Greenfield | 35.28 | 13.2 | 43 | 23.6 | 28 | 18.67 | 13.4 | 22.2 | 29.4 | 6.3 | 233.05 |
| **Cope** | Existing Power Plant - Fossil | 27.44 | 4.4 | 43 | 23.6 | 26.13 | 11.2 | 33.5 | 37 | 19.6 | 31.5 | 257.37 |
| **Fa-1** | Greenfield | 43.12 | 13.2 | 43 | 17.7 | 24.27 | 11.2 | 33.5 | 37 | 29.4 | 3.15 | 255.54 |
| **Ja-2** | Greenfield | 35.28 | 4.4 | 43 | 23.6 | 22.4 | 7.47 | 6.7 | 14.8 | 29.4 | 6.3 | 193.35 |
| **Ne-1** | Greenfield | 39.2 | 13.2 | 43 | 29.5 | 22.4 | 20.53 | 6.7 | 37 | 29.4 | 6.3 | 247.23 |
| **Ne-2** | Greenfield | 37.24 | 13.2 | 43 | 23.6 | 28 | 18.67 | 26.8 | 7.4 | 39.2 | 6.3 | 243.41 |
| **Saluda** | Greenfield | 39.2 | 22 | 43 | 23.6 | 26.13 | 18.67 | 26.8 | 7.4 | 29.4 | 31.5 | 267.70 |
| **SRS** | Existing Federal Nuclear | 33.32 | 22 | 25.8 | 23.6 | 26.13 | 18.67 | 26.8 | 37 | 29.4 | 25.2 | 267.92 |
| **VCSNS** | Existing Power Plant - Nuclear | 43.12 | 22 | 34.4 | 17.7 | 28 | 18.67 | 33.5 | 37 | 29.4 | 31.5 | 295.29 |

**Table 28: Summary of Screening Level Criteria Site Scores**

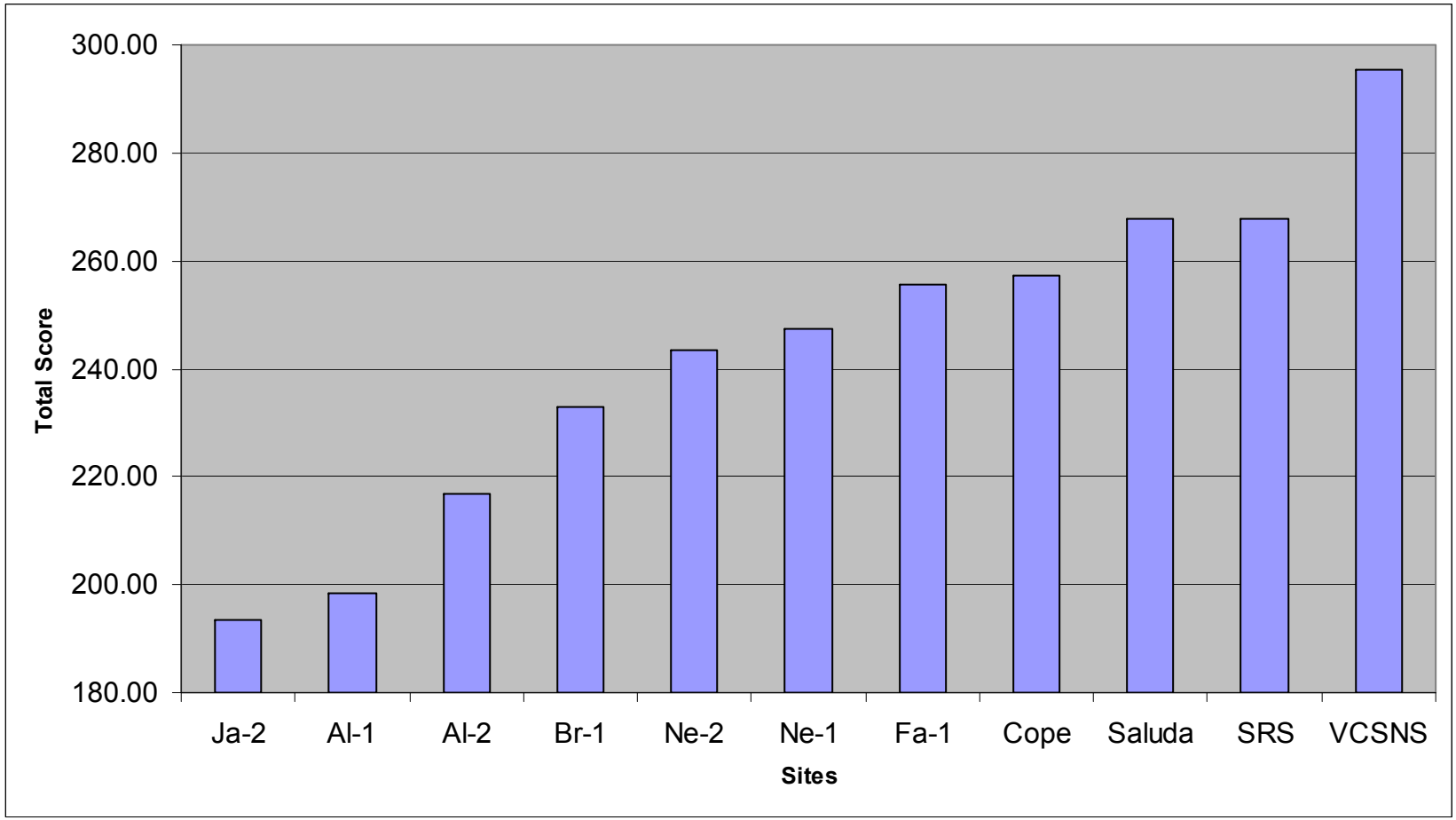


**Figure 22: Composite Site Scores**

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# Appendix A

# Site Score Sheets

## Site Name: AI-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 3.80 | 37.24 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 5.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 2.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 2.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 3.00 | 13.20 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.33 | 24.27 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available for species. | 5 = excellent | N/A | N/A | 3.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facilit | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: AI-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservoir that would be the primary source of cooling water. | < 1 acres = 5<br>1 to 2.5 acres = 4<br>2.6 to 5.0 acres = 3<br>5.1 to 10 acres = 2<br>> 10 acres = 1 | N/A | N/A | 1.00 | 1.33 | 7.47 |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5<br>1 to 2.5 acres = 4<br>2.6 to 5.0 acres = 3<br>5.1 to 10 acres = 2<br>> 10 acres = 1 | N/A | N/A | 1.00 | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided<br>4 = Few wetlands, easily avoided.<br>3 = numerous wetlands, moderately difficult to avoid<br>2 = Numerous wetlands difficult to avoid<br>1 = Too many wetland or insufficient space to avoid. | N/A | N/A | 2.00 | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 6.70 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 7.40 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** (Weight = 5; Index Range = 0 – 50) | | | | | | |
|---|---|---|---|---|---|---|
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | 7.00 | 35.00 | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |
| **Capable Tectonic Structure** Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | 3.00 | 6.00 | | | |
| greater than 50 to 100 mi | 3 | | | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: AI-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | 51.00 | 3.00 | 29.40 |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 1.00 | 1.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 2.00 | 4.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 1.00 | 6.30 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 198.57 |

## Site Name: AI-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 4.00 | 39.20 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 5.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 2.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 3.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 1.00 | 4.40 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.33 | 24.27 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 3.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: AI-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | 1.00 | 5.60 |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | | | | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | N/A | N/A | 1.00 | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 33.50 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 7.40 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | 7.00 | 35.00 | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | 3.00 | 6.00 | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: AI-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | 50.00 | 3.00 | 29.40 |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 2.00 | 4.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 1.00 | 6.30 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 216.67 |

## Site Name: Br-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 3.60 | 35.28 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 5.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 2.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 1.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 3.00 | 13.20 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 5.00 | 28.00 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 5.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Br-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | N/A | N/A | 5.00 | 3.33 | 18.67 |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | N/A | N/A | 1.00 | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | N/A | N/A | 4.00 | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | | | | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 2.00 | 13.40 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 3.00 | 22.20 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | 7.00 | 35.00 | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | | | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |
| **Capable Tectonic Structure** | | 3.00 | 6.00 | | | |
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | | | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Br-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | 50.00 | 3.00 | 29.40 |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 2.00 | 4.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 1.00 | 6.30 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 233.05 |

## Site Name: Cope

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 2.00 | 2.80 | 27.44 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 2.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 2.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 3.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 5.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 1.00 | 4.40 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.67 | 26.13 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 4.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Cope

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | 2.00 | 11.20 |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | | | | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | N/A | N/A | 4.00 | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 33.50 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 37.00 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | 10.00 | 50.00 | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | 3.00 | 6.00 | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Cope

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | 65.00 | 2.00 | 19.60 |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 1.00 | 1.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 2.00 | 4.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 5.00 | 31.50 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 257.37 |

## Site Name: Fa-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 4.40 | 43.12 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 3.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 4.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 5.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 3.00 | 13.20 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 3.00 | 17.70 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.33 | 24.27 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 3.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Fa-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | N/A | N/A | 1.00 | 2.00 | 11.20 |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | N/A | N/A | 1.00 | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | N/A | N/A | 4.00 | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | | | | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 33.50 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 37.00 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | 7.00 | 35.00 | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | | | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | 3.00 | 6.00 | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | | | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Fa-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | 0.00 | 0.00 | 46.00 | 3.00 | 29.40 |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | | | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | 1.00 | 1.00 | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | 2.00 | 4.00 | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | | | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | 0.00 | 0.00 | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | 0.00 | 0.00 | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | | | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 0.50 | 3.15 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 255.54 |

## Site Name: Ja-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 3.60 | 35.28 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 5.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 2.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 1.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 1.00 | 4.40 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 4.00 | 4.00 | 22.40 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 4.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 4.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Ja-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | N/A | N/A | 1.00 | 1.33 | 7.47 |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | N/A | N/A | 1.00 | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | N/A | N/A | 2.00 | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | | | | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 6.70 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 2.00 | 14.80 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | 8.00 | 40.00 | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | | | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | 4.00 | 8.00 | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | | | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Ja-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | 1.00 | 1.00 | 53.00 | 3.00 | 29.40 |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 0.00 | 0.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | No geologic hazard present | 0 | 0.00 | 0.00 | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 2.00 | 4.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 1.00 | 6.30 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 193.35 |

## Site Name: Ne-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 2.00 | 4.00 | 39.20 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 4.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 4.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 5.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 3.00 | 13.20 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 5.00 | 29.50 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.00 | 22.40 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 2.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Ne-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | N/A | N/A | 5.00 | 3.67 | 20.53 |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | N/A | N/A | 2.00 | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | | | | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | N/A | N/A | 4.00 | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | | | | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 6.70 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 37.00 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | 7.00 | 35.00 | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | | | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | 2.00 | 4.00 | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | | | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Ne-1

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | 44.00 | 3.00 | 29.40 |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 0.00 | 0.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 1.00 | 6.30 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 247.23 |

## Site Name: Ne-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 2.00 | 3.80 | 37.24 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 4.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 4.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 4.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 3.00 | 13.20 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 5.00 | 28.00 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 5.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Ne-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 5.00 | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | 3.33 | 18.67 |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | | | | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | N/A | N/A | 4.00 | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 4.00 | 26.80 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 7.40 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | 6.00 | 30.00 | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | 2.00 | 4.00 | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Ne-2

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | 1.00 | 1.00 | 35.00 | 4.00 | 39.20 |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 0.00 | 0.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | No geologic hazard present | 0 | 0.00 | 0.00 | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 0.00 | 0.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 1.00 | 6.30 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 243.41 |

## Site Name: Saluda

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 2.00 | 4.00 | 39.20 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 4.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 4.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 5.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 5.00 | 22.00 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 5.00 | 43.00 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.67 | 26.13 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 4.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: Saluda

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 5.00 | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | 3.33 | 18.67 |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | | | | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | N/A | N/A | 4.00 | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 4.00 | 26.80 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 1.00 | 7.40 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | 6.00 | 30.00 | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | 2.00 | 4.00 | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: Saluda

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | 39.00 | 3.00 | 29.40 |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 0.00 | 0.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 5.00 | 31.50 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 267.70 |

## Site Name: SRS

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 3.40 | 33.32 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 5.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 2.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 4.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 1.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 5.00 | 22.00 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 3.00 | 25.80 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 4.00 | 23.60 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 4.67 | 26.13 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available fo species. | 5 = excellent | N/A | N/A | 4.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: SRS

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservo that would be the primary source of cooling water. | < 1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 5.00 | | |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres | <1 acres = 5 | | | | | |
| | | | | 1 to 2.5 acres = 4 | | | | | |
| | | | | 2.6 to 5.0 acres = 3 | N/A | N/A | 1.00 | 3.33 | 18.67 |
| | | | | 5.1 to 10 acres = 2 | | | | | |
| | | | | > 10 acres = 1 | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided | | | | | |
| | | | | 4 = Few wetlands, easily avoided. | | | | | |
| | | | | 3 = numerous wetlands, moderately difficult to avoid | N/A | N/A | 4.00 | | |
| | | | | 2 = Numerous wetlands difficult to avoid | | | | | |
| | | | | 1 = Too many wetland or insufficient space to avoid. | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 4.00 | 26.80 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 37.00 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | | | | | | |
|---|---|---|---|---|---|---|
| (Weight = 5; Index Range = 0 – 50) | | | | | | |
| **PGA Range** | **Sub-Rating** | | | | | |
| PGA (%g) | | | | | | |
| 0 - 4 | 1 | | | | | |
| 4 - 6 | 2 | | | | | |
| 6 - 9 | 3 | | | | | |
| 9-12 | 4 | 6.00 | 30.00 | | | |
| 12-15 | 5 | | | | | |
| 15 - 18 | 6 | | | | | |
| 18 - 21 | 7 | | | | | |
| 21 - 24 | 8 | | | | | |
| 24 - 27 | 9 | | | | | |
| 27 – 30 | 10 | | | | | |

| **Capable Tectonic Structure** | | | | | | |
|---|---|---|---|---|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | | | | | | |
| **Feature Range** (miles) | **Sub-Rating** | | | | | |
| none within 200 mi radius | 0 | | | | | |
| greater than 100 to 200 mi | 2 | | | | | |
| greater than 50 to 100 mi | 3 | 3.00 | 6.00 | | | |
| greater than 25 to 50 mi | 4 | | | | | |
| 0 to 25 mi | 5 | | | | | |

## Site Name: SRS

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | | | |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | 45.00 | 3.00 | 29.40 |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 2 | 2.00 | 4.00 | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 2.00 | 4.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land<br>5 - Land Owned by SCE&G | N/A | N/A | N/A | 4.00 | 25.20 |
| | | | | | | | | Total Rating: | 267.92 |

## Site Name: VCSNS

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P1 | 9.8 | Cooling Water Supply | 7Q10 in cfs | > 800 = 5 | N/A | N/A | 5.00 | 4.40 | 43.12 |
| | | | | 550 to 799 = 4 | | | | | |
| | | | | 400 to 549 = 3 | | | | | |
| | | | | 200 to 399 = 2 | | | | | |
| | | | | < 200 = 1 | | | | | |
| | | | 7-Day Minimum Flow for the Water Year 2002 in cfs (drought year) | > 350 = 5 | N/A | N/A | 3.00 | | |
| | | | | 250 to 349 = 4 | | | | | |
| | | | | 150 to 249 = 3 | | | | | |
| | | | | 75 to 149 = 2 | | | | | |
| | | | Lake or River | 4– Site includes both a Lake/Reservoir and River | N/A | N/A | 4.00 | | |
| | | | | 3– Site is located on an existing lake or reservoir | | | | | |
| | | | | 2 – Site is located on a river | | | | | |
| | | | Average Flow or Reservoir Volume | > 10,000 cfs or > 7500 acre reservoir = 5 | N/A | N/A | 5.00 | | |
| | | | | > 5000 cfs or > 5000 acre reservoir = 4 | | | | | |
| | | | | > 1300 cfs (minimum) or > 2500 acre reservoir = 3 | | | | | |
| | | | | [whichever is greater for site that have both river and reservoir] | | | | | |
| | | | Distance to Water Source | < 1.5 miles = 5 | N/A | N/A | 5.00 | | |
| | | | | 1.5 to 2.9 miles = 4 | | | | | |
| | | | | 3 to 4.9 miles = 3 | | | | | |
| | | | | 5 to 6.9 miles = 2 | | | | | |
| | | | | ≥ 7 miles = 1 | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P2 | 4.4 | Flooding | Difference between mean site elevation and mean water elevation from USGS maps | 1 – Difference less than 50 feet | N/A | N/A | N/A | 5.00 | 22.00 |
| | | | | 3 – Difference between 50-100 feet | | | | | |
| | | | | 5 – Difference more than 100 feet | | | | | |
| P3 | 8.6 | Population | Distance to high-density population density; distance to population centers (cities and towns) | > 30 miles – 5 | N/A | N/A | N/A | 4.00 | 34.40 |
| | | | | < 30 miles - 4 | | | | | |
| | | | | < 20 miles - 3 | | | | | |
| | | | | < 10 miles - 2 | | | | | |
| | | | | < 5 miles – 1 | | | | | |
| P4 | 5.9 | Hazardous Land Uses | Number of airports, pipelines, and other known hazardous industrial facilities , as determined from publicly available data | 1 – Any large municipal/commercial airport less than 5 miles, or more than 5 county or private airports within 5 miles | N/A | N/A | N/A | 3.00 | 17.70 |
| | | | | 2 – Three to four small airports or pipelines within 5 miles | | | | | |
| | | | | 3 – Any large municipal/commercial airport within 10 miles, or 3-5 airports (county or private) or pipelines within 10 miles or mines within 5 miles | | | | | |
| | | | | 4 – One to two small airports or pipelines or mines within 10 miles | | | | | |
| | | | | 5 – No hazardous land uses within 10 miles | | | | | |
| P5 | 5.6 | Ecology | Number of protected species within the 400 acres | 0 species = 5 | N/A | N/A | 5.00 | 5.00 | 28.00 |
| | | | | 1-2 species = 4 | | | | | |
| | | | | 3-4 species = 3 | | | | | |
| | | | | 4-5 species = 2 | | | | | |
| | | | | >5 species = 1 | | | | | |
| | | | Habitat: Professional judgment of the amount and quality of habitat available for species. | 5 = excellent | N/A | N/A | 5.00 | | |
| | | | | 4 = good | | | | | |
| | | | | 3 = adequate | | | | | |
| | | | | 2 = fair | | | | | |
| | | | | 1 = poor | | | | | |
| | | | Flexibility: Professional judgment of the amount of space within the site circle to avoid known locations of protected species during construction of the facility: | 5 = No species present | N/A | N/A | 5.00 | | |
| | | | | 4 = plenty of room | | | | | |
| | | | | 3 = adequate room | | | | | |
| | | | | 2 = site is somewhat constricting | | | | | |
| | | | | 1 = insufficient room | | | | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |

## Site Name: VCSNS

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| P6 | 5.6 | Wetlands | Total acreage of wetland within the 400 acres, not including the lake or reservoir that would be the primary source of cooling water. | < 1 acres = 5<br>1 to 2.5 acres = 4<br>2.6 to 5.0 acres = 3<br>5.1 to 10 acres = 2<br>> 10 acres = 1 | N/A | N/A | 4.00 | 3.33 | 18.67 |
| | | | Acreage of higher quality wetlands, i.e. forested wetland, within the 6000 acres. | <1 acres = 5<br>1 to 2.5 acres = 4<br>2.6 to 5.0 acres = 3<br>5.1 to 10 acres = 2<br>> 10 acres = 1 | N/A | N/A | 2.00 | | |
| | | | Flexibility: Professional judgment of the amount of space within the 6000 acre site to be able to avoid wetlands during construction of the facility: | 5 = No or very few wetlands, easily avoided<br>4 = Few wetlands, easily avoided.<br>3 = numerous wetlands, moderately difficult to avoid<br>2 = Numerous wetlands difficult to avoid<br>1 = Too many wetland or insufficient space to avoid. | N/A | N/A | 4.00 | | |
| | | | Site rating is numerical average of sub-criterion ratings, rounded to a whole number | | | | | | |
| P7 | 6.7 | Railroad Access | Estimated cost of constructing rail spur to the site, based on distance in miles to the nearest rail line and a linear cost of $3M/mile. | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 33.50 |
| P8 | 7.4 | Transmission Access | Estimated cost of constructing transmission connection from the site to nearest point on the existing grid, based on twice the distance in miles (redundant connections) to the nearest point on the existing grid and a linear cost of | Ratings computed by scaling costs from lowest (rating = 5) to highest (rating = 1) | N/A | N/A | N/A | 5.00 | 37.00 |
| P9 | 9.8 | Geology/Seismic | A numerical system of weights and ratings, based upon suitability criteria, are assigned to the following five sub- categories: vibratory ground motion, capable tectonic sources, surface faulting and deformation, geologic hazards, and soil stability. These data are used to compute (i.e., rate times weight) a suitability index number for each category; methods for deriving individual sub-category indexes are discussed below. Index numbers are summed across all five sub-categories to obtain an overall suitability index for each site. The index numbers are then mapped to criterion ratings of 1 to 5 according to the following algorithm: | | | | | | |

| **Index Range** | **Criterion Rating** |
|---|---|
| 5-21 | 5 |
| 22 - 37 | 4 |
| 38 - 53 | 3 |
| 54 - 69 | 2 |
| 70 - 85 | 1 |

| **Vibratory Ground Motion** | |
|---|---|
| (Weight = 5; Index Range = 0 – 50) | |
| **PGA Range** | **Sub-Rating** |
| PGA (%g) | |
| 0 - 4 | 1 |
| 4 - 6 | 2 |
| 6 - 9 | 3 |
| 9-12 | 4 |
| 12-15 | 5 |
| 15 - 18 | 6 |
| 18 - 21 | 7 |
| 21 - 24 | 8 |
| 24 - 27 | 9 |
| 27 – 30 | 10 |

Sub-Rating: 7.00; Weighted Sub-Rating: 35.00

| **Capable Tectonic Structure** | |
|---|---|
| Class A Features (Weight = 2; Index Range = 0-10) | |
| **Feature Range** (miles) | **Sub-Rating** |
| none within 200 mi radius | 0 |
| greater than 100 to 200 mi | 2 |
| greater than 50 to 100 mi | 3 |
| greater than 25 to 50 mi | 4 |
| 0 to 25 mi | 5 |

Sub-Rating: 2.00; Weighted Sub-Rating: 4.00

## Site Name: VCSNS

| Criterion Number | Weight Factor | Criterion | Measure of Suitability | | Ratings | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Metric | Rating Rationale | Sub-Rating | Weighted Sub-Rating | Sub-Criterion Rating/Index Range | Site Rating/Criterion Rating | Weighted Rating |
| | | | Class B Features (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature Range** (miles) | **Sub-Rating** | | | | | |
| | | | none within 200 mi radius | 0 | | | | | |
| | | | greater than 100 to 200 mi | 2 | 0.00 | 0.00 | | | |
| | | | greater than 50 to 100 mi | 3 | | | | | |
| | | | greater than 25 to 50 mi | 4 | | | | | |
| | | | 0 to 25 mi | 5 | | | | | |
| | | | **Surface Faulting and Deformation** | | | | 40.00 | 3.00 | 29.40 |
| | | | Five miles to with 25 miles (Weight = 1; Index Range = 0-5) | | | | | | |
| | | | **Feature/Range (Within 25 miles)** | **Sub-Rating** | 1.00 | 1.00 | | | |
| | | | No structures | 0 | | | | | |
| | | | Potential non-capable structures | 1 | | | | | |
| | | | Potential capable structures | 5 | | | | | |
| | | | Within 5 Miles (Weight = 2; Index Range = 0-10) | | | | | | |
| | | | **Feature/Range (Within 5 miles)** | **Sub-Rating** | | | | | |
| | | | No structures | 0 | 0.00 | 0.00 | | | |
| | | | Potential non-capable structures | 2 | | | | | |
| | | | Potential capable structures | 3 | | | | | |
| | | | Fault exceeds 1,000 ft. in length | 4 | | | | | |
| | | | Capable fault exceeds 1,000 ft. in length | 5 | | | | | |
| | | | **Geologic Hazard** | | | | | | |
| | | | (Weight = 1; Index Range = 0-1) | | | | | | |
| | | | **Feature** | **Sub-Rating** | 0.00 | 0.00 | | | |
| | | | No geologic hazard present | 0 | | | | | |
| | | | Geologic hazard present | 1 | | | | | |
| | | | **Soil Stability** | | | | | | |
| | | | (Weight = 2; Index Range = 0-4) | | | | | | |
| | | | **Feature** | **Sub-Rating** | | | | | |
| | | | Rock Site | 0 | | | | | |
| | | | Deep soil site, no known deleterious soil conditions | 1 | 0.00 | 0.00 | | | |
| | | | Deep soil site, potential stability issues or | 2 | | | | | |
| | | | inadequate information to assign | | | | | | |
| | | | a sub-rating of 1 | | | | | | |
| P10 | 6.3 | Land Acquisition | Cost to acquire land | 1 - Privately Owned Land | N/A | N/A | N/A | 5.00 | 31.50 |
| | | | | 5 - Land Owned by SCE&G | | | | | |
| | | | | | | | | Total Rating: | 295.29 |