

This section describes the Project's environmental setting for each resource listed in the CEQA Environmental Checklist. The Project's environmental setting includes areas for optional transport routes and the SONGS 2 & 3 site (Appendix A). All staging activities for the Project, including RSG and original steam generator preparation, original steam generator removal and disposal, and RSG installation, will occur on the SONGS 2 & 3 site. The No Project Alternative cannot be described in the same detail as the Project because specific locations for potential new facilities and their environmental settings are currently unknown, and they would be determined only during a separate and complete permitting process if these new facilities were needed. Information for the Replacement Facilities – New Transmission Component of the No Project Alternative was obtained from hypothetical scenarios, existing descriptions, and/or site observations. The No Project Alternative presented here draws on information provided in the PEA for the Valley-Rainbow Interconnect Project as proposed by SDG&E (2001). Incorporation of information from that SDG&E PEA by reference herein does not constitute SCE's or URS's confirmation of conclusions or opinions expressed by SDG&E nor does it constitute a denial of such information. Opinions and conclusions for a future project may differ from those referenced from the SDG&E PEA for a specific project.

4.1 AESTHETICS

4.1.1 Proposed Project

The SONGS 2 & 3 site is an existing industrial facility with office structures, warehouses, paved and non-paved equipment yards, paved and non-paved parking, and SONGS 1, 2, and 3 power generator structures. SONGS 1 is currently being decommissioned. SONGS 2 & 3 is located on a Federal easement, in addition to numerous leased land parcels from the Department of the Navy. The area surrounding SONGS 2 & 3 is composed of open lands managed by California State Parks. The Beach and Road Route Transport and the Inland Route Transport Options are composed of open lands on MCBCP and the I-5 corridor. I-5, existing military roads, and the existing San Diego Northern Railroad are prominent features along these transport options. Ongoing activities along these transport option routes, especially the portions on MCBCP, include military tank, truck, other vehicle, ship, and aircraft traffic, as well as military personnel.

I-5, the I-5 viewpoint, San Diego Northern Railroad, and Old Highway 101 within San Onofre State Park provide the only public views in the Project area. Generally, the views from I-5 do not include

direct views of the beach or shoreline because of obstruction by the coastal bluffs. Views from I-5 to the west are over various disturbed and undisturbed open lands to the Pacific Ocean. A few canyons, such as Las Pulgas Canyon, allow limited views of the beach and shoreline. Views to the east from I-5 are over various disturbed and undisturbed lands toward the mountains. Operation of small to large military vehicles and equipment is common within the viewshed east and west of I-5.

4.1.2 No Project Alternative

4.1.2.1 Replacement Facilities – New Generation Component

A range of aesthetic values, from scenic views/vistas, wilderness land, or disturbed industrial settings, could occur. New generation facilities in southern California are likely to be within the viewshed of one or more of these types of areas and may require a visual resources inventory, an evaluation of landscape scenic quality, and assessment of views from key observation points. Although it is common to site new generation plants in industrial or remote areas, they are often large enough to be, and have large stacks that will be, observable from long distances. Visible plumes may also occur. Moderately to highly sensitive views that would include the No Project Alternative features would be important to the visual analysis. Views from urban residential areas and segments of roads near residences, which serve as their primary access, are potentially highly sensitive.

4.1.2.2 Replacement Facilities – New Transmission Component

A range of aesthetic values, from scenic views/vistas, wilderness land, or disturbed industrial settings, could occur.

4.1.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.1.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

Current views include existing transmission lines in a ROW that is surrounded by mostly urban, developed areas.

4.1.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Modifications to the existing Valley, Imperial Valley, Talega, Devers, and Serrano Substations, as well as modifications to an existing switchyard at SONGS 2 & 3 would occur. The existing substations and SONGS switchyard are in various settings, and most, if not all, provide views of existing equipment. Substation and switchyard improvements would not extend beyond the existing fence lines.

4.1.2.2.2 Imperial Valley-Ramona No Project Alternative**4.1.2.2.2.1 Imperial Valley-Ramona Transmission Lines*****Imperial Valley-Ramona 500 kV line*****Imperial Valley-Dulzura (Looped) Leg**

This portion of the Imperial Valley-Ramona transmission line would be parallel to an existing transmission line (Imperial Valley-Miguel). Current views include the existing transmission line and desert scrub vegetation.

Dulzura-Ramona Leg

This portion of the Imperial Valley-Ramona transmission line would be located in an area with little to no existing transmission lines. Sensitive views and viewers would likely be present, including views of currently undisturbed scrub and chaparral habitats from recreational areas.

Ramona-Sycamore Canyon 230 kV line

The majority of this portion of the transmission line would be parallel to an existing 69 kV transmission line from the existing Creelman Substation to the existing Sycamore Canyon Substation. A portion of this transmission line, however, would likely be located in an area with no existing transmission lines. Portions of current views would include an existing transmission line, as well as areas with no transmission lines.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

This portion of the transmission line would be parallel to an existing transmission line. Current views include the existing transmission line and scrub covered hillsides near expanding residential areas.

4.1.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

It is unknown whether the new 500 kV Ramona Substation would be located in an area with sensitive views or viewers. Existing conditions could vary and would require description and analysis in a PEA before approval. Modifications to the existing Imperial Valley, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. The existing substations are in various settings, and most, if not all, provide views of existing equipment. Improvements to the existing Sycamore Canyon Substation would likely extend beyond the existing fence line.

4.1.2.2.3 Valley-Rainbow No Project Alternative**4.1.2.2.3.1 Valley-Rainbow Transmission Lines**

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), the Valley-Rainbow Transmission Line would be in an area with several potential sensitive viewers. The Diamond Valley Lake Overlook, as well as some vistas across the Temecula Wine Country and Domenigoni Valley, are considered scenic. Four highways (I-15, I-215, State Route [SR] 76, and SR-79 south) are under consideration for designation as scenic highways. Nearby residences would be considered sensitive viewers (SDG&E 2001). It is unknown whether the new transmission line for the No Project Alternative would be located in these areas.

The existing Talega-Escondido 230 kV line is in northern San Diego County, occasionally bordering Orange or Riverside Counties. The western 16 miles of the line are bordered to the north by Cleveland National Forest. Most of the Talega-Escondido area is composed of native scrubs (chaparral and Diegan coastal sage scrub) on steep slopes and disturbed cover types (avocado and citrus groves, cropland, and residential and industrial developed areas). There would also be small areas of riverine and wetland habitat, grass and herb-dominated communities, and woodland and forest vegetation. The proposed southern end of the route becomes increasingly urban as it approaches Escondido.

4.1.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

As discussed in the Valley-Rainbow Interconnect PEA, the new Rainbow Substation is in a Class B scenic quality area. No parks or sensitive roads are near the new Rainbow Substation area. A single residence is within 500 feet of the proposed substation; there are no other residences. If constructed, the new Rainbow Substation would likely not be in the same location as described in the Valley-Rainbow Interconnect PEA (SDG&E 2001). Modifications to the new Rainbow Substation would be required. Existing conditions could vary and would require description and analysis in a PEA before approval. Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. The existing Valley, Devers, Serrano, Mission, Miguel, and Sycamore Canyon Substations are in various settings, and most, if not all, provide views of existing equipment.

4.2 AGRICULTURAL RESOURCES**4.2.1 Proposed Project**

Agricultural resources are present on MCBCP; however, agricultural resources are not present within SONGS 2 & 3 or areas of potential effect along the proposed transport option routes. The route for the I-5 Inland Transport Option is immediately adjacent to agricultural resources, flanking Cockleburrr Road and I-5 on MCBCP.

4.2.2 No Project Alternative**4.2.2.1 Replacement Facilities – New Generation Component**

Agricultural resources and zones could be present within, immediately adjacent to, or near the project impact area. Water supply for a new power plant could affect water supply for agricultural resources (also see Section 4.8), and available water supply for a new generation facility is likely to be limited in the southwestern United States

4.2.2.2 Replacement Facilities – New Transmission Component

Agricultural resources and zones could be present within, immediately adjacent to, or near the areas of potential effect.

4.2.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.2.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

The Reinforced 230 kV SCE/SDG&E Interface No Project Alternative includes upgrades to existing transmission lines. Agricultural resources are not known to be present in this area, much of which is urban and developed land.

4.2.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Modifications to the existing Talega, Imperial Valley, Valley, Devers, and Serrano Substations, as well as modifications to an existing switchyard at SONGS 2&3 would occur within the existing fence lines, and these areas do not support agricultural resources.

4.2.2.2.2 Imperial Valley-Ramona No Project Alternative**4.2.2.2.2.1 Imperial Valley-Ramona Transmission Lines*****Imperial Valley-Ramona 500 kV line*****Imperial Valley-Dulzura (Looped) Leg**

This portion of the Imperial Valley-Ramona transmission line would be parallel to an existing transmission line (Imperial Valley-Miguel). Agricultural resources may be present in this area, although much of the area is not cultivated.

Dulzura-Ramona Leg

This portion of the Imperial Valley-Ramona transmission line would be located in a relatively rural area. Agricultural resources may be present in this area, although much of the area is not cultivated.

Ramona-Sycamore Canyon 230 kV line

The majority of this portion of the transmission line would be parallel to an existing 69 kV transmission line from the existing Creelman Substation to the existing Sycamore Canyon Substation. A portion of this transmission line, however, would likely be located in an area with no existing transmission lines.

Portions of this line may be located in areas with agricultural resources, although much of the area is not cultivated.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

This portion of the transmission line would be parallel to an existing transmission line. Agricultural resources may be present in this area, although much of the area is not cultivated.

4.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

It is unknown whether the new 500 kV Ramona Substation would be located in an area with agricultural resources. Existing conditions could vary and would require description and analysis in a PEA before approval. Modifications to the existing Valley, Sycamore Canyon, Talega, Devers, Imperial Valley, and Serrano Substations would occur. Only the Sycamore Canyon Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. No agricultural resources currently exist within areas of potential effect at these substations.

4.2.2.2.3 Valley-Rainbow No Project Alternative

4.2.2.2.3.1 Valley-Rainbow Transmission Lines

The Valley-Rainbow Interconnect PEA showed the Valley-Rainbow Transmission Line area of potential effect as including Prime Farmland, Unique Farmland, and/or Farmland of Statewide Importance, and some Williamson Act Contract status areas (SDG&E 2001).

“Prime Farmland” is defined as land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for production of irrigated crops sometime during the two update cycles before the mapping date.

“Unique Farmland” is defined as lesser-quality soil used for production of the State’s leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. Land must have been cropped sometime during the two update cycles before the mapping date.

“Farmland of Statewide Importance” is defined as land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been used for production of irrigated crops sometime during the two update cycles before the mapping date.

Under the Williamson Act, the owner of an agricultural parcel may enter into a contract with the county in which the owner agrees to maintain agricultural operations on the parcel for 10 years. In exchange, the county assesses the property based solely on the agricultural value of the parcel, lowering the property tax obligation of the property owner.

The initial contracts are valid for 10 years and renewed automatically unless the property owner files for non-renewal, in which case the contract terminates at the conclusion of the 10 years. Cancellations before completion of a 10-year term can occur only under limited circumstances (SDG&E 2001).

The new transmission line for the No Project Alternative would include similar designations. The Talega-Escondido 230 kV line transmission circuit would be constructed on existing support structures already containing one 230 kV circuit.

4.2.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The proposed Valley-Rainbow Substation site, as described in the Valley-Rainbow Interconnect PEA, would be located on land currently zoned by the County of San Diego for agriculture, although agriculture is not a current use. It is designated in the Rainbow Community Plan as Public/Semi-Public and described for use as a public utility (SDG&E 2001). Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. It is unknown whether the new Rainbow Substation site would be located in or adjacent to an area of agricultural resources.

4.3 AIR QUALITY

4.3.1 Proposed Project

Regulated emissions from sources and atmospheric reactions among airborne chemicals, moisture, and sunlight determine air quality. Air quality in a given location is described by the concentration of various air emissions in the atmosphere, usually expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Both long-term climate factors and short-term weather fluctuations that control pollution dispersion conditions and affect concentration levels are considered part of the air quality resource. Physical effects of ambient air quality within an area depend on receptor characteristics, and air quality standards address the types, amounts, and duration of emissions in the ambient air that are consistent with the goal of preventing harmful effects. Information regarding the location and nature of all significant emission sources is important to understanding air quality in the area.

4.3.1.1 Climatology

The Project site is in the northwest portion of San Diego County, which has a Mediterranean-type climate characterized by hot summers, mild winters, and an almost complete absence of rain for three to four months during the summer. Light to moderate rainfall generally occurs during the winter. A dominating factor in the weather of southern California is the semi-permanent, high-pressure area in the eastern Pacific Ocean. This pressure center migrates north in summer, holding storm systems well to the north of the area. Consequently, southern California receives little or no precipitation during the summer. In winter, the Pacific High retreats southward, allowing storm centers to move into and across southern California. These storms bring widespread, moderate precipitation to southern California.

Low-level temperature inversions (below 1,500 feet) occur frequently over southern California. A temperature inversion refers to a layer of the atmosphere within which temperature increases with height. Temperature inversions restrict the vertical dispersion of emissions and can adversely affect air pollution levels at ground level.

In San Diego County, the months of heaviest precipitation are November through April. The average annual rainfall at the Escondido Monitoring Station (approximately 20 miles southeast of MCBCP) is

14.53 inches. The mean temperature is 62.20 degrees Fahrenheit (°F), and the mean maximum and mean minimum temperatures are 75.5°F and 48.5°F, respectively.

The prevailing wind directions in the Project area are west-southwest to west. Average annual wind speed is six mph. Calm wind conditions occur approximately 21% of the time. Strong winds and gales are infrequent in the region, with wind speeds over 30 mph occurring only approximately once each year on the average.

4.3.1.2 Ambient Air Quality

National Ambient Air Quality Standards (NAAQS) have been established by the United States Environmental Protection Agency (EPA) for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than or equal to 10 micrometers in diameter (PM₁₀), and lead (Pb). NAAQS are presented in Table 4.3-1. New Federal ambient standards governing allowable eight-hour O₃ concentrations, and 24-hour and annual PM_{2.5} concentrations were promulgated on September 15, 1997.

The Project is in San Diego County, which is currently designated as Federal attainment for O₃, CO, NO₂, Pb, and SO₂, and unclassifiable for PM₁₀ by the EPA. San Diego County had been designated a nonattainment area for the Federal one-hour O₃ standard in the past. On June 26, 2003, however, the EPA issued “Approval and Promulgation of Implementation Plans and Designation of Areas for Air Quality Planning Purposes; one-Hour Ozone Standard for San Diego, CA” (Federal Register, Vol. 68, No. 123, 2003). According to the Federal Register, the EPA is taking final action to redesignate the San Diego County area to attainment for the one-hour O₃ NAAQS. The EPA is also approving a one-hour O₃ maintenance plan and motor vehicle emissions budgets as revisions to the San Diego portion of the California State Implementation Plan (SIP). Federal clean air laws require areas with unhealthy levels of ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and inhalable particulate matter to develop plans, known as SIPs, describing how they will attain national ambient air quality standards (NAAQS). This action became effective on July 28, 2003.

The California Clean Air Act (CAA) delegates authority to establish air quality rules, regulations, and ambient air quality standards to State and local agencies. These State and local rules, regulations, and California Ambient Air Quality Standards (CAAQS) must be at least as restrictive as Federal

**Table 4.3-1
Ambient Air Quality Standards**

Regulated Emission	Averaging Time	Federal Standards ¹		
		Primary ^{2,4}	Secondary ^{2,5}	Method ^{3,6}
Ozone	8 Hour 1 Hour	0.08 ppm (157 µg/m ³) 0.12 ppm (235 µg/m ³)	Same as Primary Std. Same as Primary Std.	Ethylene Chemiluminescence
Carbon Monoxide	8 Hour 1 Hour	9 ppm (10 mg/m ³) 35 ppm (40 mg/m ³)	None	Non-dispersive Infrared Spectroscopy (NDIR)
Nitrogen Dioxide	Annual Average 1 Hour	0.0534 ppm (100 µg/m ³) ---	Same as Primary Stds.	Gas Phase Chemiluminescence
Sulfur Dioxide	Annual Average 24 Hour	0.03 ppm (80 µg/m ³) 0.14 ppm (365 µg/m ³)	--- ---	Pararosaniline
Suspended Particulate Matter (PM ₁₀)	Annual Geometric Mean	---	---	---
	24 Hour	150 µg/m ³	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	50 µg/m ³	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
Suspended Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	15 µg/m ³	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
	24 Hour	65 µg/m ³	Same as Primary Stds.	Inertial Separation and Gravimetric Analysis
Sulfates	24 Hour	---	---	---
Lead	30-Day Average	---	---	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	1.5 µg/m ³	Same as Primary Std.	High-Volume Sampler and Atomic Absorption

NOTE: Table prepared pursuant to CARB Fact Sheet 38 (revised 7/88, 10/97, 1/25/99).

1. National standards, other than O₃ and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The O₃ standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
2. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25° C and a reference concentration of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to parts per million by volume, or micromoles of pollutant per mole of gas.
3. Any equivalent procedure that meets the satisfaction of the Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each State must attain the primary standards no later than three years after that State's implementation plan is approved by the EPA.
5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each State must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.
6. Reference method as described by EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and be approved by the EPA.

requirements. The California Air Resources Board (CARB) is the State agency responsible for establishing State rules, regulations, and CAAQS. The San Diego County Air Pollution Control District (SDAPCD) is the local agency responsible for managing air quality in San Diego County.

The San Diego Air Basin is currently designated by the CARB as non-attainment for the State O₃ and PM₁₀, and attainment for CO, NO₂, SO₂, Pb, sulfates, hydrogen sulfide, and visibility. Under CAA requirements, each air basin is required to develop its own strategies to achieve both State and Federal air quality standards. The SDAPCD developed “The San Diego Air Basin 2001 Triennial Regional Air Quality Strategy Revision,” which was adopted by the SDAPCD Board in 2001 (SDAPCD, 2001). This planning document identifies emission-control measures to provide expeditious progress toward attaining the State O₃ standard.

4.3.1.3 SONGS 2 & 3 Air Emissions

Data provided by SCE in table 4.3-2 show annual regulated emissions from operations of SONGS 2 & 3. Because the nuclear electrical generation process does not entail combustion of fossil fuels nor air emission, the operational emissions are primarily from internal combustion engines for ancillary equipment (e.g., stand-by emergency electrical generators) at the power plant site. The 2001 annual emissions reported by SCE are listed in Table 4.3-2. Measured air quality data for Oceanside, California, are listed in Table 4.3-3.

**Table 4.3-2
SONGS 2 & 3 Annual Emissions
Reported by SCE (2001)**

NO _x	32.6 tons
CO	8.4 tons
ROG (reactive organic gases)	2.4 tons
SO _x	0.5 tons
PM10	0.9 tons

**Table 4.3-3
Measured Air Quality Data for
Oceanside, California**

Regulated Emission	Averaging Time	Year	Maximum Concentration	Units	Number of Exceedances	
					State Standard	Federal Standard
Ozone (O ₃)	1-hour	2001	0.104	ppm	1	0
		2000	0.095	ppm	1	0
		1999	0.091	ppm	0	0
		1998	0.105	ppm	3	0
		1997	0.112	ppm	6	0
	8-hour	2001	0.089	ppm	-	1
		2000	0.083	ppm	-	0
		1999	0.081	ppm	-	0
		1998	0.088	ppm	-	1
		1997	0.081	ppm	-	0
Carbon Monoxide (CO)	8-hour	1998	2.31	ppm	0	0
		1997	2.88	ppm	0	0
		1996	2.6	ppm	0	0
		1995	3.13	ppm	0	0
		1994	3.91	ppm	0	0
Particulate Matter <10µm (PM ₁₀)	24-hour	1998	36	µg/m ³	0	0
		1997	50	µg/m ³	0	0
		1996	63	µg/m ³	1	0
		1995	80	µg/m ³	4	0
		1994	75	µg/m ³	3	0
	Annual	1998	20	µg/m ³	1	0
		1997	23	µg/m ³	1	0
		1996	24	µg/m ³	1	0
		1995	27	µg/m ³	1	0
Nitrogen Dioxide (NO ₂)	1-hour	2001	0.096	ppm	0	-
		2000	0.114	ppm	0	-
		1999	0.133	ppm	0	-
		1998	0.087	ppm	0	-
		1997	0.106	ppm	0	-
	Annual	2001	0.016	ppm	-	0
		2000	0.017	ppm	-	0
		1999	0.019	ppm	-	0
		1998	0.016	ppm	-	0
		1997	0.018	ppm	-	0

Table 4.3-3 (continued)
Measured Air Quality Data for
Oceanside, California

Regulated Emission	Averaging Time	Year	Maximum Concentration	Units	Number of Exceedances	
					State Standard	Federal Standard
Sulfur Dioxide (SO ₂)*	24-hour	2002	0.007	ppm	0	0
		2001	0.012	ppm	0	0
		2000	0.01	ppm	0	0
		1999	0.008	ppm	0	0
		1998	0.011	ppm	0	0
	Annual	2002	0.003	ppm	-	0
		2001	0.003	ppm	-	0
		2000	0.004	ppm	-	0
		1999	0.002	ppm	-	0
		1998	0.003	ppm	-	0

Data from the California Air Resources Board Air Quality Data Summaries

4.3.2 No Project Alternative

4.3.2.1 Replacement Facilities – New Generation Component

Although new generation would most likely be constructed in California or Arizona, exact air quality standards and conditions cannot be well defined because specific locations are currently unknown. Climatology and ambient air quality standards can vary substantially within California and Arizona. The following text describes the climate and air quality within the Los Angeles and Palo Verde Air Basins, which are two potential basins for new generation facilities.

4.3.2.1.1 Los Angeles Air Basin Climate

The Los Angeles Air Basin climate is categorized as Mediterranean, characterized by pronounced seasonal changes in rainfall, a dry summer, and rainy winter, but relatively modest transitions in temperature. In the dry season, warm and very dry air descending from the eastern Pacific High caps cool, ocean-modified air under a strong inversion, producing a marine layer. This marine layer is the prominent weather feature for the Los Angeles Basin for much of the year, especially from late spring through early fall. Daily variations in the strength of the Pacific High result in variations in the depth and coverage of the marine layer, which typically thickens and advances inland during the night and

early morning hours before retreating to the sea or burning off to hazy sunshine around midday. Surface emissions trapped under the marine inversion result in smog.

Significant precipitation is rare between May and October because of the dominance of the stable marine layer. Rain occurring at this time of year usually results from isolated thunderstorms associated with subtropical moisture.

Los Angeles is on the southern margins of the jet stream during the remainder of the year from November through April. With cold air aloft, the marine layer breaks down and is no longer dominant. Pacific storms, sometimes fed with subtropical moisture, often push cold fronts across California from northwest to southeast. These storms and frontal systems account for the vast bulk of the area's annual rainfall. Such rainy season storms are migratory, with wet and dry periods alternating during the winter and early spring with considerable irregularity in timing and duration.

Average annual precipitation for the Los Angeles area is highly variable and terrain-dependent, ranging from 12 inches at the ocean to approximately twice that in the foothills. In downtown Los Angeles, the average annual rainfall is approximately 14 inches. The annual average high temperature for the city is 75°F, whereas the average low is 57°F. Although temperatures in the San Bernardino valley tend to fluctuate greatly, summer daytime temperatures may exceed 115°F, and winter nighttime temperatures can dip as low as 20°F.

Winds are generally light, with frequent afternoon sea breezes of 10 to 15 mph. Although severe weather is uncommon, strong offshore winds, known as Santa Anas, can reach hurricane strength below passes and canyons. Additionally, passing winter storms can bring southeast winds to gale force. Damaging winds, however, tend to be rare or highly localized for the most part.

4.3.2.1.2 Los Angeles Air Basin Air Quality

In a continuing trend of significant long-term improvement in air quality, the Los Angeles Air Basin experienced no Stage one episodes through the summers of 1999-2002, although the air basin experienced unhealthy air quality for many months culminating in a Stage one episode in August 2003 (O₃ levels greater than 0.20 ppm for one hour). High O₃ levels typically occur in the Los Angeles Air Basin when a strong high-pressure system (with accompanying high temperatures) creates an inversion

layer that traps smog close to the ground. The highest O₃ levels generally occur in the central San Bernardino Mountains and Santa Clarita, San Fernando, San Gabriel, and San Bernardino Valleys.

Maximum emission concentrations in the region in 2000 exceeded Federal standards for O₃, CO, and particulate matter (PM₁₀ and PM_{2.5}) by a wide margin. In 2000, the maximum measurement of nitrogen dioxide was 80% of State and Federal standards. Sulfur dioxide and Pb concentrations continued to remain well below Federal and State standards in 2000.

For the past 25 years, the number of exceedances of State and Federal air quality standards has decreased continually, showing vast improvements in air quality in the Los Angeles Air Basin, although more improvement is still needed.

4.3.2.1.3 Palo Verde, Arizona Climate

Palo Verde, Arizona, is in the Lower Colorado River Valley. Named for its location surrounding the lower Colorado River in parts of four states, it is the largest, hottest, and driest subdivision of the Sonoran Desert and one of the hottest and driest places in North America. Daytime summer highs may exceed 120°F, with surface temperatures much higher. There is intense solar radiation from cloudless skies and extremely low humidity (often less than 10%). Annual rainfall near Palo Verde averages approximately 7.5 inches, although there have been years with as little as one inch of precipitation. There are mild winters with warm days (60°F to 70°F) and cool nights (around 40°F).

Desert regions are inclined to be windy because little friction is generated between moving air and the low, sparse vegetation cover. Additionally, rapid daytime heating of the lower air over the desert leads to convective activity. This exchange of lower and upper air tends to accelerate surface winds during the warm part of the day, when convection is at a maximum. The surface heating is not as intense during winter months, and rapid cooling in the surface layers at night retards this exchange of momentum. Consequently, winds are generally calmer in winter, except during passage of frontal storm systems. The prevailing wind direction is predominantly from the east during all seasons.

4.3.2.1.4 Palo Verde, Arizona Air Quality

Maricopa County, Arizona, encompasses Palo Verde and Phoenix and stretches east to Tonto National Monument. For all sites in Maricopa County for 2000-2002, CO and NO₂ were measured below

Federal and Arizona standards. SO₂ and Pb concentrations continued to remain well below Federal and Arizona standards for 2000-2002.

From 1997-2002, Maricopa County achieved compliance with the one-hour O₃ standard. The urbanized area of Maricopa County, however, currently retains its designation as a serious O₃ non-attainment area. In 2002, many of the monitoring sites exceeded eight-hour Arizona and Federal standards for O₃. Also in 2002, 24-hour and annual PM₁₀ concentrations measured at numerous sites exceeded Arizona and Federal standards. The Palo Verde site did not exceed Arizona and Federal standards for either O₃ or PM₁₀ for 1999-2001.

4.3.2.2 Replacement Facilities – New Transmission Component

4.3.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.3.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

The climate is mild with dry, hot summers and moderate to cool winters. August tends to be the hottest month. The area typically has light precipitation. Predominant wind direction is from the northwest, with an average annual wind speed under 7 mph. This corridor is within South Coast Air Quality Management District (SCAQMD) jurisdiction.

4.3.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

The climate is similar to the climate described in Section 4.3.2.2.1.1. The substations and switchyard would be under SCAQMD and SDAPCD jurisdiction.

4.3.2.2.2 Imperial Valley-Ramona No Project Alternative

4.3.2.2.2.1 Imperial Valley-Ramona Transmission Lines

The climate is similar to the climate described in Section 4.3.2.2.1.1. Predominant wind direction is from the northwest, with a mean annual wind speed of 5.3 mph and peak gusts up to 57 mph. The transmission lines would be under Imperial County Air Pollution Control District (ICAPCD) and SDAPCD jurisdiction.

4.3.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The climate is similar to the climate described in Section 4.3.2.2.1.1. Predominant wind direction is from the northwest, with a mean annual wind speed of 5.3 mph and peak gusts up to 57 mph. The substations would be under ICAPCD, SCAQMD, and SDAPCD jurisdiction.

4.3.2.2.3 Valley-Rainbow No Project Alternative**4.3.2.2.3.1 Valley-Rainbow Transmission Lines**

The region of the Valley-Rainbow and Talega-Escondido Transmission Lines ranges from 980 to 1,429 feet in elevation (SDG&E 2001). The climate is similar to the climate described in Sections 4.3.2.2.1.1. Predominant wind direction is from the northwest, with a mean annual wind speed of 5.3 mph and peak gusts up to 57 mph.

The SCAQMD and SDAPCD oversee air quality issues and standards. The emissions levels for all regulated emissions in the SCAQMD and SDAPCD have been decreasing since 1985. The maximum hourly concentrations of O₃ have decreased by 41% in the SCAQMD and by 46% in the SDAPCD. The number of exceedances of both State and Federal standards has declined dramatically over the last two decades. Conditions would be similar for the new transmission line for the No Project Alternative.

4.3.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The climate described in Sections 4.3.2.2.1 and 4.3.2.2.3 is similar to that at applicable substations in southern California, which would be under SCAQMD and SDAPCD jurisdiction.

4.4 BIOLOGICAL RESOURCES**4.4.1 Proposed Project****4.4.1.1 Methods**

Biological surveys were conducted along the Beach and Road Route Transport Option by URS biologists on October 4 and 7, 2002. Surveys along the Inland Transport Routes were conducted on August 6, 2003. Before the surveys, aerial photographs of the route overlaid with biological resource data from MCBCP were reviewed. In the field, plant species were identified, sensitive species locations added, and vegetation mapping verified or modified as required to reflect current conditions. Wildlife

was identified using scat, tracks, burrows, vocalizations, or direct observation with binoculars. Photographs were taken to characterize portions of the transport route, document various habitats and species encountered along the route, and facilitate this environmental assessment. Additional areas approximately 500 feet on each side of the alignment were observed, especially if spatial constraints will be posed for the transport activities or if a resource of potential concern was identified from the MCBCP or other databases or during the survey. The SONGS 2 & 3 site is developed land, and no surveys were performed at the site.

4.4.1.2 Vegetation

The various routes are generally on paved roads, dirt roads, and largely unvegetated, disturbed areas of beach sand that are used by the military as roads, including stream crossings at their confluence with the Pacific Ocean. Otherwise, several native and non-native plant communities occur along this route that are not within the area of potential effect. The Inland Routes are located on existing roads for the most part. Therefore, areas of potential impact on vegetation are limited to offroad transition points (see Section 3.1). The general vegetation communities found in the overall study area are described below. Listed species within the Project ROW are included in Table 4.4-1.

**Table 4.4-1
Listed Plant Species Within Proposed Project ROW**

Scientific Name	Common Name	Federal Status	State Status
<i>Eryngium aristulatum</i> ssp. <i>parishii</i>	San Diego button-celery	Endangered	Endangered
<i>Navarretia fossalis</i>	Spreading navarretia	Threatened	--

4.4.1.2.1 Beach and Road Route Transport Option

The shore of the Camp Pendleton Del Mar Boat Basin on MCBCP is unvegetated. The Camp Pendleton Del Mar Boat Basin near the bulkhead and planned barge staging area is also unvegetated, without emergent vegetation or submerged vegetation, such as eelgrass (*Zostera marina*). The route traverses developed roads from the Camp Pendleton Del Mar Boat Basin to the beach on MCBCP.

The route continues from the beach near Camp Del Mar along largely unvegetated, disturbed portions of the beach to Red Beach (segments B and C on Figures B-1 through B-5 of Appendix B). Heading north along the beach, the route passes by, but does not include the estuarine habitat of the Santa Margarita

River and a least tern (*Sterna antillarum*) nesting area to the east of segment B, on Figures B-1 and B-2 of Appendix B. Continuing north, the Proposed Alternative will cross the mouth of the Santa Margarita River. This area is subjected to tidal and freshwater flow, and there is no vegetation at this crossing point. Along this portion of the transport route, red sand verbena (*Abronia maritima*, California Native Plant Society [CNPS] List 4) was observed on the back dunes near the bluffs. The proposed route travels west of these occurrences on the largely unvegetated, disturbed portion of the beach (i.e., on the military road), and the red sand verbena is outside the area of potential effect. This route proceeds through segment C (Figures B-2 through B-5) on an existing, unvegetated military access route along the beach on MCBCP to Red Beach and Las Pulgas Road.

An area of estuarine habitat associated with Las Flores Creek occurs south of the road at Red Beach within segment D, Figure B-5 of Appendix B (near the Las Pulgas Road exit at I-5); however, it is outside the transport path and area of potential effect. The dirt road from Red Beach toward I-5 does not support vegetation, and covers a highly disturbed broad staging area used in military activities. The transition route from the dirt roads on MCBCP within segment E on Figure B-5 of Appendix B, to I-5 (segment F on Figure B-5 of Appendix B) crosses an area of disturbed ground with a sparse cover of ruderal and coastal sage scrub species. The transition route from I-5 back to the dirt roads on MCBCP within segment G, on Figures B-5 and B-6 of Appendix B, also crosses disturbed ground with a sparse cover of ruderal and coastal sage scrub species.

The route proceeds on dirt roads on MCBCP between Skull Canyon and the Viewpoint at I-5 along segment G on Figures B-5 and B-6 of Appendix B. These dirt roads traverse lands disturbed by military use and support a mixture of coastal sage scrub, non-native grassland, ruderal, and barren ground. A “Y-turn” will be performed where the dirt road transitions to paved road around the west and north sides of the I-5 viewpoint, where segment G becomes segment H (Figure B-6 of Appendix B) on MCBCP. This area supports coastal sage scrub close to the roads; however, the transport will remain on the dirt and paved roads through this area. Therefore, the coastal sage scrub habitat in this area is outside the area of potential effect. Vernal pools were not observed in the area adjacent to the dirt roads, and according to biological resource data from MCBCP, the closest vernal pools are at least 400 feet from the proposed route, south of Skull Canyon, and 100-feet from the “Y-turn” at the I-5 viewpoint. The sensitive species associated with the vernal pools and mesa tops include Camp Pendleton button celery (*Eryngium*

pendletonensis, CNPS 1B), San Diego button celery (*E. aristulatum* var. *parishii*, listed as Endangered by the Federal government), and Blochman's dudleya (*Dudleya blochmaniae*, CNPS 1B), and these species do not occur within the immediate vicinity of the proposed transportation route and will not be affected by the Project.

The portion of the route between the viewpoint at I-5 and SONGS 2 & 3 along Old Highway 101 is on paved road (segments H through J on Figures B-6 through B-9 of Appendix B). The portion of the paved road south of the San Onofre State Park fence is on MCBCP (segment H on Figures B-6 and B-7 of Appendix B). Both sides of the paved portions of Old Highway 101 support lands dominated by coastal sage scrub, with some inclusions of non-native species (grasses and ruderal species). The coastal sage scrub habitat is best developed on the portions within the San Onofre State Park (segment I on Figures B-7 through B-9 of Appendix B).

4.4.1.2.2 I-5/Old Highway 101 Route Transport Option

This route originates at the Camp Pendleton Del Mar Boat Basin and continues through developed portions of the Base (segments K and L on Figure B-1 of Appendix B) to I-5. Much of this route is on I-5, and the portion of the route on I-5 is not associated with natural habitats, except at the transition points to and from I-5, and beyond the disturbed I-5 right-of-way (ROW). The first, southernmost transition from MCBCP to I-5 between segments L and M (Figure B-1 of Appendix B) is at an area of open land that is actively used by MCBCP, and it does not support vegetation of concern. The next transition point from I-5 to MCBCP near Cockleburr Road between segments N and O (Figure B-2 of Appendix B) is in an area surrounded by agricultural land. The distance is short and connects directly to an existing road. The route then passes along existing roads (segments O and P on Figures B-2 and B-3 of Appendix B) with adjacent habitats consisting of coastal sage scrub, riparian, and non-native grassland communities, and developed land up to the transition back to I-5 (segments Q through R on Figure B-3). The next transition from I-5 to MCBCP occurs just north of Skull Canyon, between segments F and G on Figure B-5 of Appendix B, and then proceeds to SONGS 2 & 3 in the same manner as for the Beach and Road Route Transport Option. Refer to the description of vegetation in 4.4.1.2.1 for more detail on this area. This transition area is dominated by non-native grasses and ruderal species. The transporter will immediately move to existing dirt roads (segment G on Figure B-5 and B-6 of Appendix B) and then to the paved Old Highway 101 (segment H on Figure B-6 and B-7 of

Appendix B) just north of the I-5 viewpoint to continue its transport to SONGS 2 & 3 (segments I and J on Figure B-9 of Appendix B) as with the Beach and Road Transport Option. This final leg of the transport route passes through areas with adjacent lands supporting coastal sage scrub, non-native grassland, and ruderal plant communities as described for the Beach and Road Route Transport Option. As with the Beach and Road Route Transport Option, the I-5/Old Highway 101 Route Transport Option passes an area of coastal sage scrub habitat at the transition to Old Highway 101, where a “Y-turn” is proposed, between segments G and H on Figure B-6 of Appendix B, to allow the transporter to remain on the existing roads. One pair of California gnatcatchers was observed in the general vicinity of this location during the biological survey in August 2003 (see Section 4.4.1.3).

4.4.1.2.3 MCBCP Inland Route Transport Option

This route originates at the Camp Pendleton Del Mar Boat Basin and continues through developed portions of the Base to I-5 (segment K on Figure B-1 of Appendix B). At that point, it travels underneath I-5 to existing roads on MCBCP (segment T on Figure B-1 of Appendix B). This proposed transition from MCBCP underneath I-5 will require the transporter to cross over a mostly barren area with scattered, small patches of ruderal vegetation. The transporter will then travel along a narrow dirt road under I-5 and continue traveling north on the west side of the commercial businesses along Vandegrift Road (segments U and V1 or V2 on Figures B-1 and B-2 of Appendix B). The route requires a sharp turn to the east between segment U and V1, on Figure B-1 of Appendix B, along the road that is bordered by ornamental, coastal sage scrub, and ruderal vegetation. The transporter will then turn to the north on Vandegrift Road and continue to the intersection of Vandegrift and Stuart Mesa Roads. Both of these roads have paved surfaces. A proposed alternate to the sharp turn (segment V2 on Figures B-1 and B-2 of Appendix B) would have the transporter continuing north on the dirt road toward an intersection with Stuart Mesa Road. The dirt road passes through coastal sage scrub, freshwater marsh, riparian scrub, and ruderal vegetation, which are adjacent or nearby the dirt road.

The transporter will then continue on Stuart Mesa Road, along segment W on Figures B-2 and B-3 of Appendix B, across a bridge spanning the Santa Margarita River and its associated riparian habitat. The transporter will remain on a paved road on MCBCP that passes through coastal sage scrub, ruderal, riparian, and vernal pool habitat. None of these habitats will be affected by the proposed action.

There is a sharp turn in the paved road, between segments X and Y on Figure B-5 of Appendix B, which may require a “Y-turn”. The areas adjacent to the road are dominated by non-native, ruderal species. The transport route continues on paved road until it reaches the I-5 checkpoint at segment Z on Figure B-8 of Appendix B. Here the route turns to the southwest to transition to I-5, on segment AA on Figure B-8 of Appendix B, through a parking lot at the checkpoint. The connecting road to the parking lot in segment Z, on Figure B-8 of Appendix B, is paved and bordered by dense coastal sage scrub.

The transporter will then continue on I-5 to SONGS 2 & 3, along segment AB on Figures B-8 and B-9 of Appendix B, where it will transition from I-5, on segment AC on Figure B-9 of Appendix B, to a paved road and access SONGS 2 & 3. This transition will cross through a highly disturbed shoulder of I-5 that consists of ruderal species such as castor bean (*Ricinus communis*), short-pod mustard (*Hirschfeldia incana*), and spotted spurge (*Euphorbia maculata*). After crossing the double set of San Diego Northern Railroad tracks (segment AC on Figure B-9 of Appendix B), the transporter will cross the vegetated shoulder of the access road to SONGS 2 & 3. The vegetation at this location consists of common tarplant (*Deinandra fasciculata*), goldenbush (*Isocoma menziesii*), fennel (*Foeniculum vulgare*), and a couple individuals of mulefat (*Baccharis salicifolia*). The transport route then continues on the paved road to SONGS 2 & 3.

4.4.1.2.4 SONGS 2 & 3 Site

The SONGS 2 & 3 site is developed land that does not include natural vegetation communities. Only ornamental vegetation and non-native plant species occur within the developed land and the staging areas either are paved or gravel lots.

4.4.1.3 Wildlife

MCBCP is the largest remaining tract of land in coastal southern California that has little development or direct human influence, except for the frequent military training operations conducted there. MCBCP has high wildlife species diversity, and supports core populations of several Threatened and Endangered wildlife species of southern California. Wildlife species observed during biological surveys included many sensitive species, including salt marsh skipper (*Panoquina errans*, uncommon: no State or Federal status), western snowy plover (*Charadrius alexandrinus nivosus*, California Species of Special Concern [SSC] and federally listed as Threatened), coastal California gnatcatcher (*Poliophtila californica*

californica, federally listed as Threatened), Belding’s Savannah sparrow (*Passerculus sandwichensis beldingi*, State listed as Endangered), and California brown pelican (*Pelecanus occidentalis californicus*, State and federally listed as Endangered). Additionally, four raptor species were observed along the route, including osprey (*Pandion haliaetus*, SSC), white-tailed kite (*Elanus leucurus*, SSC), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). A total of 31 bird species were observed, and California side-blotched lizard (*Uta stansburiana elegans*) represented the one reptile species observed during the surveys. Table 4.4-2 includes the listed wildlife species within the Proposed Project ROW.

**Table 4.4-2
Listed Wildlife Species Potentially Present Within Proposed Project ROW**

Scientific Name	Common Name	Federal Status	State Status
<i>Aquila chrysaetos</i>	golden eagle	--	Fully Protected
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	Threatened	--
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	Endangered	--
<i>Bufo californicus</i>	arroyo toad	Endangered	--
<i>Buteo swainsoni</i>	Swainson's hawk	--	Threatened
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	Threatened	--
<i>Elanus leucurus</i>	white-tailed kite	--	Fully Protected
<i>Empidonax traillii</i>	willow flycatcher	--	Endangered
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Endangered	--
<i>Eucyclogobius newberryi</i>	tidewater goby	Endangered	--
<i>Falco peregrinus anatum</i>	American peregrine falcon	--	Endangered, Fully Protected
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	--	Endangered
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Endangered	Endangered, Fully Protected
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	Endangered	--
<i>Polioptila californica californica</i>	coastal California gnatcatcher	Threatened	--
<i>Rallus longirostris levipes</i>	light-footed clapper rail	Endangered	Endangered, Fully Protected
<i>Sterna antillarum browni</i>	California least tern	Endangered	Endangered
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	Endangered	--
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered	Endangered

4.4.1.3.1 Beach and Road Route Transport Option

The study area does not constitute substantial core habitat for a large spectrum of species including large mammals, birds, and reptiles because it lies in a narrow strip between I-5 and the Pacific Ocean with few connections to contiguous habitat to the east. Therefore, wildlife species diversity is not expected to be high in the study area.

The shore of the Camp Pendleton Del Mar Boat Basin is unvegetated. The Camp Pendleton Del Mar Boat Basin near the bulkhead and planned barge staging area is also unvegetated, without emergent vegetation or submerged vegetation, such as eelgrass. No wildlife species were observed in the immediate barge staging area, although western grebes (*Aechmophorus occidentalis*) and California brown pelicans were observed at the far end of the Camp Pendleton Del Mar Boat Basin. Common urban-adapted wildlife species were observed along this portion of the route such as mourning dove (*Zenaida macroura*) and house finch (*Carpodacus mexicanus*).

The route traverses developed roads from the Camp Pendleton Del Mar Boat Basin to the beach (segment A of Figure B-1 of Appendix B). The route uses an existing, unvegetated military access route along the south side of the Santa Margarita Estuary (segment B on Figures B-1 and B-2 of Appendix B) to exit from developed portions of MCBCP along the Camp Del Mar Beach and Recreation area. The Santa Margarita estuary provides habitat for a large variety of bird species, and those observed during the URS surveys included great blue heron (*Ardea herodias*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), western grebe, California brown pelican, ring-billed gull (*Larus delawarensis*), double-crested cormorant (*Phalacrocorax auritus*, SSC), red-winged black bird (*Agelaius phoeniceus*), Osprey, and white-tailed kite. Over 20 species of fish potentially inhabit the lagoon including mullet, which were observed breaching on occasion during the URS surveys. The tidewater goby (*Eucyclogobius newberryi*) is federally listed as an Endangered species. Although the tidewater goby is not known to occur regularly in the Santa Margarita estuary, it was reported in 2001 (personal communication with MCBCP), and could be present in the estuary during the transport. No other sensitive fish species are shown by the MCBCP biological resources database to inhabit this estuary or other open water areas near the transport route. The estuary's connection with the ocean is unvegetated and supports sparse foraging shorebirds, such as western snowy plovers and willets (*Catoptrophorus semipalmatus*). Additionally, this area was noted as being the principal overflight zone for birds headed out to sea from the estuary and vice versa.

In addition to the Santa Margarita Estuary, several minor estuaries are present along the Beach and Road Transport Route (segment C on Figures B-2 through B-5 of Appendix B), although they had no observed surface connection with the ocean during the URS surveys. Outflow to the ocean is likely via subsurface for some minor drainages much of the time, and no wildlife species were observed to be specifically associated with these subsurface flow zones.

The route continues from the beach near Camp Del Mar along largely unvegetated, disturbed portions of the beach to Red Beach (segments B and C on Figures B-1 through B-5 of Appendix B). This route passes by several designated nesting areas for least terns and western snowy plovers. Although the transport route passes within 50 feet of these nesting areas, these areas are well marked for avoidance. One pair of Belding's Savannah sparrows was observed foraging within this nesting habitat near the Camp Del Mar camping area during the October 2002 surveys. Additionally, one salt marsh skipper was observed in foredunes habitat approximately one mile north of the Santa Margarita estuary in segment C on Figure B-3 of Appendix B.

Several western snowy plovers were observed along the beach during the URS surveys from the Santa Margarita estuary to Skull Canyon (segment C on Figure B-5 of Appendix B). Foraging in flocks of approximately four to ten individuals, the snowy plovers were generally found in wet sand at the beach-surf interface. Besides snowy plovers, few other wildlife species were observed along the beach itself, and included sparsely distributed shorebirds such as willets foraging close to the surf, and side-blotched lizards found at the beach-foredunes interface. Raptors, including red-tailed hawk and American kestrels, were observed foraging along the bluffs at this portion of the route. Additionally, several turkey vultures (*Cathartes aura*) were sited.

The dirt road from Red Beach toward I-5, segment D on Figure B-5 of Appendix B, does not support vegetation, and covers a broad staging area used in military activities. An area of estuarine habitat that is associated with Las Flores Creek occurs south of the road at Red Beach (near the Las Pulgas Road exit at I-5); however, it is outside the transport path. The MCBCP biological resources database shows that the riparian habitat associated with Las Flores Creek supports southwestern willow flycatcher (*Empidonax traillii extimus*); however, this location is over 400 feet from the transport route on the beach, and the transport will occur outside the breeding season for this migratory species. Therefore,

this species, as well as the potentially occurring least Bell's vireo (*Vireo bellii pusillus*), will not be present during the transport.

The transition route from the dirt roads on MCBCP to I-5 (from segment E to F on Figure B-5 of Appendix B) crosses an area of barren ground and ruderal habitat. The transition route from I-5 back to the dirt roads on MCBCP (from segment F to G on Figure B-5 of Appendix B) also crosses an area of barren ground and ruderal habitat. These areas do not represent valuable wildlife habitat, and no known or observed sensitive species are present at this location.

A sparsely distributed vernal pool complex exists on the bluffs south of Skull Canyon that may support associated sensitive vernal pool crustaceans. These pools are located over 400 feet away from the area of potential effect.

The route from north of Skull Canyon on dirt roads on MCBCP (segment G on Figure B-5 and B-6 of Appendix B) to the Viewpoint at I-5 traverses lands disturbed by military use and that support a mixture of coastal sage scrub, non-native grassland, ruderal, and barren ground habitats. Sparsely scattered vernal pools are present within 100 feet of the transport route where the paved portion of Old Highway 101 ends, near the Viewpoint (near the transition from segment G to H on Figure B-6 of Appendix B). There is potential for these vernal pools to support sensitive Anostracans such as San Diego fairy shrimp (*Branchinecta sandiegoensis*) or Riverside fairy shrimp (*Streptocephalus woottoni*). A "Y-turn" will be performed where the dirt road transitions to paved road around the west side of the Viewpoint on MCBCP (segment G to H on Figure B-6 of Appendix B). This area supports California gnatcatcher-occupied coastal sage scrub habitat close to the roads; however, the transport will remain on the paved and dirt roads through this area. Therefore, the coastal sage scrub habitat in this area is outside the area of potential effect. California gnatcatchers were observed in the coastal sage scrub at this location during surveys on August 6, 2003.

The portion of the route from the Viewpoint at I-5 to SONGS 2 & 3 along Old Highway 101 is on paved road (segments H through J on Figures B-6 through B-9 of Appendix B). Both sides of the paved portions of Old Highway 101 support lands dominated by coastal sage scrub, with some inclusions of non-native species (grasses and ruderal species). The coastal sage scrub habitat is the most well developed on the portions within the San Onofre State Park (segment I on Figures B-7 through B-9 of Appendix B).

According to the MCBCP biological resources database, several coastal California gnatcatchers occupy this coastal sage scrub habitat. Other sensitive species commonly found in this habitat type and likely to be present include Belding's orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*) and San Diego horned lizard (*Phrynosoma coronatum blainvillii*).

4.4.1.3.2 I-5/Old Highway 101 Route Transport Option

This route originates at the Camp Pendleton Del Mar Boat Basin and continues through developed portions of the Base to I-5 on segments K and L on Figure B-1 of Appendix B. Most of this route is on I-5. Only the transition points to and from I-5 are associated with natural habitats. The first, southernmost transition from MCBCP to I-5, between segments L and M on Figures B-1 and B-2 of Appendix B, is at an area of open land that is actively used by MCBCP, and it does not support wildlife species of concern. The next transition point from I-5 to MCBCP near Cockleburr Road, between segments N and O on Figure B-2 of Appendix B, is in an area surrounded by agricultural land. The distance is short and connects directly to an existing road. The route then passes along existing roads (segments O and P on Figures B-2 and B-3 of Appendix B) with adjacent habitats consisting of coastal sage scrub, riparian, and non-native grassland communities, and developed land up to the transition back to I-5 (segment Q to R on Figure B-3 of Appendix B). California gnatcatchers are known to occur in the coastal sage scrub habitat in this area. The next transition from I-5 to MCBCP occurs just north of Skull Canyon between segments F and G on Figure B-5 of Appendix B. This area is dominated by non-native grasses and ruderal species. California gnatcatcher are not shown in the MCBCP environmental database in this area, and they are not expected to be present because there is not suitable habitat for them in this area. The transporter will immediately move to existing dirt roads, along segment G on Figures B-5 and B-6 of Appendix B, and then to the paved Old Highway 101 just north of the I-5 viewpoint (segment H on Figure B-6 of Appendix B) to continue its transport to SONGS 2 & 3, along segments H through J on Figures B-6 through B-9 of Appendix B, as with the Beach and Road Transport Option. This final leg of the transport route passes through areas with adjacent lands supporting coastal sage scrub, non-native grassland, and ruderal plant communities as described for the Beach and Road Transport Option. California gnatcatchers are known to occur in the areas dominated by coastal sage scrub along this portion of the route. As with this other transport option, the I-5/Old Highway 101 Option passes an area of coastal sage scrub habitat at the transition to Old Highway 101 where a "Y-turn" is proposed (between segments G and H on Figure B-6 of

Appendix B) to allow the transporter to remain on the existing roads. One pair of California gnatcatchers was observed in the general vicinity of this location during the biological survey in August 2003.

4.4.1.3.3 MCBCP Inland Route Transport Option

This route originates at the Camp Pendleton Del Mar Boat Basin and continues through developed portions of the Base to I-5 (segment K on Figure B-1 of Appendix B). At that point, it travels underneath I-5 to existing roads on MCBCP (segment T on Figure B-1 of Figure B). This proposed transition from MCBCP underneath I-5 will require the transporter to cross over a mostly barren area with scattered, small patches of ruderal vegetation with little to no value to sensitive wildlife species. The transporter will then travel along a narrow dirt road under I-5 and continue traveling north on the west side of the commercial businesses along Vandegrift Road (segments U and V1 or V2 on Figures B-1 and B-2 of Appendix B). The route requires a sharp turn to the east, between segment U and V1 on Figure B-1 of Appendix B, along the dirt road that is bordered by ornamental, coastal sage scrub, and ruderal vegetation. No sensitive wildlife species were observed or are expected to occur along this dirt road. The transporter will then turn to the north on Vandegrift Road and continue to the intersection of Vandegrift and Stuart Mesa Roads. Both of these roads have paved surfaces. A proposed alternate to the sharp turn (segment V2 on Figures B-1 and B-2 of Appendix B) will have the transporter continuing north on the dirt road toward an intersection with Stuart Mesa Road. The dirt road passes through coastal sage scrub, freshwater marsh, riparian scrub, and ruderal vegetation. Known least Bell's vireo and California gnatcatcher locations exist near the intersection of this dirt road and Stuart Mesa Road.

The transporter will then continue on Stuart Mesa Road, along segment W on Figures B-2 and B-3 of Appendix B, across a bridge spanning the Santa Margarita River and its associated riparian habitat that is known to support southwestern willow flycatcher and least Bell's vireo. The transporter will remain on a paved road on MCBCP that passes through coastal sage scrub supporting California gnatcatchers, ruderal, riparian, and vernal pool habitat. None of these habitats or associated species will be affected by the proposed action.

Continuing northwest across MCBCP, there is a sharp turn, between segments X and Y on Figure B-5 of Appendix B, in the paved road that may require a "Y- turn". The areas adjacent to the road are

dominated by non-native, ruderal vegetation species that do not support sensitive wildlife species. Furthermore, this “Y-turn” will likely not affect the undeveloped habitat at this location. One southwestern willow flycatcher location is identified in the MCBCP environmental database approximately 500 feet from this sharp turn area.

The transport route continues on paved road until it reaches the Border Patrol Checkpoint on I-5, at segment Z on Figure B-8 of Appendix B. Here the route transitions to I-5, at segment AA on Figure B-8 of Appendix B. At least one pair of California gnatcatchers, as identified in the MCBCP environmental database, has been observed in this general area.

The transporter will then continue on I-5 to SONGS 2 & 3, along segment AB on Figures B-8 and B-9 of Appendix B, where it will transition from I-5 (segment AC on Figure B-9 of Appendix B) to a paved road and access the facility (segments AD and J on Figure B-9 of Appendix B). This transition will cross through a highly disturbed shoulder of I-5 that consists of non-native grasses and ruderal vegetation, and this area is of little value to sensitive wildlife species. After crossing the double set of San Diego Northern Railroad tracks (segment AC on Figure B-9 of Appendix B), the transporter will cross the narrow shoulder of the access road to SONGS 2 & 3. This shoulder supports non-native grasses and ruderal vegetation that does not likely support sensitive wildlife species. The transport route then continues on the paved road to SONGS 2 & 3.

4.4.1.3.4 SONGS 2 & 3 Site

The SONGS 2 & 3 site is developed land, and project activities will not occur in areas that support habitat for wildlife.

4.4.2 No Project Alternative

4.4.2.1 Replacement Power – New Generation Component

A location for the proposed new generating component of the Replacement Power Alternative has not been determined. A new generation site could support a range of biological resources including sensitive habitats, plants, and animals. An effort would likely be made, however, to avoid or minimize impacts on biological resources.

4.4.2.2 Replacement Power – New Transmission Component

A range of biological resource values could occur, from sensitive wildlife species, vegetation, and habitats, to previously disturbed areas of native and/or non-native vegetation with little habitat or wildlife value. Wetland resources could also occur.

4.4.3.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.4.3.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

The existing Reinforced 230 kV SCE/SDG&E Interface transmission corridor is highly disturbed as a result of associated, on going transmission line maintenance and high human use and development. Although small, fragmented patches of native habitat could exist within the transmission corridor, these patches would likely provide little habitat or wildlife value. No sensitive biological resources are expected to occur along this route. Conditions will vary and more detailed descriptions would be required within a project specific PEA before approval.

4.4.3.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Improvements to the existing substations would occur within the existing fence lines, which are highly disturbed and/or developed.

4.4.3.2.2 Imperial Valley-Ramona No Project Alternative

4.4.3.2.2.1 Imperial Valley-Ramona Transmission Lines

4.4.3.2.2.1.1 Vegetation

Vegetation communities and sensitive species potentially present in the study area are described below by segment within the overall route. Table 4.4-3 lists sensitive species for this entire route.

**Table 4.4-3
Listed Plant Species Potentially Present Within the
Imperial Valley-Ramona Transmission Line Area**

Scientific Name	Common Name	Federal Status	State Status
<i>Acanthomintha ilicifolia</i>	San Diego thornmint	Threatened	Endangered
<i>Ambrosia pumila</i>	San Diego ambrosia	Endangered	--
<i>Baccharis vanessae</i>	Encinitas baccharis	Threatened	Endangered
<i>Brodiaea filifolia</i>	Thread-leaf brodiaea	Threatened	Endangered
<i>Monardella linooides</i> ssp. <i>viminea</i>	Willow monardella	Endangered	Endangered
<i>Navarretia fossalis</i>	Prostrate navarretia	Threatened	--
<i>Senecio ganderi</i>	Gander's ragwort	--	Rare

Imperial Valley-Ramona 500 kV line**Imperial Valley-Dulzura (Looped) Leg**

Beginning at the Imperial Valley Substation southwest of the city of El Centro, the Imperial Valley-Ramona 500 kV transmission route traverses west-northwest for approximately 11 miles across the northern portion of the Yuha Desert towards a location west of Plaster City. The existing habitat along this portion of the route is primarily sparse desert scrub consisting of creosote bush (*Larrea tridentata*), bursage (*Ambrosia dumosa*), ocotillo (*Fouquieria splendens*), and desert wash scrub. The route would then traverse west for approximately eight miles towards a location immediately south of the Coyote Mountains. The habitat across this portion of the route is sparse desert scrub bisected by numerous desert washes. In addition, large areas through this portion of the route consist of windblown sands that lack vegetation. Sensitive plant species that are known to occur in the desert scrub or washes include Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*), Parish's desert thorn (*Lycium parishii*), brown turbans (*Malperia tenuis*), and Mexican hulsea (*Hulsea mexicana*). This portion of the route would also pass over areas highly disturbed by mining, off-road vehicle use, and I-8.

South of the Coyote Mountains, the route turns south-southwest across flat terrain consisting of desert scrub, desert washes, and unvegetated areas. The proposed route would then cross I-8 and begin to ascend the Jacumba Mountains. This area is characterized by steep, rocky desert scrub and washes, and sensitive desert fan palm woodlands in some canyons. Sensitive plant species that are known to occur in these habitats within the general area include small-leaf elephant tree (*Bursera microphylla*), slender leaved ipomopsis (*Ipomopsis tenuifolia*), creamy blazing star, Parish's desert thorn, Jacumba milk-vetch, brown turbans, Mexican hulsea, desert beauty (*Linanthus bellii*), and Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*). The steep, rocky terrain continues for several miles south towards Mountain Springs where the vegetation begins to transition from desert habitat to chaparral. The plant species diversity increases sharply here because of the mix of desert and chaparral species co-occurring. There is little or no developed land through much of this portion of the route. The proposed route continues through this transitional area to near the International Border.

Near the intersection of the International Border and the San Diego County line, the route turns west and parallels the international border (immediately to the south). The mix of chaparral and desert species continues along the International Border before becoming primarily mixed chaparral as the

proposed route continues west. Sensitive vegetation types such as riparian scrub and woodland, and coast live oak (*Quercus agrifolia*) and Engelmann oak (*Quercus engelmannii*) woodland, also occur in this area. Plant species diversity typically increases along riparian areas. There are also large agricultural fields and rural residential areas across this portion, but in general, the area is mostly undisturbed.

Mixed chaparral is the dominant habitat type along the International Border as the proposed route continues to the west for approximately 17 miles. Within the mixed chaparral habitat there are patches of red shank (*Adenostoma sparsifolium*) chaparral, chaparral, and riparian and oak woodland habitat, as well as rural residential development. As the proposed route continues west, sensitive habitats such as coastal sage scrub and native grassland, occur and agricultural, disturbed, and developed areas are present. This mix of habitats occurs for approximately 15 miles to an area near Dulzura where the proposed route turns sharply to the north. Sensitive plant species known to occur within the chaparral and other habitats along this portion of the route include delicate clarkia (*Clarkia delicata*), sticky geraea (*Geraea viscida*), willowy monardella (*Monardella linoides* ssp. *viminea*), felt-leaf monardella (*Monardella hypoleuca* ssp. *lanata*), Tecate tarplant (*Deinandra floribunda*), Dean's milk-vetch, Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*), and Engelmann oak.

The sensitive plant species information provided here is from the CNDDDB and the County of San Diego Multiple Species Conservation Plan. This is not a comprehensive list and it is likely that other sensitive plant species are present in this area of the transmission line.

Dulzura-Ramona Leg

This leg initiates at the existing Imperial Valley to Miguel 500 kV Transmission Line south of Dulzura, and proceeds for approximately 30 miles north-northwest to a new Ramona Substation near the city of Ramona. The route crosses mostly chaparral and coastal sage scrub, but there is also coast live oak woodland, riparian habitat, native and non-native grassland, vernal pools, and agricultural lands along this portion of the route. Development and other disturbances are minimal in large areas along this portion of the route. The large patches of intact habitat are dense and diverse and have the potential to support numerous sensitive species. Sensitive plant species known to occur along this portion of the route include delicate clarkia, sticky geraea, willowy monardella, felt-leaf monardella, Tecate tarplant, Dean's milk-vetch, Palmer's goldenbush, Ramona horkelia (*Horkelia truncata*), San Diego thornmint

(*Acanthomintha ilicifolia*), variegated dudleya (*Dudleya variegata*), Engelmann oak, wart-stem ceanothus (*Ceanothus verrucosus*), summer holly (*Comarostaphylis diversifolia*), and Parry's tetracoccus (*Tetracoccus dioicus*).

The sensitive plant species information provided here is from the regional database of the CNDDDB and the County of San Diego Multiple Species Conservation Plan. This is not a comprehensive list and it is likely that other sensitive plant species are present in this area of the transmission line.

Ramona-Sycamore Canyon 230 kV line

The new transmission line from the new Ramona Substation to the Sycamore Canyon Substation would cross several vegetation communities including sensitive coastal sage scrub, native grassland, riparian, and vernal pool habitat. Chaparral vegetation is also common across this portion of the transmission line area. Development and other disturbance are more extensive throughout this portion of the line. However, the large patches of intact habitat are dense and diverse and have the potential to support numerous sensitive species. Several sensitive plant species are present in the area including rush-like bristleweed (*Machaeranthera juncea*), heart-leaved pitcher sage (*Lepechinia cardiophylla*), San Diego goldenstars (*Muilla clevelandii*), Palmer's goldenbush, Orcutt's brodiaea (*Brodiaea orcuttii*), prostrate navarretia (*Navarretia fossalis*), variegated dudleya (*Dudleya variegata*), and Engelmann oak. The sensitive plant species information provided here is from the regional database of the CNDDDB and the County of San Diego Multiple Species Conservation Plan. This is not a comprehensive list and it is likely that other sensitive plant species are present in this area of the transmission line.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

The new section of transmission line from the Sycamore Canyon Substation to the existing Chicarita-Carlton Hill transmission line may cross chaparral vegetation and sensitive coastal sage scrub, oak woodland, and riparian habitats. Several sensitive plant species may be present in the area including San Diego goldenstars, Palmer's goldenbush, Orcutt's brodiaea, variegated dudleya, and Engelmann oak. The sensitive plant species information provided here is from the regional database of the CNDDDB and the County of San Diego Multiple Species Conservation Plan. This is not a comprehensive list and it is likely that other sensitive plant species are present in this area of the transmission line.

4.4.3.2.2.1.2 Wildlife

Wildlife potentially present in the study area are described below by segments within the overall route. Table 4.4-4 lists sensitive species for this entire alternative.

**Table 4.4-4
Listed Wildlife Species Potentially Present Within the
Imperial Valley-Ramona Transmission Line Area**

Scientific Name	Common Name	Federal Status	State Status
<i>Aquila chrysaetos</i>	golden eagle	--	Fully Protected
<i>Bassariscus astutus</i>	ringtail cat	--	Fully Protected
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	Threatened	--
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	Endangered	--
<i>Bufo californicus</i>	arroyo toad	Endangered	--
<i>Buteo swainsoni</i>	Swainson's hawk	--	Threatened
<i>Coleonyx switaki</i>	barefoot banded gecko	--	Threatened
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	Endangered	Threatened
<i>Elanus leucurus</i>	white-tailed kite	--	Fully Protected
<i>Empidonax traillii</i>	willow flycatcher	--	Endangered
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Endangered	Endangered
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	Endangered	--
<i>Falco peregrinus anatum</i>	American peregrine falcon	--	Endangered, Fully Protected
<i>Haliaeetus leucocephalus</i>	Bald eagle	Threatened	Endangered, Fully Protected
<i>Ovis canadensis nelsoni</i>	peninsular bighorn sheep	Endangered	Threatened
<i>Poliopitila californica californica</i>	coastal California gnatcatcher	Threatened	--
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	Endangered	--
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered	Endangered

Imperial Valley-Ramona 500 kV line

Imperial Valley-Dulzura (Looped) Leg

Beginning at the Imperial Valley Substation southwest of the city of El Centro, the transmission route traverses west-northwest for approximately 20 miles across the northern portion of the Yuha Desert toward a location north of Ocotillo, and south of the Coyote Mountains. The existing habitat along this portion consists of desert scrub and desert wash scrub. Wildlife species including kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), Merriam's kangaroo rat (*Dipodomys merriami*), burrowing owl

(*Athene cunicularia*, SSC), ferruginous hawk (*Buteo regalis*, SSC), American kestrel, verdin (*Auriparus flaviceps*), Le Conte's thrasher (*Toxostoma lecontei*, SSC), western whiptail (*Cnemidophorus tigris*), and flat-tailed horned lizard (*Phrynosoma mcallii*, SSC) may be observed in this habitat. Flat-tailed horned lizards specifically prefer fine, windblown sand patches that may only be present along certain portions of the route. A habitat assessment would be necessary to determine areas likely occupied by flat-tailed horned lizard. Approximately four miles of the transmission line route near Ocotillo and the southern edge of the Coyote Mountains traverses through habitat that nearly lacks all vegetation. A high level of disturbance is noticeable in this region, which has evidence of intensive off-road vehicle activity and mining operations. No sensitive wildlife species are expected to occur in the area.

South of the Coyote Mountains, the route turns south-southwest for approximately 11 miles to a location near the intersection of the International Border and the San Diego County line. This portion of the route traverses rugged, mountainous areas between Devil's Canyon and In-Ko-Pa Gorge, and may support wildlife species including peninsular bighorn sheep (*Ovis canadensis nelsoni*), State-listed as Threatened and federally listed as Endangered, mountain lion (*Felis concolor*), and chuckwalla (*Sauromalus obesus*). Nelson bighorn sheep (*Ovis canadensis nelsoni*) and peninsular bighorn sheep (*Ovis canadensis cremnobates*) were recently synonymized based on morphometric and genetic analyses (Wehausen and Ramey 1993). The California Department of Fish and Game (CDFG) has adopted this as the current taxonomy. Bighorn sheep are highly nomadic and will likely not be affected by the temporary impacts associated with the construction of a new transmission line. Wildlife species diversity hotspots are associated with sparsely vegetated washes and scattered palm oases found within some of the canyons formed by the Jacumba Mountains. These areas are critical to the survival of a host of species including bighorn sheep and migrating birds. This is not a comprehensive list and it is likely that other sensitive wildlife species are present in this area of the transmission line.

Near the intersection of the International Border and the San Diego County line, the route turns west and parallels the international border (immediately to the south) for approximately 40 miles to a location approximately three miles south of Dulzura. The habitat transitions here from a desert community to a chaparral-sage scrub community. Wildlife species expected to occur along this portion if the route includes Quino checkerspot butterfly, arroyo toad (federally Endangered), coast horned

lizard (SSC), western whiptail, orangethroat whiptail (*Cnemidophorus hyperythrus*, SSC), two-striped garter snake (*Thamnophis hammondi*, SSC), red diamond rattlesnake (*Crotalus ruber*, SSC), least Bell's vireo (State and federally Endangered), and Cooper's hawk (*Accipiter cooperii*, SSC). Quino checkerspot butterfly typically inhabits open chaparral or sage scrub habitat that allows for an herbaceous understory that includes its primary host plants, dot-seed plantain (*Plantago erecta*) and owl's clover (*Castilleja spp*). Known populations of Quino checkerspot butterfly exist where the 500kV transmission line route passes through the Jacumba area, as well as along the western portion of the route, near the tie-in with the Dulzura-Ramona leg. Wildlife species diversity hotspots found along this portion of the route is associated with the drainages supporting oak woodland and willow riparian habitat. These habitats support arroyo toad, two-striped garter snake, least Bell's vireo, southwestern willow flycatcher, and various raptors. The sage scrub and chaparral habitat supports western and orangethroat whiptail, red-diamond rattlesnake, and where these habitats are near drainages, they provides upland habitat for arroyo toad. The sensitive wildlife species information provided here is from the CNDDDB. This is not a comprehensive list and it is likely that other sensitive wildlife species are present in this area of the transmission line.

Dulzura-Ramona Leg

This leg initiates at the existing Imperial Valley to Miguel 500 kV Transmission Line south of Dulzura, and proceeds for approximately 30 miles north-northwest across mostly chaparral and coastal sage scrub. There is also native and non-native grassland, vernal pools, oak woodland, and agricultural lands along the way to a new Ramona Substation near the city of Ramona. Wildlife species known to occur within the chaparral and other habitats between Dulzura and Ramona include San Diego fairy shrimp (federally Endangered), Quino checkerspot butterfly, western spadefoot, arroyo toad, coast horned lizard, orangethroat whiptail, Coronado Island skink (SSC) southwestern pond turtle (*Clemmys marmorata pallida*, SSC), coast patchnose snake (*Salvadora hexalepis virgulata*, SSC), red diamond rattlesnake, least Bell's vireo, Cooper's hawk, golden eagle (SSC), prairie falcon (*Falco mexicanus*, SSC) coastal California gnatcatcher, (SSC, federally listed as Threatened), western bluebird (*Sialia mexicana*), greater roadrunner (*Geococcyx californianus*) loggerhead shrike (*Lanius ludovicianus*, SSC), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*, SSC), Bell's sage sparrow (*Amphispiza belli belli*, SSC), long eared owl (*Asio otis*, SSC) San Diego pocket mouse (*Chaetodipus fallax*, SSC), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*, SSC),

southern mule deer (*Odocoileus hemionus fuliginata*), and mountain lion. Areas of high species diversity are generally associated with the willow riparian, oak woodland vernal pool and sage scrub habitats. These habitats also support several sensitive species, including arroyo toad, two-striped garter snake, least Bell's vireo, and southwestern willow flycatcher in the riparian habitats, and orangethroat whiptail, red-diamond rattlesnake, coastal California gnatcatcher, greater roadrunner, and San Diego pocket mouse in the sage scrub habitat. Oak woodland provides breeding habitat for raptors, including long-eared owl and Cooper's hawk, and vernal pools provide habitat for San Diego fairy shrimp, as well as western spadefoot toad. Areas of open chaparral and sage scrub may provide habitat for Quino checkerspot butterfly. The sensitive wildlife species information provided here is from the regional databases of the CNDDDB and the County of San Diego Multiple Species Conservation Plan. This is not a comprehensive list and it is likely that other sensitive wildlife species are present in this area of the transmission line.

Ramona-Sycamore Canyon 230 kV line

The new transmission line from the new Ramona Substation to the Sycamore Canyon Substation would cross several habitat communities including sensitive coastal sage scrub, native grassland, riparian, and vernal pool habitat. Chaparral vegetation is also common across this portion of the transmission line area. Several sensitive wildlife species present in the area include San Diego fairy shrimp, western spadefoot, orangethroat whiptail, coast horned lizard, two-striped garter snake, red diamond rattlesnake, coast rosy boa (*Charina trivirgata roseofusca*), golden eagle, bald eagle (*Haliaeetus leucocephalus*, State listed as Endangered, federally Threatened), northern harrier (SSC), ferruginous hawk, Harris' hawk (*Parabuteo unicinctus*, SSC) white-tailed kite, burrowing owl, southern California rufous-crowned sparrow, horned lark (*Eremophila alpestris*, SSC), Cooper's hawk, coastal cactus wren (SSC), tricolored blackbird (*Agelaius tricolor*, SSC), San Diego pocket mouse, San Diego woodrat (*Neotoma lepida intermedia*, SSC), southern mule deer, and mountain lion. It should be noted that numerous coastal California gnatcatcher locations are present in the southwestern portion of this route, near Poway and the Sycamore Substation. Areas of high species diversity are generally associated with the willow riparian, oak woodland, vernal pool, and sage scrub habitats. These habitats also support several sensitive species, including arroyo toad, two-striped garter snake, least Bell's vireo, and southwestern willow flycatcher in the riparian habitats, and orangethroat whiptail, red-diamond

rattlesnake, coastal California gnatcatcher, greater roadrunner, and San Diego pocket mouse in the sage scrub habitat. Oak woodland provides breeding habitat for raptors, including long-eared owl, and Cooper's hawk, and vernal pools provide habitat for San Diego fairy shrimp, as well as western spadefoot. Areas of open chaparral and sage scrub may provide habitat for Quino checkerspot butterfly. The sensitive wildlife species information provided here is from the regional databases of the CNDDDB and the County of San Diego Multiple Species Conservation Plan. This is not a comprehensive list and it is likely that other sensitive wildlife species are present in this area of the transmission line.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

The new section of transmission line from the Sycamore Canyon Substation to the existing Chicarita-Carlton Hill transmission line may cross chaparral vegetation and sensitive coastal sage scrub, oak woodland, and riparian habitats. Sensitive wildlife species present in the area would be similar to those observed in the along the Ramona-Sycamore Canyon route, including numerous coastal California gnatcatchers.

4.4.3.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The existing conditions for the new Ramona Substation cannot be determined currently, but the substation could be sited in a disturbed or developed area or in chaparral, native or non-native grassland, coastal sage scrub or other habitat. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval. The following existing substations: Valley, Devers, Serrano, Imperial Valley, and Sycamore Canyon would require improvements. Only the Sycamore Canyon improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands.

4.4.3.2.3 Valley-Rainbow No Project Alternative

4.4.3.2.3.1 Valley-Rainbow Transmission Lines

The Valley-Rainbow Interconnect PEA (SDG&E 2001) states the following for the Valley-Rainbow Transmission Line route: "Western Riverside County and northern San Diego County are biologically diverse regions that support rare and declining native habitats, numerous Federal and State-listed plant and animal species and an increasing amount of federally designated Critical Habitat for listed species.

The environmental setting for the Valley-Rainbow Transmission Line encompasses several lakes and major riverine systems, sensitive ephemeral wetlands, large expanses of native scrublands and woodlands and the fringes of important coastal plateaus.” It also includes the boundaries of two large multi-jurisdictional regional habitat conservation plans being developed in Riverside County and northern San Diego County to conserve Threatened and Endangered species and their habitats in these regions. Portions of 26 vegetation communities and vegetative cover types are included in the environmental setting. Native scrub and chaparral communities (42%), along with disturbed upland cover types (e.g., field croplands, groves, orchards, vineyards, and residential or developed areas) (40%) comprise most (approximately 82%) of the land cover. Riverine, wetlands, and open water areas comprise less than two percent of the land cover. Upland woodlands and forests comprise the smallest percentage (1.4 %).

The analysis of the biological resources along the Valley-Rainbow Transmission Line was conducted in 2001 (SDG&E, 2001). The quantitative analysis of habitat cover described above would be different for a project consistent with the No Project Alternative because the specific project would likely change to some degree.

4.4.3.2.3.1.1 Vegetation Communities and Associated Wildlife

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), 26 vegetation communities and cover types occur within the one-half mile wide corridor assessed for biological resources within the Valley-Rainbow Transmission Line study area. Native scrub and chaparral communities and disturbed upland cover types (e.g., agriculture, vineyards, residential) comprise most of the land cover. Riparian, wetlands, and open water, as well as upland woodlands and forests comprise only a small portion of the land cover (SDG&E 2001). The vegetation communities and associated wildlife as assessed in the Valley-Rainbow Interconnect PEA are described briefly below. The quantitative analysis of habitat cover will be different for a project consistent with the No Project Alternative because the specific project would likely change to some degree.

Scrub and Chaparral Communities

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), the most abundant vegetation communities in the study area are scrub and chaparral. All of the scrub vegetation communities

described herein are a type of coastal scrub, primarily Riversidian sage scrub. This vegetation community is composed of drought-deciduous subshrubs with shallow soils in Riverside, Los Angeles, San Bernardino, and San Diego counties. This openly spaced community is dominated by California buckwheat (*Eriogonum fasciculatum*), bush penstemon (*Keckiella antirrhinoides*), brittle-bush (*Encelia farinosa*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and California sagebrush (*Artemisia californica*) (SDG&E 2001).

Within the Riversidian sage scrub vegetation series, there is also Riversidian alluvial fan sage scrub. This community is a unique type of sage scrub vegetation that is common on alluvial fans and floodplains in southern California, where a lack of perennial water inhibits the establishment of riparian woodlands (SDG&E 2001). This community occurs on sandy, rocky alluvia that has been deposited by streams subject to infrequent, severe flooding. Without these periodic flood events, natural succession occurs and ultimately the community will become similar to chaparral or Riversidian sage scrub.

Diegan coastal sage scrub is also common in the southern portion of the study area (SDG&E 2001). This community type is dominated by low, subshrubs that actively grow during the winter and early spring. All of the species of Diegan coastal sage scrub are drought deciduous. This community is found on xeric sites with shallow or clay soils. Representative species include California sagebrush, California buckwheat, deerweed (*Lotus scoparius*), laurel sumac (*Malosma laurina*), and black sage. Southern mixed chaparral, a vegetation association in this No Project Alternative area, is dominated by evergreen shrubs with small, sclerophyllous leaves, in areas of rocky soil. This association is characterized by a closely spaced canopy and the community is represented by species such as chamise (*Adenostoma fasciculatum*), toyon (*Heteromeles arbutifolia*), white-stem wild lilac (*Ceanothus leucodermis*), sugarbush (*Rhus ovata*), hickleaf wild lilac (*Ceanothus crassifolius*), big-berry manzanita (*Arctostaphylos glauca*), and scrub oak (*Quercus berberidifolia*) (SDG&E 2001).

Scrubs and chaparral make up most of the vegetation communities in the 500 kV study area. Chaparral is concentrated in the outer links to the south, east, and west in the study area and the Riversidian sage scrub is scattered throughout the corridors. The Diegan coastal sage scrub is only in the southern portion of the study area (SDG&E 2001).

Wildlife species associated with the Riversidian sage scrub, Diegan coastal sage scrub, Riversidian alluvial fan scrub, and chaparral habitats include several upland bird species, such as California towhee (*Pipilo crissalis*), Lawrence's goldfinch (*Carduelis lawrencei*), Bewick's wren (*Thryomanes bewickii*), and western scrub jay (*Aphelocoma californica*). Scrub habitats on site also provide cover and forage for mammal species, including California ground squirrel (*Spermophilus beecheyi*) and Audubon cottontail (*Sylvilagus audubonii*). Side-blotched lizard and western fence lizard (*Sceloporus occidentalis*) are also commonly found in these habitats (SDG&E 2001).

Riverine, Wetlands, and Open Water

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), several riparian vegetation communities occur within study area, including a general mapping of southern riparian forest and the vegetation communities of coast live oak riparian forest and southern cottonwood willow riparian forest; southern sycamore alder riparian woodland; southern riparian scrub, and the vegetation associations of mule fat scrub and southern willow scrub.

Southern willow scrub

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), southern willow scrub occurs in areas of dense growth along streams and drainages and is dominated by red willow (*Salix laevigata*), arroyo willow (*S. lasiolepis*), narrow-leaved willow (*S. exigua*), blackwillow (*S. gooddingii*), and mule fat. Mule fat scrub is found in drainages and streams subject to frequent flooding and dominated by mule fat with lesser percent cover of willow species.

Coast live oak riparian forest

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), coast live oak riparian forest is dominated by coast live oak trees along drainages and stream channels and may have other tree species as minor components such as western sycamore (*Platanus racemosa*) and Fremont's cottonwood (*Populus fremontii*).

Southern cottonwood-willow riparian forest

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), southern cottonwood-willow riparian forest is an open or closed canopy forest that occupies relatively broad drainages and flood plains supporting perennially wet streams. This community is dominated by mature individuals of winter deciduous trees, including Fremont's cottonwood and several species of willows (blackwillow, shining willow [*S. lasiandra*], and arroyo willow), and often has a dense understory of shrubby willows, mule fat, and mugwort (*Artemisia douglasiana*) (SDG&E 2001).

Southern sycamore/alder riparian woodland

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), southern sycamore/alder riparian woodland is a tall, open, broadleafed, winter-deciduous streamside woodland dominated by western sycamore and often also bay alder (*Alnus rhombifolia*).

Freshwater marsh

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), freshwater marsh “is a community dominated by perennial, emergent monocots which grow in standing fresh water. This community occurs around lagoons and river mouths along the coast, and around lake margins at more inland locations (Beauchamp 1986). Common species within this community include: cattails (*Typha* spp.), umbrella sedge (*Cyperus* spp.), sedge (*Carex* spp.), spike sedge (*Eleocharis* spp.), and willows” (SDG&E 2001).

Disturbed wetlands

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), disturbed wetlands are communities dominated by exotic wetland species. These species have invaded sites that had been previously disturbed. This disturbance regime has resulted in the displacement of native wetland species, and the subsequent colonization of these areas by exotics. Disturbed wetlands can be dominated by giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), and cocklebur (*Xanthium strumarium*); however, native wetland species such as mule fat, willows, or cattails may also be present (SDG&E 2001).

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001): “Most of the riparian wetlands (including marshes) occur along the main creeks in the Valley-Rainbow Transmission Line study area; however, some are in drainage ditches in agriculture fields and along the San Diego Canal. The major rivers, creeks, and streams crossing through the corridors are Tucolota Creek, in the eastern section; Rawson Canyon Creek, on the northwest edge of Skinner Reservoir; San Gertrudis Creek, in the central portion of the study area; Warm Springs Creek, west of San Gertrudis Creek; Temecula Creek, in the southern portion of the study area; and the Santa Margarita River in the southwest.

Riverine and wetland habitat in the Talega-Escondido Transmission Line study area study corridor is also associated with numerous creeks and rivers including: Christianitos Creek, San Mateo Creek, and Roblar Creek on MCBCP; the Santa Margarita River along the northeastern portion of the study area; and Gomez Creek, the San Diego Aqueduct, San Luis Rey River and Keys Creek on the Rainbow to Escondido portion of the study area.”

Open water bodies are also present within the study area. They provide important habitat for a variety of aquatic organisms and waterfowl. Open water bodies include lakes, reservoirs, bays, flowing water within a river channel and small ponds along stream courses. This includes Lake Skinner and aqueducts in the study area. As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), there are 28 occurrences of open water (325 acres total) in the 500 kV study corridors. These areas range in size from 0.4 to 105 acres of surface area.

Birds typically associated with riparian habitats include common yellowthroat (*Geothlypis trichas*), yellow warbler (*Dendroica petechia*), California SSC and yellow-breasted chat (*Icteria virens auricollis*, SSC). The open areas at the fringe of these habitats also provide cover for reptile species such as the coastal whiptail (*Cnemidophorus tigris multiscutatus*) and side-blotched lizard. Riparian areas also typically support a variety of small mammal species, including deer mouse (*Peromyscus maniculatus*) and house mouse (*Mus musculus*).

Grasslands and Herb-Dominated Communities

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), “Most habitat in this category is composed of non-native annual grassland. Intensive grazing and agriculture, accidental and intentional species introductions, along with some severe droughts during the early Spanish Era,

allowed for the successful invasion of these exotic species from the Mediterranean and the subsequent displacement and exclusion of native grasses (Jackson 1985). It was initially believed that over-grazing was the principle factor in the displacement of native grasses, but there is considerable current debate over this.”

Non-native grassland

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), non-native grassland generally occurs on fine-textured loam or clay soils, which are moist during the winter rainy season and very dry during the summer and fall. Most of the non-native grasslands in the study area were likely abandoned agricultural land, which is now dominated by slender wild oat (*Avena barbata*) and *Bromus* spp. Most of the non-native grassland is bordered by chaparral or sage scrub. It is likely that the non-native grassland areas were, at one time, chaparral and scrub and then were cleared for agricultural use in the early twentieth century and subsequently abandoned (SDG&E 2001).

Native grasslands

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), native grasslands are dominated by perennial bunchgrasses such as needlegrass (*Nassella* spp. and *Achnatherum* spp.), melic grass (*Melica* spp.), plumed beardgrass (*Bothriochloa barbinodis*), wild rye (*Elymus* spp.), and deergrass (*Muhlenbergia* spp.) (Beauchamp 1986). Valley needlegrass grassland, described by Holland (1986) is characterized by a relatively low (less than 10%) to dense herbaceous cover of the perennial, tussock-forming species, such as purple needlegrass (*Nassella pulchra*). Native and introduced annuals occur between the needlegrass, often actually exceeding the bunchgrass in cover (Holland 1986). This association generally occurs on fine-textured clay soils moist or wet in winter, but very dry in summer. Shrubs are infrequent, probably because of the clay soils. The degree of habitat quality in native grasslands varies greatly, depending on the history of grazing, cultivation, or other disturbance factors. In addition to purple needlegrass, indicator species include blue-eyed grass (*Sisyrinchium bellum*), mariposa lily (*Calochortus* spp.), and clarkia (*Clarkia* spp.), among others. All of the native grassland occurs within the 230 kV study corridor in the northern portion of MCBCP.

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), “Avian wildlife species typically associated with grassland communities include western meadowlark (*Sturnella neglecta*),

northern harrier (*Circus cyaneus*), lesser nighthawk (*Chordeiles acutipennis*), savannah sparrow (*Passerculus sandwichensis*), grasshopper sparrow (*Ammodramus savannarum*), and lark sparrow (*Chondestes grammacus*). A variety of raptor species, such as white-tailed kite often forage across grasslands. The northern harrier also nests in grasslands. Other potential inhabitants of grassland habitats include the federally listed Endangered (State-listed Threatened) Stephens' kangaroo rat (*Dipodomys stephensi*), as well as reptile species such as western fence lizard and gopher snake (*Pituophis melanoleucus*).”

Vernal pools

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), vernal pools are “...herb-dominated, ephemeral plant communities that support an unusual flora and fauna. This is reflected by the high number of species endemic to vernal pools. This high endemism is the result of vernal pools being a relatively recent phenomenon in the geologic history and that vernal pool endemics are among the most recently evolved species in the California flora (Stebbins 1976). Several topographic and edaphic conditions are prerequisites for the occurrence of vernal pools. The topography requirement is a series of microdepressions (vernal pools) and microhummocks (mima mounds). The depressions collect water from precipitation and runoff from the mima mounds. The mima mounds that surround these pools prevent runoff from the pools. One potentially important edaphic requirement is either a subsoil hardpan or claypan that prevents the draining of water from these pools through downward percolation; however, this physical parameter is not strongly associated with the vernal pool systems in Riverside County. Some of the indicator species of vernal pools in San Diego include water starwort (*Callitriche* sp.), *Crassula aquatica*, little mouse-tail (*Myosurus minimus*), woolly marbles (*Psilocarphus brevissimus*), and woolly heads (*Psilocarphus tenellus*).

Vernal pools have the potential to support a unique suite of wildlife species, including three federally listed Endangered crustaceans: San Diego fairy shrimp, vernal pool fairy shrimp, and Riverside fairy shrimp. Additionally, vernal pools may provide breeding areas for western spadefoot toad, and forage for the black-tailed jackrabbit and other rabbit species (*Sylvilagus* spp.).”

One vernal pool was recorded as occurring in the 500 kV study corridors. Additional vernal pools likely exist in this No Project Alternative study area, particularly near the City of Hemet where vernal pools have also been recorded.

Woodland and Forests

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), coast live oak woodland, Engelmann oak woodland, and black oak forest are present within the study area. Coast live oak woodland is an open to dense tree community with coast live oak the dominant overstory species and Engelmann oak as an occasional associate. This community can occur on mesic north-facing slopes and in canyon bottoms. This community is well represented in the cismontane, interior valleys and foothills of the Peninsular Ranges (Beauchamp 1986; Barbour 1988). The shrub understory of this community is poorly developed but may include: Mexican elderberry (*Sambucus mexicana*), gooseberry (*Ribes* sp.), poison oak (*Toxicodendron diversilobum*), and toyon (Beauchamp 1986; Holland 1986).

Engelmann oak woodland is an oak community that is restricted to the interior of the Peninsular Ranges in the low-lying hills and mesas of western Riverside and San Diego counties (Pavlik et al. 1991). Open Engelmann oak woodland is dominated by Engelmann oak. This community occurs on the gentler, more arid slopes. Dense Engelmann oak woodland occurs on the steeper, more mesic sites in association with coast live oak (Barbour 1988). The understory of Engelmann oak woodlands can consist of shrub species typical of coastal sage scrub such as California sagebrush, white sage, and buckwheat.

Black oak forest is an even-aged, subclimax community that is dominated by black oak (*Quercus kelloggii*) and is maintained by periodic fires (Pavlik et al. 1991, Holland 1986). Ponderosa pine (*Pinus ponderosa*), Coulter pine (*Pinus coulteri*), canyon live oak (*Quercus chrysolepis*) may be associates within this community (Beauchamp 1986, Holland 1986).

Woodland avian species likely to inhabit these vegetation communities include Cooper's hawk, northern flicker (*Colaptes auratus*), and some woodpecker species (*Picoides* spp.). The moist ground condition often associated with woodlands provides habitat for numerous reptile and amphibian species such as Coronado skink, Monterey salamander (*Ensatina eschsholtzii eschsholtzii*), and Pacific treefrog

(*Hyla regilla*). Mammals such as coyote, raccoon (*Procyon lotor*), and mule deer typically use woodlands for protective cover and movement corridors.

Ruderal, Exotic, and Developed

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), “This category encompasses all areas that have been disturbed and are not returning to native habitat. This includes vineyards and orchards, land used for agriculture, eucalyptus woodlands and ruderal areas. A large portion of the study area is composed of vineyards, orchards and agricultural land. Vineyards and orchards in the study area occur mostly in flat or slightly sloped area. Crops are primarily composed of grapes, citrus (oranges and lemons) and avocados. The agricultural areas include both intensive and extensive use. Intensive agriculture includes dairies, nurseries and chicken ranches. Extensive agriculture is composed of fields, pastures, and row crops.”

Eucalyptus woodlands

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), eucalyptus woodlands often consists of dense stands of several species of eucalyptus (*Eucalyptus* spp.). Generally, these species were planted for aesthetic and horticultural purposes, but many species of eucalyptus have become naturalized and have been quite successful in invading riparian areas. Eucalyptus species are often planted in the study area as a wind break around houses and other developed areas.

Ruderal communities

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), ruderal communities are “...areas of high disturbance that are dominated by invasive non-native forbs (herbaceous, non-grass species) that are adapted to a regime of frequent disturbances. Non-native annual grasses will occur in low abundance and typically contribute less than 50% to the entire herbaceous cover in ruderal vegetation. Many of the broad-leaved weeds characteristic of ruderal areas are also common species of non-native grasslands. Ruderal habitats in the study area are usually abandoned agricultural fields which are dominated by broad-leaf exotic annuals such as mustards (*Brassica* ssp. and short-pod mustard), tumbleweed (*Salsola tragus*), and fennel with a lesser amount of exotic annual grasses.”

Disturbed habitat

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), disturbed habitat is "...any land that has been permanently altered by human activities including grading, repeated clearing, intensive agriculture, vehicular damage, or dirt roads. Disturbed land is typically characterized by more than 50% bare ground and an absence of remnant native vegetation. Furthermore, the previous disturbance is usually severe enough to eliminate future potential biological value of the land without active restoration. The species composition and site conditions of disturbed habitat, as described above, are not characteristic of the disturbed phase of another vegetation association within the study region. The vegetation is sparse, when present, and usually includes non-native weed species including mustards, tumbleweed, fountain grass (*Pennisetum setaceum*), and horseweed (*Conyza canadensis*), among others. Disturbed habitat, as mapped predominantly within MCBCP, coincides with areas cleared and maintained for fire roads and fuel breaks.

Most wildlife species associated with the ruderal, exotic vegetation within this No Project Alternative, project area, including the non-native common raven (*Corvus corax*), house finch, European starling (*Sturnus vulgaris*), and cattle egret (*Bubulcus ibis*). Few native wildlife species inhabit the ruderal, exotic vegetation communities within this No Project Alternative, project area. Notable exceptions are the urban-adapted raptor species, including red-tailed hawk and red-shouldered hawk (*Buteo lineatus*), that may use eucalyptus trees for perches or nesting sites. The monarch butterfly (*Danaus plexippus*) will often occupy "autumnal sites" in eucalyptus woodlands during their winter migration from their primary overwintering site near Pacific Grove, Monterey County."

Field croplands

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), field croplands are the largest vegetation type in the Valley-Rainbow Transmission Line study area. Most of the field croplands are located in the northern central portion of the study area. The grove, orchard, and vineyard vegetation generally occurs in the southern portion of the study area, which is mostly grapevines or avocado groves.

4.4.3.2.3.1.2 Sensitive Vegetation Communities and Special Status Species

Several of the vegetation communities occurring within the Valley-Rainbow Transmission Line study area are considered sensitive, or to have special status because of their natural rarity, the decline in area of these communities as a result of development, and/or the number of sensitive plant or animal species dependent on them (SDG&E 2001). Sensitive habitats also include those regulated by the Federal government under the Clean Water Act of 1972 (CWA) (e.g., jurisdictional wetlands and waters of the United States) or FESA (e.g., site-specific designated Critical Habitat areas for federally listed wildlife species). Wetland habitat is under jurisdiction of the United States Army Corps of Engineers (ACOE) pursuant to Section 404 of the CWA, as amended in 1977 and 1984. Wetlands under the jurisdiction of the ACOE must meet specific vegetation, hydrological, and soil criteria.

Nearly 60 plant species considered sensitive by the USFWS, CDFG, or the CNPS are known to occur, or have the potential to occur in the Valley-Rainbow Transmission Line area study. Of these, six are listed as Endangered by the USFWS, two are listed as Threatened. The federally and State-listed plant species which are known for the area and are either known to occur or have a potential to occur in the Valley-Rainbow Transmission study area, are listed below in Table 4.4-5, modified from SDG&E (2001).

**Table 4.4-5
Listed Plant Species Potentially Present
Within the Valley-Rainbow Transmission Line Area**

Scientific Name	Common Name	Federal Status	State Status
<i>Allium munzii</i>	Munz's onion	Endangered	Threatened
<i>Ambrosia pumila</i>	San Diego ambrosia	Endangered	--
<i>Atriplex coronata var. notatior</i>	San Jacinto Valley crownscale	Endangered	--
<i>Berberis nevinii</i>	Nevin's barberry	Endangered	Endangered
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	Threatened	Endangered
<i>Ceanothus ophiochilus</i>	Vail Lake ceanothus	Threatened	Endangered
<i>Delphinium hesperium cuyamaca</i>	Cuyamaca larkspur	--	Rare
<i>Deinandra mohavensis</i>	Mohave tarplant	--	Endangered
<i>Dodecahema leptoceras</i>	Slender-horned spineflower	Endangered	Endangered
<i>Eryngium aristulatum ssp. parishii</i>	San Diego button celery	Endangered	Endangered
<i>Limnanthes gracilis parishii</i>	Parish's meadowfoam	--	Endangered
<i>Navarretia fossalis</i>	Spreading navarretia	Threatened	--
<i>Orcuttia californica</i>	California Orcutt grass	Endangered	Endangered
<i>Senecio ganderi</i>	Gander's ragwort	--	Rare

Nearly all 45 sensitive plant species in the Valley-Rainbow Transmission Line study area are considered rare and Endangered in California and elsewhere by the CNPS (SDG&E 2001). At least 55 animal species considered sensitive by the USFWS or CDFG or on other watch lists are known to occur or have the potential to occur. Of the many sensitive animal species that occur nearby, eight are listed as Endangered and four are listed as Threatened by the USFWS. CDFG has listed four of the animal species in the Valley-Rainbow Transmission Line study area as Endangered, three as Threatened and 39 are considered SSC. The status of “fully protected” has been accorded to four species by California under the CDFG Code, Title 14. Table 4.4-6 (modified from SDG&E (2001)) lists the federally and State-listed wildlife species known, or which have the potential to occur, nearby.

**Table 4.4-6
Wildlife Species Listed Potentially
Present Within 500 kV Area**

Scientific Name	Common Name	Federal Status	State Status
<i>Aquila chrysaetos</i>	golden eagle	--	Fully Protected
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	Threatened	--
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	Endangered	--
<i>Bufo californicus</i>	Arroyo toad	Endangered	--
<i>Buteo swainsoni</i>	Swainson's hawk	--	Threatened
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	--	Endangered
<i>Dipodomys merriami parvus</i>	San Bernardino kangaroo rat	Endangered	--
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	Endangered	Threatened
<i>Elanus leucurus</i>	white-tailed kite (nesting)	--	Fully Protected
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Endangered	--
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	Endangered	--
<i>Falco peregrinus anatum</i>	American peregrine falcon	--	Endangered, Fully Protected
<i>Haliaeetus leucocephalus</i>	Bald eagle	Threatened	Endangered, Fully Protected
<i>Polioptila californica californica</i>	coastal California gnatcatcher	Threatened	--
<i>Rana aurora draytoni</i>	California red-legged frog	Threatened	--
<i>Riparia riparia</i>	bank swallow(nesting)	--	Threatened
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	Endangered	--
<i>Vireo bellii pusillus</i>	least Bell's vireo	Endangered	Endangered

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), “the majority of the vegetation communities provide habitat for one or more of the sensitive species known to occur nearby. Of the

State or federally listed plant and animal species known to occur nearby, or to have the potential to occur, six wildlife species are described further below because of their importance in regional planning, resident status, presence of Critical Habitat, or preserve/management areas, and/or regional rarity.

Quino Checkerspot Butterfly

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001) the Quino checkerspot butterfly (*Euphydryas editha quino*) is listed as Endangered by the USFWS. Additionally, the USFWS has designated Critical Habitat for Quino checkerspot butterfly, including several areas along the Valley-Rainbow Transmission Line study area east of I-215, south of the Domenigoni Valley, west of the San Bernardino Mountains, and north of SR-79. This species is of particular concern because of its potential to occur within the 500 kV study corridors. Additionally, the individuals of Quino that occur within southwestern Riverside County comprise one of only three metapopulations of this species within its known range. A metapopulation is defined as a group of local populations, often separated by areas not known to support breeding individuals, linked by genetic flow by dispersal corridors and effectively function as a single population. The two remaining known metapopulations are located in southern San Diego County, one at Otay Mountain and the other at Jacumba. Finally, resident Quino checkerspot butterfly, throughout its known range, is capable of inconspicuously occupying a site depending on the different lifecycle stages of this species that are influenced by meteorological conditions.

The species requires open canopy scrub habitat that supports populations of host plants, dot-seed plantain and owl's clover. Timing and abundance of rainfall affects host plant germination, growth and senescence, which in turn affect survivorship of butterfly larvae. The species can undergo extended periods of diapause during drought, possibly lasting years. Winter rainfall and temperature influence the length of diapause and developmental rate of the butterfly and the germination and development of its host plant. Therefore, the larval stage of the Quino checkerspot butterfly may be present even in areas where no host plants are in bloom.”

Arroyo Toad

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), there is designated Critical Habitat for the Endangered arroyo toad (*Bufo californicus*) within the Valley-Rainbow Transmission Line study area along the San Luis Rey River. The arroyo toad is also of particular concern because,

like the Quino checkerspot butterfly, it is difficult to detect this resident species during certain times of its life cycle. The arroyo toad breeds in sandy stream habitats, and aestivates in and migrates through upland habitats up to 1 kilometer from known breeding sites where it remains subterranean for much of the winter. This feature of the arroyo toad's life cycle can complicate the assessment of impacts and determining proper mitigation measures.

Least Bell's Vireo

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), the Endangered least Bell's vireo is a spring-summer migrant that requires scrubby riparian habitat for breeding, nesting, and foraging. Critical habitat for the least Bell's vireo has been identified within the study area near the San Luis Rey River.

Southwestern Willow Flycatcher

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), there is USFWS designated Critical habitat for the Endangered southwestern willow flycatcher in the vicinity, but the study corridors do not cross any of these areas.

Coastal California Gnatcatcher

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), the Threatened coastal California gnatcatcher serves as an umbrella species in regional conservation planning efforts in southern California. As such, protection of habitat for the coastal California gnatcatcher also serves to protect the various plant and animal species that use its preferred habitat, coastal sage scrub. Regional conservation planning efforts (e.g., Natural Community Conservation Plans [NCCP]) attempt to protect habitats and their associated plant and animal inhabitants. By protecting the coastal California gnatcatcher and its habitat, an entire suite of upland species is also protected. Additional protection of the coastal California gnatcatcher and its habitat has been afforded by the designation of Critical Habitat within the study corridors along the Temecula and Menifee valleys, and on the slopes surrounding Lake Skinner.

Stephens' Kangaroo Rat

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), there is potential for the Endangered Stephens' kangaroo rat to occur within the area. Portions of the Valley-Rainbow Transmission Line traverse one of four regional Stephens' kangaroo rat core habitat reserve areas within the Habitat Conservation Plan (HCP) boundary near Lake Skinner and Diamond Valley Lake. Additionally, as with the Quino checkerspot butterfly and arroyo toad, population densities of Stephens' kangaroo rat can be difficult to assess during certain times of the year. During the spring, female Stephens' kangaroo rat tend to remain subterranean to care for their young, leading to a decrease in trap success and resulting in an artificially low estimate of Stephens' kangaroo rat population density, or potentially resulting in a false absence determination.

San Bernardino Kangaroo Rat

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), the Endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*) could occur within the Valley-Rainbow Transmission Line area. The northern portion of the study area is immediately adjacent to lands in the Menifee Valley and Romoland historically occupied by this subspecies. Critical habitat has been proposed, although the study corridors do not cross any of these areas. Similar to Stephens' kangaroo rat, population densities of San Bernardino kangaroo rat are also difficult to assess for the same reasons.

4.4.3.2.3.1.3 Sensitive Habitats

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), wetlands and waters are considered sensitive areas. In addition to wetlands, uplands such as Riversidian sage scrub and oak woodlands are considered sensitive. The sensitivity of these habitats results from the number of sensitive species dependent on these communities and the rapid decline in area of these native scrub communities that has occurred from development. The sensitivity of oak woodlands and native forests results from the natural rarity of these habitats in southern California and the high functions and values of these communities as wildlife movement corridors, roosting areas, nesting sites and shelter sites and the difficulty and length of time needed to restore or replace losses of these communities.

Some exotic or disturbed communities have become naturalized and although not inherently sensitive, provide habitat for native wildlife and plant species, some of which are sensitive. Eucalyptus woodlands and non-native grasslands are examples of these exotic or disturbed naturalized habitats that may provide habitat for Stephens' kangaroo rat, Quino checkerspot butterfly, or raptors to nest and forage.

Agricultural areas such as croplands, dairy farms, groves and orchards and ruderal areas are considered to have low sensitivity because of the lack of native vegetation, continuous disturbance and lack of sensitive species known to occur in these areas. Although ruderal areas occasionally provide habitat for a few sensitive species, the ruderal habitat in the 500 kV study corridors was fragmented and usually bordered by development.

The portion of the Talega Escondido Transmission Line Study Corridor within MCBCP (approximately 16 miles) is primarily native scrubs (southern mixed chaparral and Diegan coastal sage scrub) along the steep slopes, and coast live oak woodland or forest and southern sycamore/alder riparian forest in the valleys and drainages. Approximately three miles of this section is dominated by native grassland interspersed with Engelmann oak woodland. The 22 miles from the eastern edge of MCBCP to Pala Road, is predominantly native scrubs interspersed with groves and orchards along the hillsides. The eight miles south of Pala Road to immediately south of Old Castle Road is covered mostly with groves with small patches of native scrub and residential areas. The southernmost four miles of the study area in Escondido is primarily developed and residential with small patches of native scrub (SDG&E 2001).

Based on the data sources used for this analyses (California Natural Diversity Database [CNDDB], Multiple Habitat Conservation Plan [MHCP], and USFWS, as described for the Valley-Rainbow Transmission Line study area, and specific to the portion of the line within MCBCP, the MCBCP Environmental Constraints Map 2000 database), several sensitive species are known to occur within the 1,000-foot-wide study corridor analyzed for the Talega-Escondido Transmission Line (SDG&E 2001).

The sensitive plants that occur along the Talega-Escondido Transmission Line study corridor include: San Diego County viguiera (*Viguiera laciniata*, CNPS list 4); Fish's milkwort (*Polygala cornuta* ssp. *fishiae*, CNPS list 4); sticky dudleya (*Dudleya viscida*, CNPS list 1B); and prostrate spineflower

(*Chorizanthe procumbens*, CNPS list 4). The sensitive wildlife species known to occur within the Talega-Escondido study corridor include the scrub-associated orange-throated whiptail, San Diego horned lizard, southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegoense*), the federally listed Threatened coastal California gnatcatcher, and the federally listed Endangered arroyo toad. Two sensitive raptors, the federally protected golden eagle (*Aquila chrysaetos*), and the turkey vulture, have been observed foraging throughout the region, and presumably use the biological resources along the Talega-Escondido alignment.

Additionally, there are areas of designated Critical Habitat for several federally listed Threatened or Endangered species throughout the study area. Along this alignment, Critical Habitat occurs for the federally listed Endangered least Bell's vireo, southwestern willow flycatcher, and the coastal California gnatcatcher. Designated Critical Habitat for the arroyo toad occurs in and adjacent to several drainages that cross the 230 kV alignment. Although no documented occurrences of Stephens' kangaroo rat are known from the 230 kV alignment, suitable habitat is coincident with open scrub and grassland habitats

4.4.3.2.3.2 Valley-Rainbow Substation Changes/Modifications

4.4.3.2.3.2.1 Rainbow Substation

The new Rainbow Substation would be in a different location than was proposed in the Valley-Rainbow Interconnect PEA (SDG&E 2001). It would be located along the Talega-Escondido ROW, 30 miles east of the existing Talega Substation. Habitat types in the approximate area that may be affected by the proposed substation are described here because the exact location of the new Rainbow Substation is currently unknown. This general area supports predominately coastal sage scrub and chaparral interspersed with groves, orchards, and disturbed lands along some hillsides. The sensitive plants known to occur in these habitats in this area include San Diego County viguiera (CNPS list 4), Fish's milkwort (CNPS list 4), and sticky dudleya (CNPS list 1B). The sensitive wildlife species known to occur within these habitats in this area include the orange-throated whiptail, San Diego horned lizard, southern California rufous-crowned sparrow, coastal cactus wren, the federally listed Threatened coastal California gnatcatcher, and the federally listed Endangered arroyo toad. Two sensitive raptors,

the federally protected golden eagle and the turkey vulture, have been observed foraging throughout the region, and presumably use the biological resources in this area.

It should be noted that there are areas of designated Critical Habitat for several federally listed Threatened or Endangered species throughout the study area although they are not likely to be affected by the new Rainbow Substation. Along this alignment, Critical Habitat occurs for the federally listed Endangered least Bell's vireo, southwestern willow flycatcher, and the coastal California gnatcatcher. Designated Critical Habitat for the arroyo toad occurs in and adjacent to several drainages that cross the 230 kV alignment. Although no documented occurrences of Stephens' kangaroo rat are known from near the new Rainbow Substation, suitable habitat is coincident with open scrub and grassland habitats.

4.4.3.2.3.2.2 Mission Substation

Some of the construction activity associated with these upgrades would occur inside the fence line of the existing Mission Substation. Areas within the fence line do not support native vegetation and therefore, sensitive plant and animal species are not expected.

As stated in the Valley-Rainbow Interconnect PEA (SDG&E 2001), "the approximately one-acre expansion area outside the fence line along the northern edge of the existing Mission Substation would primarily impact exotic, ornamental vegetation species such as eucalyptus, acacia (*Acacia* sp.), and tamarisk. Additionally, small patches of coastal sage scrub, dominated by California buckwheat, may be removed. No known sensitive plant species would be expected to be affected by the expansion. The coastal sage scrub to be affected and adjacent areas of scrub may need to be surveyed to determine whether the coastal California gnatcatcher is within or adjacent to the proposed expansion area, as required by applicable resource agencies. Impacts on this listed species would be considered significant. The proposed expansion area does not coincide with areas that have been designated by the USFWS, or local jurisdictions, as having a potential for occupation by the Quino checkerspot butterfly, as required by applicable resource agencies. Therefore, potential impacts on this listed species are not a concern at the Mission Substation."

4.4.3.2.3.2.3 Sycamore Canyon Substation

Some of the construction activity associated with the Sycamore Canyon 230 kV Substation upgrades would occur inside the fence line of the existing Sycamore Canyon Substation. Areas within the fence line do not support native vegetation, and therefore, sensitive plant and animal species are not expected.

As described in the Valley-Rainbow Interconnect PEA (SDG&E 2001), “the proposed expansion of the Sycamore Canyon Substation would affect a previously disturbed area, approximately 1.2 acres, west of the existing substation. The relocation of the existing distribution line and poles may affect the chamise chaparral in the surrounding area. No known sensitive plant species would be expected to sustain impacts from the expansion. The proposed expansion area is not within any of the USFWS Draft Recovery Units for the Quino checkerspot butterfly, and it is outside suitable Quino survey areas on the County of San Diego’s 2001 Quino Survey Area Map. Therefore, no Quino checkerspot butterfly surveys would be required.

Following the refinement of site-specific engineering design and focused survey data as needed for the Mission and Sycamore Canyon Substation sites, any avoidance and mitigation measures required by the Federal and State resource agencies would be incorporated into applicable protocols. Implementation of the protocols, as has been discussed for other components of the No Project Alternative above, would effectively minimize the areas of potential impact to sensitive biological resources at both the Mission and Sycamore Canyon Substation sites and reduce the potentially significant impacts discussed above to less than significant levels.”

4.4.3.2.3.2.4 Talega Substation

The proposed upgrades at the Talega Substation would occur within the existing fence line; therefore, impacts on biological resources would be limited to potential indirect impacts from construction noise. Because this is an existing substation, it was determined that there would be no identifiable impact associated with the future maintenance, repair, or operation of the expanded portion of this substation (SDG&E 2001).

4.4.3.2.3.2.5 Miguel Substation

The proposed upgrades at the Imperial Valley-Miguel Substation would occur within the existing fence line; therefore, impacts on biological resources would be limited to potential indirect impacts from construction noise. Because this is an existing substation, it was determined that there would be no identifiable impact associated with the future maintenance, repair, or operation of the expanded portion of this substation (SDG&E 2001)

4.4.3.2.3.2.6 Devers Substation

The proposed upgrades at the Devers Substation would occur within the existing fence line; therefore, impacts on biological resources would be limited to potential indirect impacts from construction noise. Because this is an existing substation, it was determined that there would be no identifiable impact associated with the future maintenance, repair, or operation of the expanded portion of this substation (SDG&E 2001). The Devers Substation is located in the Mojave Desert in San Bernardino County within creosote bush scrub with an ephemeral desert wash immediately west of the facility.

4.4.3.2.3.2.7 Valley Substation

The proposed upgrades at the Valley Substation would occur within the existing fence line; therefore, impacts on biological resources would be limited to potential indirect impacts from construction noise. Because this is an existing substation, it was determined that there would be no identifiable impact associated with the future maintenance, repair, or operation of the expanded portion of this substation (SDG&E 2001). The Valley Substation is located in Riverside County within a matrix of developed areas and large agricultural fields with adjacent patches of ruderal and non-native grassland vegetation.

4.4.3.2.3.2.8 Serrano Substation

The proposed upgrades at the Serrano Substation would occur within the existing fence line; therefore, impacts on biological resources would be limited to potential indirect impacts from construction noise. Because this is an existing substation, it was determined that there would be no identifiable impact associated with the future maintenance, repair, or operation of the expanded portion of this substation (SDG&E 2001). The Serrano Substation is located in Orange County with residential development to the south and east and native scrub and disturbed areas to the north and west.

4.5 CULTURAL RESOURCES

4.5.1 Proposed Project

This section discusses the cultural resources in the area of the Project. The area addressed herein includes the portion of MCBCP containing the transportation routes and the SONGS 2 & 3 site.

4.5.1.1 Prehistory

Several regional cultural chronologies have been developed for the San Diego region (Roger 1939; Wallace 1955, 1978; True 1958, 1966, 1970; Meighan 1959; Moriarty 1966). A brief summary of the major stages of these chronologies are provided below.

The cultural history of the southern California coastal region extends roughly to 10,000 B.C. and includes a diverse array of cultural traditions. Early sites in the MCBCP region are associated with nomadic hunter-gatherers (Horizon I; Wallace 1955). Cultural materials identified at hunter-gather sites are often limited to stone tools and fire pits, with a variety of large bifacial points (Clovis, Eden) diagnostic of the period spanning 12,000 to 6,000 B.C. Hunter-gatherer, subsistence, and settlement practices shifted in response to the changing environment, as well as new technological innovations during the mid-Holocene (5,500 to 3,000 BC). Large bifacial points were replaced with smaller arrowheads and groundstone artifacts (Horizon II; Wallace 1955). Later horizons are characterized by an increased use of mortars and pestles and the first manifestation of discoidals (Horizon III, spanning 3,000 BC to AD 500).

In short, the earliest cultural complexes in the region are associated with the San Dieguito Period. This period is characterized by plant processing, shellfish collection, fishing, hunting, and gathering (Strudwick and Gallegos 1994). Later assemblages are associated with the La Jolla Complex, which is characterized by milling stone assemblages in shell middens. These sites are typically located near sloughs and lagoons. Burial was the primary means of interment during both of these periods (Strudwick et al. 1995).

The region saw another major shift in technological innovations with the introduction of the bow and arrow around A.D. 500, which is identified by the appearance of very small projectile points in archaeological assemblages (William Self Associates [WSA] 1999). Ceramics also became widely used during this period, millstone assemblages are more prevalent, obsidian from the Salton Sea appears with greater frequency, and the dead were cremated rather than buried (Moratto 1984).

4.5.1.2 Ethnography

The region currently occupied by MCBCP, including SONGS 2 & 3, straddles the boundary between the Luiseño and the Juaneño (Kroeber 1925). Although Kroeber (1925) separated these groups based on linguistic differences, more recent investigations have determined they share the same ethnic origins (Bean and Shipek 1978). Following the precedent set in previous reports of the region, from herein these groups will be referred to as the Luiseño (e.g., WSA 1999).

The Luiseño were divided into kin groups based on patrilocal and patrilineal social systems and: “typically lived in sheltered canyons, near year-round water sources with good defensive attributes. Their houses were conical, partially subterranean structures of local reeds, brush, or bark. Semi subterranean sweatshouses were used for purification and a ceremonial structure was in the central part of the village...” (WSA 1999).

The Luiseño were a warlike people, were highly territorial, and had strict rules concerning trespassing (WSA 1999). The Luiseño exploited a variety of fauna and flora, and there was no strict division of labor. Small game, freshwater fish, sea mammals, saltwater mollusks, and crustaceans contributed to their diet, as well as acorns and various grass seeds (Bean and Shipek 1978). Ocean fishing was conducted from balsa or dugout canoes. Basketry fish traps, bonefish hooks, and harpoons were also used (Bean and Shipek 1978).

4.5.1.3 Historic Period

California’s historic period is typically divided into three periods beginning with the arrival of Spanish explorers in 1769. The Spanish Period (1769 to 1821) is characterized by the establishment of the San Diego and San Luis Rey missions and the San Diego Presidio. Livestock and agriculture were introduced during this period. The Spanish Period ended with the secularization of Mission San Diego in 1834 (onset of the Mexican Period 1821 to 1848). During the Mexican Period large land grants were given to individuals and the cattle industry blossomed in the region. It was during this period that the town of San Diego was established. The Mexican Period ended with the Mexican-American War of 1846.

The American Period commenced in 1848, at the end of the Mexican-American War and continues to present. The discovery of gold in the Sierra Nevada foothills in 1849 led to an influx of emigrants to the

region. As the population grew, the landscape also was modified. Agricultural development occurred on nearly all arable lands, woodlands were cut for lumber, railroad ties, and timbers. Cattle grazed some native grasses to extinction. Transportation between San Diego and other major cities became increasingly important, and correspondingly, railroads and interstate and intrastate highways were constructed. Pacific Coast Highway 101 (Old Highway 101) was a major artery connecting San Diego with Los Angeles.

4.5.2 No Project Alternative

4.5.2.1 Replacement Facilities-New Generation Component

Cultural resources may occur at a No Project Alternative location, and these resources are often discovered at previously undisturbed sites in more arid regions, such as California and Arizona. Cultural resources present at a site would be subject to local, State, and Federal regulations.

4.5.2.2 Replacement Facilities-New Transmission Component

Cultural resources may occur at a No Project Alternative location, and these resources are often discovered at previously undisturbed sites in more arid regions, such as California and Arizona. Cultural resources present at a site would be subject to local, State, and Federal regulations.

4.5.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.5.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

Improvements to the existing transmission lines within the Reinforced 230 kV SCE/SDG&E Interface corridor would occur within a mostly disturbed area. However, cultural resources may still be present. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.5.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

The existing Talega, Devers, Valley, Imperial Valley, and Serrano Substations, as well as the existing SONGS switchyard are not anticipated to require modifications that extend beyond the existing fence line and disturbed land. No significant Cultural Resources are expected to occur within the fence lines, within the existing disturbed land.

4.5.2.2.2 Imperial Valley-Ramona No Project Alternative**4.5.2.2.2.1 Imperial Valley-Ramona Transmission Lines*****Imperial Valley-Ramona 500 kV line*****Imperial Valley-Dulzura (Looped) Leg**

This portion of the Imperial Valley-Ramona transmission line would be parallel to an existing transmission line (Imperial Valley-Miguel). However, cultural resources may still be present. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

Dulzura-Ramona Leg

This portion of the Imperial Valley-Ramona transmission line would be located in an area with little to no existing transmission lines. Cultural resources would likely be present. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

Ramona-Sycamore Canyon 230 kV line

The majority of this portion of the transmission line would be parallel to an existing 69 kV transmission line from the existing Creelman Substation to the existing Sycamore Canyon Substation. A portion of this transmission line, however, would likely be located in an area with no existing transmission lines. Cultural resources may be present. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

This portion of the transmission line would be parallel to an existing transmission line. Cultural resources may be present. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.5.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The new Ramona Substation site may or may not have cultural resources. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

The Sycamore Canyon Substation is likely to require improvements outside the existing fence lines and does not show a record of previous survey. Four cultural resource sites are recorded near the Sycamore Canyon upgrade, one of which (Atlas missile mounts) may be in or near the impact area. The other cultural resources include a prehistoric temporary camp and two isolates (SDG&E 2001).

The existing Talega, Devers, Valley, Imperial Valley, and Serrano Substations are not anticipated to require modifications that extend beyond the existing fence line and disturbed land. No significant Cultural Resources are expected to occur within the fence lines, within the existing disturbed land.

4.5.2.2.3 Valley-Rainbow No Project Alternative**4.5.2.2.3.1 Valley-Rainbow Transmission Lines**

According to the Valley-Rainbow Interconnect PEA, 290 cultural resources were inventoried within the Valley-Rainbow Transmission Line corridor (SDG&E 2001). Site types include Native American habitation sites, bedrock milling features, cupules, rock art, lithic scatters, historic structures, historic refuse scatters, historic irrigation features, roads, and homestead sites. Similar site types would occur for a new transmission line. A total of 43 previously recorded cultural resource sites were identified within the Talega-Escondido Transmission Line record search area (a 1,000-foot-wide corridor centered on the existing transmission line).

4.5.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The record search, as discussed within the Valley-Rainbow Interconnect PEA, showed that no previously recorded archaeological sites exist at the then proposed Rainbow Substation site, although a potential early 20th Century trash site was tentatively identified (SDG&E 2001). The new Rainbow Substation, however, would be constructed in a different area for a new transmission project and may require a new record search.

The Mission and Sycamore Canyon Substation sites do not show a record of previous survey. One prehistoric artifact scatter (CA-SDI-15,600) was recorded northwest of the Mission Substation upgrade,

outside the impact area. Four cultural resource sites are recorded near the Sycamore Canyon upgrade, one of which (Atlas missile mounts) may be in or near the impact area. The other cultural resources include a prehistoric temporary camp and two isolates (SDG&E 2001).

The Miguel Substation site was subject to survey, testing, and data recovery before its construction. The records search revealed that four previously recorded sites lie within the study area. Two lithic scatters are outside the potential impact area. CASDI-4897/H, however, is a very large, multi-locus site with prehistoric and historic components, which encompasses much of the existing substation area. The prehistoric site includes lithic scatters, whereas the historic component includes a 19th century home site (not standing). Extensive archaeological data recovery was done at CA-SDI-4897/H before construction of the existing facility (SDG&E 2001).

The existing Talega, Devers, Valley, and Serrano Substations are not anticipated to require modifications that extend beyond the existing fence line and disturbed land.

4.6 GEOLOGY/SOILS

4.6.1 Proposed Project

4.6.1.1 Beach and Road Route Transport Option

Quaternary aged geologic materials underlie the Beach and Road Route. These deposits include terrace deposits, older alluvium, alluvium, and beach deposits. Older geologic formations in the site vicinity that underlie the Quaternary surficial deposits include the San Onofre Breccia and the Monterrey Formation. These Miocene deposits are not present at the ground surface within the Project area.

Either Pleistocene terrace deposits or beach sand underlies most of the route. The terrace deposits consist predominately of dense and very dense silty and clayey sands. Older alluvium and alluvium will be encountered along the route where drainages have cut into the terrace. These alluvial materials are typically silty and clayey sands, and sandy clays with varying amounts of gravel. Beach sands consisting of silty sand underlie the southern portion of the Beach and Road Route (i.e., the beach).

Soils formed on the Quaternary surficial deposits typically have sandy surface horizons and clayey sand subsoil horizons. There is no appreciable soil horizon formation on the beach sand deposits.

Land form surveys, such as creation of detailed topographic maps at small elevation intervals, were not performed because the Project does not require grading or modification of natural landforms in undisturbed areas, such as the beach. Transition to I-5 will occur at the disturbed I-5 ROW, and detailed topographic analysis is not required at these locations to facilitate evaluation of potential Project impacts.

4.6.1.2 Inland Route Transport Options

The three Inland Route Options (I-5/Old Highway 101 and MCBCP Inland) lie east of the Beach and Road Route and traverse Stuart Mesa and the Santa Margarita River Valley. Stuart Mesa is a relatively flat lying marine terrace. The terrace is underlain primarily by Pleistocene age sedimentary deposits shed off the adjacent hill slopes. Young deposits of alluvium underlie the Santa Margarita River Valley and are present in the bottoms of the lesser drainages crossed. The MCBCP Inland/I-5 Route jogs eastward relative to the other two Routes and runs along the base of the slope at the back edge of the terrace. Older Tertiary aged sedimentary deposits underlie these slopes.

4.6.1.3 SONGS 2 & 3 Site

The geology and soils of the SONGS 2 & 3 site are similar to those described in Section 4.6.1 for the Beach and Road Route Transport Option. The entire SONGS 2 & 3 site was excavated and recompacted when the initial facilities were built.

4.6.2 No Project Alternative

4.6.2.1 Replacement Facilities-New Generation Component

Geological conditions, such as nearby faults or expansive soils, could require special design constraints. Unique geological conditions, such as rare rock formations, may also occur.

4.6.2.2 Replacement Facilities – New Transmission Component

Geological conditions, such as nearby faults or expansive soils, could require special design constraints. Unique geological conditions, such as rare rock formations, may also occur.

4.6.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.6.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

Geologic conditions along the existing Reinforced 230 kV SCE/SDG&E Interface corridor would vary. The geology and potential geologic hazards would require description and analysis in a PEA before approval. It is likely that areas subject to seismic shaking, landslides, and/or other potential hazards occur along the route.

4.6.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

The existing Talega, Devers, Valley, Imperial Valley, and Serrano Substations, as well as an existing switchyard at SONGS 2&3 would require modification. Modifications would occur within the existing fence lines on developed base material.

4.6.2.2.2 Imperial Valley-Ramona No Project Alternative**4.6.2.2.2.1 Imperial Valley-Ramona Transmission Lines*****Imperial Valley-Ramona 500 kV line*****Imperial Valley-Dulzura (Looped) Leg**

This portion of the Imperial Valley-Ramona transmission line would be parallel to an existing transmission line (Imperial Valley-Miguel). Geologic conditions would vary. The geology and potential geologic hazards would require description and analysis in a PEA before approval. It is likely that areas subject to seismic shaking, landslides, and other potential hazards occur along the route.

Dulzura-Ramona Leg

This portion of the Imperial Valley-Ramona transmission line would be located in an area with little to no existing transmission lines. Geologic conditions would vary. The geology and potential geologic hazards would require description and analysis in a PEA before approval. It is likely that areas subject to seismic shaking, landslides, and other potential hazards occur along the route.

Ramona-Sycamore Canyon 230 kV line

The majority of this portion of the transmission line would be parallel to an existing 69 kV transmission line from the existing Creelman Substation to the existing Sycamore Canyon Substation. A portion of this transmission line, however, would likely be located in an area with no existing transmission lines. Geologic conditions would vary. The geology and potential geologic hazards would require description and analysis in a PEA before approval. It is likely that areas subject to seismic shaking, landslides, and other potential hazards occur along the route.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

This portion of the transmission line would be parallel to an existing transmission line. Geologic conditions would vary. The geology and potential geologic hazards would require description and analysis in a PEA before approval. It is likely that areas subject to seismic shaking, landslides, and other potential hazards occur along the route.

4.6.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The site of the new Ramona Substation is currently unknown. The geology would require description and analysis in a PEA before approval. The following existing substations would require modifications: Sycamore Canyon, Talega, Devers, Valley, Imperial Valley, and Serrano. Modifications would occur within the existing fence line of each of the substations, with the exception of Sycamore Canyon.

4.6.2.2.3 Valley-Rainbow No Project Alternative**4.6.2.2.3.1 Valley-Rainbow Transmission Lines**

For the Valley-Rainbow Transmission Line, as described within the Valley-Rainbow Interconnect PEA, the older alluvial deposits that underlie most of the modern broad valleys in the Valley-Rainbow area were deposited during the late Pleistocene time and were locally derived from the surrounding plutonic and sedimentary bedrock units. These older alluvial deposits generally comprise dark reddish brown, poorly consolidated, fine-grained sand, silt and clay. Certain geologic formations/deposits within the Valley-Rainbow Transmission Line area have been assigned to have high paleontological resource significance (SDG&E 2001).

The Valley-Rainbow Transmission Line study area is located in the seismically active southern California region, which has experienced repeated moderate to large earthquakes. It is likely that the area will experience periodic minor to moderate earthquakes and potentially a major earthquake (moment magnitude [M] 6.8). Southern California is dominated by a major tectonic structure delineated as the San Andreas Fault. Two of the closest active subsidiary faults along the Valley-Rainbow Transmission Line study area are the Elsinore and San Jacinto faults (SDG&E 2001). These conditions would apply to the new Transmission Line as well.

The Talega-Escondido Transmission Line crosses the Santa Ana Mountains portion of the Peninsular Ranges Geomorphic Province. Cretaceous age granitic rocks generally in the eastern section and Jurassic to Cretaceous age marine sedimentary rocks in the western section underlie this area. The western end of the Talega-Escondido Transmission Line is underlain by Miocene marine sedimentary bedrock. The line crosses a region of locally steep terrain and deeply incised canyon (SDG&E 2001).

The Talega-Escondido Transmission Line is located in the seismically active southern California region, which has historically experienced repeated moderate to large earthquakes. It is likely that periodic minor to moderate earthquakes and potentially a major earthquake (M 6.9) would occur during its service life. The nearest active faults include the Newport-Inglewood Fault and the Whittier-Elsinore Fault. The transmission line does not cross any known active faults as defined by the California Department of Mines and Geology (CDMG). The transmission line does cross several potentially active faults including the Harris, Tenaja, Aliso, and Cristianitos Faults. Because of the steep terrain, there is a moderate potential for rockslides and falls along the transmission line during a seismic event or following heavy rainfall. The marine sedimentary bedrock within the western portion of the Talega - Escondido Transmission Line is susceptible to landslides. The sensitivity (quality) of geologic formations/deposits found along the proposed alignment is low to zero (SDG&E 2001).

4.6.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

As described within the Valley-Rainbow Interconnect PEA, the new Rainbow Substation site is located within the Peninsular Range Geomorphic Province of California. The east side of this Province is characterized by mountainous terrain composed mostly of Mesozoic igneous and metamorphic rocks. The proposed substation site lies within the igneous (granite) foothill region of the Peninsular Range (SDG&E 2001).

The igneous rocks in this region are composed of a variety of intrusive rock units that typically range from granodiorite to quartz diorite in composition. These rocks intruded as plutons into host beds of marine sediments, volcanic rock and volcanoclastic rock. The heat and pressure of the intruding plutons altered (metamorphosed) the texture and composition of the host rock and caused the formation of low to medium grade metamorphic rocks, resulting in the formation of an igneous/metamorphic basement complex. Subsequent uplifting and erosion has removed most of the metamorphic rocks, resulting in relatively small isolated metamorphic masses known as roof pendants (SDG&E 2001).

Previous subsurface investigations found that hard granitic bedrock and very dense weathered quartz diorite generally underlie the new Rainbow Substation site. Isolated bands of alluvial soils (alluvial fan deposit and stream alluvium) were identified along the south-central region of the site. The alluvial material is medium dense to dense, fine to coarse grained and approximately 15 feet thick. Evaluation of the site did not encounter ground water in the recent test borings, which were drilled to depths approximately 37 feet in these deposits. No landslides were observed on or adjacent to the new Rainbow Substation site. The new Rainbow Substation site is in an area of low to moderately erodible soils and is not underlain by paleontologically sensitive plutonic rocks of the Southern California Batholith (SDG&E 2001).

Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. The location of the new Rainbow Substation is currently unknown.

4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7.1 Proposed Project

The existing Project area on MCBCP is used by the base for its military operations. Operations on the base are subject to MCBCP's health and safety requirements as described in Base Order P3500.1L, Range and Training Regulations. The transport route options consist of natural lands under native and non-native vegetation cover, and areas disturbed by military operations. These areas along the Beach and Road Route and Inland Route Options are not known to contain hazardous materials or other risks

to human health and safety (excluding normal military operations). There are no known installation restoration sites in the Project area.

The general public is excluded from most of the transport routes on MCBCP, as no public access is allowed in these areas without prior authorization by MCBCP. There is a school, a medical clinic, and military housing on the base, near the Inland Transport Route Options. Authorized military personnel, civilian employees, and contractors/vendors will operate at various locations along the proposed transport route.

SONGS 2 & 3 generates hazardous and non-hazardous wastes and manages all wastes in accordance with local, State, and Federal regulations. SONGS 2 & 3 personnel are trained on appropriate management procedure according to each job function. Additionally, SONGS 2 & 3 has a dedicated environmental group that has the responsibility to oversee and guide the facility hazardous waste management program. The focus of this program is to minimize hazardous waste generation, properly store wastes, prevent releases, and ensure safe disposal of all wastes generated at the site.

4.7.2 No Project Alternative

4.7.2.1 Replacement Facilities – New Generation Component

Hazardous waste and materials would be used by new generation, and applicable rules and regulations would apply to their storage and use. Construction and operation of new generation facilities would require the elimination and/or reduction of hazardous waste or materials exposure to workers and the public. For example, if ammonia is used for generation processes, it must be stored and handled properly, according to applicable local, State, and Federal regulations.

4.7.2.2 Replacement Facilities – New Transmission Component

Existing power lines and/or the dry climate and vegetation of the area would increase the risk of natural and human caused fires. Hazardous materials could be used or stored in the No Project Alternative area.

4.7.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.7.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

The existing Reinforced 230 kV SCE/SDG&E Interface transmission line corridor is not expected to have hazardous materials or other sources of contamination. The existing transmission lines run through areas that are primarily residential housing and may be near schools and other public facilities. These conditions would require additional description in a PEA before approval.

4.7.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Modifications to the existing Valley, Imperial Valley, Talega, Devers, and Serrano Substations, as well as modifications to an existing switchyard at SONGS 2 & 3 would occur within existing fence lines. These areas are not known to have lands contaminated by hazardous materials or to pose risks to nearby residences, schools, or public facilities. However, these conditions would require description in a PEA before approval.

4.7.2.2.2 Imperial Valley-Ramona No Project Alternative**4.7.2.2.2.1 Imperial Valley-Ramona Transmission Lines*****Imperial Valley-Ramona 500 kV line*****Imperial Valley-Dulzura (Looped) Leg**

This portion of the Imperial Valley-Ramona transmission line would be parallel to an existing transmission line (Imperial Valley-Miguel) The existing dry vegetation and dry climate of the area increases the risk of natural or human caused wildland fires. These areas are not known to have lands contaminated by hazardous materials or to pose risks to nearby residences, schools, or public facilities. However, these conditions would require description in a PEA before approval.

Dulzura-Ramona Leg

This portion of the Imperial Valley-Ramona transmission line would be located in an area with little to no existing transmission lines. The existing dry vegetation and dry climate of the area increases the risk of natural or human caused wildland fires. This portion of the transmission line may or may not be

located in an area where hazardous waste is or was previously stored. These conditions would require description in a PEA before approval.

Ramona-Sycamore Canyon 230 kV line

The majority of this portion of the transmission line would be parallel to an existing 69 kV transmission line from the existing Creelman Substation to the existing Sycamore Canyon Substation. A portion of this transmission line, however, would likely be located in an area with no existing transmission lines. The existing dry vegetation and dry climate of the area increases the risk of natural or human caused wildland fires. This portion of the transmission line may or may not be located in an area where hazardous waste is or was previously stored. These conditions would require description in a PEA before approval.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

This portion of the transmission line would be parallel to an existing transmission line. The existing dry vegetation and dry climate of the area increases the risk of natural or human caused wildland fires. These conditions would require description in a PEA before approval.

4.7.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The modifications to existing substations would be constructed within fence lines of SCE and SDG&E-leased or owned land, and are not otherwise known to have lands contaminated by hazardous materials. The location of the new Rainbow Substation is currently unknown. It is unlikely that a site, for the new substation, would be selected that contained existing hazardous materials.

4.7.2.2.3 Valley-Rainbow No Project Alternative**4.7.2.2.3.1 Valley-Rainbow Transmission Lines**

As described within the Valley-Rainbow Interconnect PEA, fire hazards, such as existing powerlines, occur in the Valley-Rainbow area, which includes the Valley-Rainbow Transmission Line and the Talega-Escondido Transmission Line. The existing dry vegetation and dry climate of the area increases the risk of natural or human caused wildland fires. The types of bulk hazardous materials stored or used in the Valley-Rainbow area would be predominantly petroleum hydrocarbons in underground storage

tanks, such as at auto repair shops or service stations, or aboveground storage tanks, such as at a farm or ranch operation center. Because of the prevalence of agricultural businesses in the area, it is likely that pesticides would also be stored in large quantities. Potential hazardous materials sites were identified within the half-mile-wide Valley-Rainbow Transmission Line study corridor and no sites were identified within the existing Talega-Escondido Transmission Line area. The new transmission line for the No Project Alternative would likely have a similar setting.

4.7.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. The location of the new Rainbow Substation is currently unknown. It is unlikely that a site for the new substation would be selected that contained existing hazardous materials.

4.8 HYDROLOGY/WATER QUALITY

4.8.1 Proposed Project

4.8.1.1 Proposed Project General Study Area

The Project study area is located in the Peninsular Range physiographic province in southern California and contains significant exposures of sedimentary and igneous units rising up to an elevation of nearly 2,700 feet or over a half mile. The inland marine terrace slopes uniformly to the southwest at inclinations of five percent or less. Mountain slopes are generally moderately steep, exceeding slopes of 15%. Natural mountain and basin relief divides the Project study area into 10 distinct watersheds, four of which are large enough to provide potable and irrigation water supplies to the Base. These four watersheds are, in order of decreasing importance to water production, the Santa Margarita, San Mateo, San Onofre, and Las Flores watersheds. Because of the geographic layout of MCBCP, there are two physically independent water distribution systems within MCBCP. The San Onofre and San Mateo basins are served by the “North System,” whereas the remaining developed areas, primarily located throughout the Santa Margarita River Basin are served by the “South System.”

4.8.1.1.1 Surface Water Hydrology**4.8.1.1.1.1 Santa Margarita Watershed**

The Santa Margarita River is formed by the confluence of Temecula Creek and Murrieta Creek and flows southwesterly through MCBCP into the Pacific Ocean near Oceanside. The Santa Margarita River lies within the “South System” of MCBCP. The Santa Margarita River Basin has experienced substantial change since 1940. MCBCP was established as a permanent military installation in 1944. Since then, many changes have occurred within the 740-square-mile basin. Many valley areas within the Santa Margarita Watershed outside the MCBCP boundary have been developed for either residential, municipal, or agricultural uses. Populated areas and portions of the watershed are regulated by reservoirs. The Vail and Skinner reservoirs are the major water storage facilities in the watershed.

Historically, substantial flooding on the Santa Margarita River occurred in 1916, 1927, 1937, 1938, 1943, 1969, 1978, 1989, and 1993. Each of these years experienced flooding exceeding the 10-year flood event. The 1993 event was the largest on record; its peak discharge was equivalent to the 63-year flood (ACOE 1994).

4.8.1.1.1.2 San Mateo Creek Watershed

The San Mateo Creek Watershed lies within the “North System” of MCBCP. San Mateo Creek covers a total watershed area of 137 square miles and flows from its headwaters in the Santa Rosa Plateau within the Cleveland National Forest, to the Pacific Ocean. Approximately 22 square miles of the creek’s basin is located within MCBCP’s boundaries. Both Talega and Cristianitos creeks flow into San Mateo Creek on MCBCP. At the confluences of both creeks, San Mateo Creek widens into a broad alluvial floodplain. San Mateo Creek discharges into a freshwater marsh adjacent to the Pacific Ocean.

4.8.1.1.1.3 San Onofre Creek Watershed

The San Onofre Creek Watershed is located in the “North System” of MCBCP. The San Onofre Creek watershed lies partly on MCBCP with a drainage area of 45 square miles. Tributaries to the San Onofre Creek Watershed include Jardine Creek and the north and south forks of San Onofre Creek. Case Springs, an 8.2-acre spring-fed pond, is found in the upper part of the watershed.

4.8.1.1.1.4 Las Flores Creek Watershed

The Las Flores Creek Watershed is located in the “South System” of MCBCP. The 25-square-mile watershed lies entirely within MCBCP’s boundaries. Las Pulgas and Piedre de Lumbre creeks join approximately one mile inland from the ocean to form Las Flores Creek. Upstream of the confluence, Las Pulgas Dam forms a 7.7-acre stocked, fishing pond.

4.8.1.1.2 Groundwater Hydrology

MCBCP derives all of its water supply from groundwater resources within its boundaries. SONGS 2 & 3 receives its water supply from the San Clemente municipal system. The Santa Margarita River Basin supports all but one of the service areas at the south end of the Base. The Santa Margarita River water basin constitutes 70% of MCBCP’s water supply. Recharge of the groundwater basins on MCBCP is accomplished by recycling high-quality sewage effluent into the alluvium, draining of Lake O’Neill, and by surface runoff that occurs intermittently during the rainy season.

4.8.1.1.3 Surface Water Quality

Surface water at MCBCP, including SONGS 2 & 3 is a seasonal feature, and therefore, is not considered an economically viable source of drinking water. Surface water quality is generally within acceptable limits; however, upstream off-Base agriculture contributes to high total dissolved solids and nitrate levels. The Pacific Ocean forms the western boundary of MCBCP and SONGS 2 & 3.

4.8.1.1.4 Groundwater Quality

Water quality at MCBCP is regulated by the EPA and California State Water Resources Control Board through the Regional Water Quality Control Board (RWQCB) San Diego Region. Under the Safe Drinking Water Act of 1974 (as amended), the EPA establishes and upgrades Federal drinking water quality standards for dissolved solids, fluoride, sulfate, chloride, boron, and sodium. Drinking water standards regulate allowable concentrations of various minerals, microbiological parameters, and organic and inorganic chemicals in drinking water supplies. Treatment and quality of extracted groundwater used for potable supply at MCBCP currently meets drinking water standards. MCBCP has operated a water quality sampling program for many years; the accumulated data allows for ready identification of any departure from the norm.

4.8.1.2 Beach and Road Route Transport Option

The Beach and Road Transport Route Option passes through several natural drainages, including the Santa Margarita River. Many of the drainages are expected to be dry at the time of crossing. Thus, no water flow, including potential tidal exchange through a drainage channel, is expected to be present in most of the drainages. In many cases, no distinct drainage channel will be present on the beach at the transit route when the drainages do not have water flow. Water flow may occur in some of the channels. The Santa Margarita River has had water flow to the Pacific Ocean across the beach throughout most of 2002 and 2003, with tidal exchange to the Santa Margarita Estuary. The mouth of the Santa Margarita River at the Pacific Ocean has also been known to close to tidal exchange, even in winter periods. Therefore, the Santa Margarita River may or may not have flow during the transport. Most of the other drainages that will be crossed only have water flow during periods of extended rains. Therefore, these other drainages are expected to be dry, but could have water flows to the Pacific Ocean.

4.8.1.3 Inland Route Transport Options

These transport options use a variety of existing roads with some off-road transitions to transport the RSGs to SONGS 2 & 3. These options are generally on or east and west of I-5 (Appendix A).

4.8.1.3.1 I-5/Old Highway 101 Option

The transport route option passes over natural drainages, including the Santa Margarita River and Las Flores Creek. Existing bridges will be crossed and preliminary evaluations indicate that no structural modifications will be required. Therefore, these natural drainages are not within the area of potential effect for this route option.

4.8.1.3.2 MCBCP Inland Option

The transport route option passes over natural drainages, including the Santa Margarita River and Las Flores Creek. Existing bridges and culverts will be crossed and preliminary evaluations indicate that no structural modifications will be required. Therefore, these natural drainages are not within the area of potential effect for this route option.

4.8.1.4 SONGS 2 & 3 Site

SONGS 2 & 3 is fully developed with areas consisting of either pavement or buildings. Therefore, most of the SONGS 2 & 3 site consists of impermeable surfaces, except for minor landscaped areas.

Stormwater onsite is subject to existing programs.

4.8.2 No Project Alternative**4.8.2.1 Replacement Facilities – New Generation Component**

A range of hydrologic conditions could occur, from surface water (oceans, bays, rivers, creeks, streams, and drainages) to groundwater. The amount of water needed to operate the facility would vary, depending on the cooling method (wet or dry cooling). New sources of water, however, may be required.

4.8.2.2 Replacement Facilities – New Transmission Component

A range of hydrologic conditions could occur, from surface water (oceans, bays, rivers, creeks, stream, and drainages) to groundwater.

4.8.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.8.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

The existing Reinforced 230 kV SCE/SDG&E Interface transmission line corridor is located within the Santa Ana Basin under the jurisdiction of Orange County, as authorized by the State of California RWQCBs, the State Water Resources Control Board, and the EPA. The hydrological conditions would require description and analysis in a PEA before approval; however, no substantial water resources are known to occur in this area that would be of potential effect from this alternative.

4.8.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

The existing substations and switchyard are located within three watershed basins, the San Diego Basin, the Colorado River Basin, and the Santa Ana Basin. These watersheds are under the jurisdiction of the San Diego, Colorado, and Santa Ana RWQCBs. Stormwater management in the area of the substations falls within the jurisdiction of Riverside County, San Bernardino County, Orange County, Imperial County, and San Diego County, as authorized by the State of California, RWQCBs, the State

Water Resources Control Board, and the EPA. The hydrological conditions would require description and analysis in a PEA before approval. Modifications to the substations and switchyard would be within the existing fence lines, and no substantial water resources are known to occur within areas of potential effect at these substations.

4.8.2.2.2 Imperial Valley-Ramona No Project Alternative

4.8.2.2.2.1 Imperial Valley-Ramona Transmission Lines

The transmission lines would be located within two watershed basins, the San Diego Basin and the Colorado River Basin. These watersheds are under the jurisdiction of the San Diego and Colorado River RWQCBs. Stormwater management in the area of the transmission lines falls within the jurisdiction of Imperial County and San Diego County, as authorized by the State of California, RWQCBs, the State Water Resources Control Board, and the EPA. Several drainages would be located within the area of the transmission lines. The hydrological conditions would require description and analysis in a PEA before approval.

4.8.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The substations included in the Imperial Valley-Ramona Project, No Project Alternative, would be located within three watershed basins, the San Diego Basin, the Colorado River Basin, and the Santa Ana Basin. These watersheds are under the jurisdiction of the San Diego, Colorado, and Santa Ana RWQCBs. Stormwater management in the area of the substations falls within the jurisdiction of Riverside County, San Bernardino, Orange, Imperial, and San Diego County, as authorized by the State of California, RWQCBs, the State Water Resources Control Board, and the EPA. Drainages may or may not be located within the area of the new Ramona Substation. The hydrological conditions would require description and analysis in a PEA before approval. Modifications to the other substations would be within the existing fence lines or just outside the fence lines within SCE and SDG&E-owned or leased lands, and no substantial water resources are known to occur within areas of potential effect at these substations.

4.8.2.2.3 Valley-Rainbow No Project Alternative**4.8.2.2.3.1 Valley-Rainbow Transmission Lines**

As described within the Valley-Rainbow Interconnect PEA, the Valley-Rainbow Transmission Line would be located within two watershed basins, the San Diego Basin and the Santa Ana Basin. These watersheds are under the jurisdiction of the San Diego and Santa Ana RWQCBs. Stormwater management in the Valley-Rainbow area falls within the jurisdiction of Riverside County and San Diego County, as authorized by the State of California, RWQCBs, the State Water Resources Control Board, and the EPA. The area is drained mostly by the Santa Margarita River, Murrieta Creek, Temecula River, and the San Luis Rey River. These creeks, plus numerous smaller creeks, are also located in the Valley-Rainbow area (SDG&E 2001). The new transmission line for the No Project Alternative would likely have a similar setting.

The northernmost portion of the Valley-Rainbow project area lies within the San Jacinto River watershed. The only surface water located in this area is Salt Creek and an associated Salt Creek flood control facility near Winchester and Sun City. The major surface water storage in the Valley-Rainbow project area is Lake Skinner, Diamond Valley Lake, Vail Lake, and O'Neil Lake (SDG&E 2001).

The Talega-Escondido transmission circuit would be constructed on existing support structures already containing one 230 kV circuit. All new equipment would be installed within the existing fence line at these two sites. Several intermittent and ephemeral creeks including Moosa Canyon Stream, Gomez Creek, San Luis Rey River, Keys Creek, Rainbow Creek, Santa Margarita River, DeLuz Creek, Roblar Creek, and Christianitos Creek are crossed by the existing 230 kV line (SDG&E 2001).

4.8.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The new Rainbow Substation site, as described within the Valley-Rainbow PEA, lies in a mildly sloping valley that drains to the southwest. The topography of the site consists of moderately to steeply sloping hillside surfaces to both the north and south. These hillside surfaces extend downward toward the central region of the property and surround a relatively flat lying meadow area. Preliminary investigations suggest this meadow area is a 3.1-acre federally jurisdictional wetland. A shallow southwest flowing stream drainage feature crosses the southern edge of the meadow. Other ephemeral drainages are located on the north and western hillside regions. These drainages flow downward to the

southwest flowing drainage and are considered Waters of the United States. Additional wetland areas may be present associated with these drainage features. Further wetland delineations to determine the extent of wetlands on site would be anticipated (SDG&E 2001). Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. The location of the new Rainbow Substation is currently unknown.

4.9 LAND USE/PLANNING

4.9.1 Proposed Project

As previously described, the SONGS 2 & 3 site is a nuclear generating station in an industrial setting with office structures, warehouses, paved equipment yards, and paved parking. SONGS 1, located immediately north of SONGS 2 & 3, is in the process of being dismantled. The area surrounding SONGS 2 & 3 is composed of open lands with public access, managed by California State Parks. The land on MCBCP is devoted to military training and other military uses. Land uses on the Base include offices, housing, personnel support facilities, military support facilities, training ranges, access roads (including paved and unpaved roads), and other areas of disturbed and undisturbed open lands. All lands on MCBCP are subject to exclusive use by MCBCP, and all land uses therein are controlled by MCBCP. The I-5 and San Diego Northern Railroad corridors through MCBCP, are both located near portions of the routes for the transport options. A maintenance station for the Coaster Railway is located adjacent to I-5 and the San Diego Northern Railroad on MCBCP. SONGS 2 & 3 is located on lands with easement and lease agreements.

4.9.2 No Project Alternative

4.9.2.1 Replacement Facilities - New Generation Component

Land uses could range from compatible industrial uses, residential, and/or open space. The project area of the No Project Alternative would fall within the jurisdiction of various local, State, and Federal agencies. An inventory of existing land uses would be required. The inventory would likely be based on onsite reconnaissance surveys; review of current United States Geological Survey 7.5 minute

topographic quadrangle maps; aerial reconnaissance and photography; review of local land use ordinances; review of land use goals and policies.

Land uses are controlled and regulated using a complex system of plans, policies, goals, and ordinances adopted by the various jurisdictions with authority over land use within the No Project Alternative area. The General Plan is the broadest planning document in scope and defines large-scale planned development patterns over a relatively long time frame. Zoning ordinances are the primary methods for achieving the objectives of the General Plan and are detailed specifications for allowable development (e.g., density, lot size, height, and setback). Other regulations governing development include grading ordinances, subdivision ordinances, building codes, and a variety of other regulations. Taken together, these regulations control development on parcels of land under the jurisdiction of the applicable governing entity.

4.9.2.2 Replacement Facilities - New Transmission Component

Land uses could range from compatible utility corridors, residential, and/or open space.

4.9.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.9.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

Public and private lands would fall within the jurisdiction of various local, State, and Federal agencies. The existing Reinforced 230 kV SCE/SDG&E Interface transmission line corridor is located in an extensively developed area within Orange County. Adjacent land uses include recreation, residential, commercial, and industrial. These conditions would require a more detailed description and analysis in a PEA before approval.

4.9.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Public and private lands would fall within the jurisdiction of various local, State, and Federal agencies. The existing substations are located in San Bernardino, Orange, Riverside, San Diego, and Imperial Counties. The substations are located in a variety of land use settings, including a mix of urban residential and commercial land uses, as well as rural and remote settings.

4.9.2.2.2 Imperial Valley-Ramona No Project Alternative**4.9.2.2.2.1 Imperial Valley-Ramona Transmission Lines*****Imperial Valley-Ramona 500 kV line*****Imperial Valley-Dulzura (Looped) Leg**

Public and private lands would fall within the jurisdiction of various local, State, and Federal agencies. This portion of the transmission line would be located in San Diego and Imperial Counties, and within an existing utility corridor. Land uses would vary throughout this area and these conditions would require description and analysis in a PEA before approval.

Dulzura-Ramona Leg

Public and private lands would fall within the jurisdiction of various local, State, and Federal agencies. This portion of the transmission line would be located in a mostly rural portion of San Diego County. Land uses would vary throughout this area and these conditions would require description and analysis in a PEA before approval.

Ramona-Sycamore Canyon 230 kV line

Public and private lands would fall within the jurisdiction of various local, State, and Federal agencies. This portion of the transmission line would be located in San Diego County. The majority of this portion of the transmission line would be parallel to an existing 69 kV transmission line from the existing Creelman Substation to the existing Sycamore Canyon Substation. A portion of this transmission line, however, would likely be located in an area with no existing transmission lines. Land uses would vary throughout this area and these conditions would require description and analysis in a PEA before approval.

Sycamore Canyon-Chicarita-Carlton Hill 138 kV line

Public and private lands would fall within the jurisdiction of various local, State, and Federal agencies. This portion of the transmission line would be located in San Diego County and would be located

within an existing utility corridor. Land uses would vary throughout this No Project Alternative area and these conditions would require description and analysis in a PEA before approval.

4.9.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

Public and private lands near the Imperial Valley-Ramona substations would fall within the jurisdiction of various local, State, and Federal agencies. The substations are located in San Bernardino, Orange, Riverside, San Diego, and Imperial Counties. The substations are located in a variety of land use settings, including a mix of urban residential and commercial land uses, as well as rural and remote settings.

4.9.2.2.3 Valley-Rainbow No Project Alternative

4.9.2.2.3.1 Valley-Rainbow Transmission Lines

Public and private lands near the Valley-Rainbow Transmission Line project area, as described within the Valley-Rainbow Interconnect PEA, fall within the jurisdiction of various local, State, and Federal agencies. These agencies include the USFWS; Bureau of Land Management (BLM); United States Forest Service (USFS); ACOE; Department of Defense (DoD); CDFG; Counties of San Diego, Orange, and Riverside; and incorporated cities of Temecula, Hemet, Murrieta, Lake Elsinore, and Escondido. Alternatives to the Valley-Rainbow Project, as proposed within the Valley-Rainbow PEA, could also fall within the Pechanga Indian Reservation if permission is obtained from the Tribal Council. Certain unincorporated communities near the Valley-Rainbow Transmission Line include, without limitation, Winchester, Rainbow, Sun City, the southern portion of Romoland, DeLuz, Fallbrook, the Wine Country east of Temecula, and the Glen Oak Hills area (SDG&E 2001).

Most of the Valley-Rainbow Transmission Line would be located within Riverside County, although the extreme southern portion of the 500 kV line would be in San Diego County. The existing Talega-Escondido Transmission Line to be upgraded, is located mainly in San Diego County, but sections of the line also cross into Riverside County (SDG&E 2001).

Private land could dominate the Valley-Rainbow Transmission Line corridor area except for public land administered by the BLM and the USFS. Indian reservations, include the Pechanga and Pala.

Numerous existing and planned natural resource and wildlife preserves may occur within the Valley-Rainbow Transmission Line No Project Alternative area. The most significant reserves could be:

- Agua Tibia Wilderness
- BLM Agua Tibia Wilderness Study Area
- Santa Margarita Ecological Reserve
- BLM Santa Margarita Ecological Reserve Area of Critical Environmental Concern
- Santa Rosa Plateau Ecological Reserve
- Southwestern Riverside County Multi-Species Reserve
- Proposed Assessment District 161 Multiple Species Subarea Habitat Conservation
- Plan Conservation Area
- Mount Olympus Preserve
- Emerson Oaks Reserve

The Lake Skinner Recreation Area and numerous developed recreational facilities (parks) could also be located in the Valley-Rainbow Transmission Line study area.

Incorporated cities near the Valley-Rainbow Transmission Line study area corridor could include Hemet, Murrieta, Lake Elsinore, and Temecula, which are all located in Riverside County.

Unincorporated communities could include Romoland, Sun City, Winchester, Murrieta Hot Springs, Rainbow, and Glen Oak Hills. Other population centers could include specific planned developments, mobile home parks, and subdivisions, and large-lot rural residential development. Existing residences are dispersed throughout the Valley-Rainbow Transmission Line corridor, but are present in greater concentrations along major transportation routes and where reliable water sources exist. Other land uses within the Valley-Rainbow Transmission Line corridor include commercial, industrial, public land, schools, farms and ranches, rural residences, communication sites, airports/airstrips, linear features (utilities), and agriculture (SDG&E 2001). The new transmission line for this No Project Alternative would likely be in a similar setting.

The existing Talega-Escondido Transmission Line passes through the County of San Diego, with a small portion of the line crossing the County of Riverside. The existing transmission line is within a 300-foot easement owned by SDG&E. Most land within the easement is private and under county

jurisdiction. Approximately 17 miles of the easement is within the northern boundaries of MCBCP. The base is located to the west of the city of Fallbrook and covers an area of approximately 125,000 acres. The Santa Margarita Ecological Reserve and the BLM Santa Margarita Ecological Reserve Area of Critical Environmental Concern (ACEC) are crossed by the existing transmission line (SDG&E 2001).

4.9.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The substations that will require modifications as part of this alternative are located in Riverside, San Bernardino, Orange, and San Diego counties. The substations are located in a variety of land use settings, including a mix of urban residential and commercial land uses, as well as rural and remote settings. Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands.

4.10 MINERAL RESOURCES

4.10.1 Proposed Project

There are no developed or known mineral resources within the Project area, other than potential aggregate resources.

4.10.2 No Project Alternative

4.10.2.1 Replacement Facilities - New Generation Component

It is possible that mineral resources could exist within the area for new generation facilities.

4.10.2.2 Replacement Facilities – New Transmission Component

It is possible that mineral resources could exist within the area for new transmission facilities.

4.10.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.10.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

The existing Reinforced 230 kV SCE/SDG&E Interface transmission line corridor is likely not located in an area with mineral resources of concern. Potential mineral resources would require description and analysis in a PEA before approval.

4.10.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Substation and switchyard improvements would occur within the existing fence lines. Mineral Resources present, if any, are unknown.

4.10.2.2.2 Imperial Valley-Ramona No Project Alternative**4.10.2.2.2.1 Imperial Valley-Ramona Transmission Lines**

The Imperial Valley-Ramona transmission lines would likely traverse areas with mineral resources. Mineral resources of concern may or may not exist. Portions of the new transmission lines adjacent to existing transmission lines would likely not be located in areas with mineral resources of concern. Potential mineral resources would require description and analysis in a PEA before approval.

4.10.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The siting location of the new Ramona Substation is currently unknown. Mineral resources may or may not exist at the location. Potential mineral resources would require description and analysis in a PEA before approval. The improvements to each of the existing substations, with the exception of Sycamore Canyon, would occur within the existing fence lines. Mineral Resources present, if any, are unknown.

4.10.2.2.3 Valley-Rainbow No Project Alternative**4.10.2.2.3.1 Valley-Rainbow Transmission Lines**

The Valley-Rainbow Transmission Line area, as described within the Valley-Rainbow Interconnect PEA, is underlain by Mineral Resource Zone (MRZ) Category for Aggregate Resources MRZ-3a and MRZ-3b. These two categories are areas containing known aggregate resources of undetermined mineral resource significance. The second mineral classification is an abandoned gold mine (the Alice Mine Area). This gold mine was in operation in the early 1890s. Operations were suspended in 1896

and there has been no further activity since that time (SDG&E 2001). The new transmission line for the No Project Alternative may have a similar setting.

The existing Talega-Escondido Transmission Line area is not known to have mineral resources, other than potential aggregate resources.

4.10.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands. Mineral Resources present, if any, are unknown.

4.11 NOISE

4.11.1 Proposed Project

4.11.1.1 Noise Definitions and Methods

Terms used to describe noise in this report are briefly defined in this section. Sound may be described in terms of level or amplitude (measured in decibels), frequency or pitch (measured in hertz or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the amplitude of sound is the decibel (dB). Because the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear.

Noise is defined as unwanted sound, and is known to have several adverse impacts on people, including hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, local agencies, the State of California, and the Federal government have established criteria to protect public health and safety, to prevent disruption of certain human activities, and to minimize annoyance. Several descriptors of noise (or “noise metrics”) exist to help predict average community reactions to the adverse effects of environmental noise on a community. These descriptors include the Equivalent Noise Level (L_{eq}), Day-Night Average Noise Level (L_{dn}), and the Community Noise Equivalent Level (CNEL). Each of these descriptors use units of dBA.

L_{eq} is a sound energy level averaged over a specified period (usually one hour). L_{eq} is a single numerical value that represents the amount of variable sound energy received by a receptor during a time interval. For example, a one-hour L_{eq} noise level measurement will represent the average amount of energy contained in all of the noise that occurred in that one hour. L_{eq} is an effective noise descriptor because of its ability to assess the total time-varying effects of noise on sensitive receptors.

Unlike the L_{eq} metric, L_{dn} and CNEL noise metrics always represent 24-hour periods, usually annually. L_{dn} and CNEL also differ from L_{eq} because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). “Time weighted” refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 A.M. to 7:00 P.M.) receives no penalty. Noise during the evening (7:00 P.M. to 10:00 P.M.) is penalized by adding 5 dB, whereas nighttime (10:00 P.M. to 7:00 A.M.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is from 7:00 a.m. to 10:00 p.m., thus, eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by approximately 0.5 to 1 decibel. L_{eq} is generally used to measure noise affecting sensitive receptors where noise is not a concern during the evening and nighttime periods (e.g., schools and office buildings) or where the noise is only generated during daytime hours (e.g., construction).

Federal and local agencies have established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The various policies and laws established to achieve control of adverse environmental noise are not absolute prohibitions, but recognize the necessity and inevitability of noise associated with an urbanized technological society. No Federal or Navy standards specifically address construction noise, which is short-term as compared with the long-term noise generated by regular aircraft or roadway operations.

Noise-sensitive receptors are generally considered persons who occupy areas where quiet is an important attribute of the environment. Land uses often associated with noise-sensitive receptors include residential dwellings, mobile homes, hotels, hospitals, nursing homes, educational facilities, and libraries. None of these land uses are adjacent to SONGS 2 & 3. There are no standards for

temporary noise to comply with, and no sensitive receptors occur in an area that will be affected by the temporary, short-term noise that will be generated during transport.

4.11.1.2 Proposed Project Study Area

Table 4.11-1 shows typical noise levels associated with various human population densities. As Table 4.11-1 shows, typical noise levels for undeveloped areas are approximately 35 and 40 dBA L_{dn} , respectively. Most of the Routes for the Transport Options are through undeveloped areas; therefore, typical existing noise levels in these areas will be in the range of 35 to 40 dBA L_{dn} . However, most of the Transport Options and the SONGS 2 & 3 site are adjacent to existing noise sources, such as active roadways, railways, military operations, and the ocean. The areas along the routes for the various Transport Options are subject to on going use by military equipment that generates noise, and the I-5 corridor, which generates substantial noise from its traffic. For example, approximately four miles of the Beach and Road Route Transport Option is adjacent to I-5; whereas, the other portion of the route is adjacent to the ocean. In these areas, the ambient noise levels will be considerably more than in other areas not adjacent to I-5 or the ocean and will be dependent on the distance from the receiver to the source. All transport options will pass adjacent to recreation areas and campgrounds at San Onofre State Park and Camp Del Mar, which is located near the Camp Pendleton Del Mar Boat Basin.

**Table 4.11-1
Relationship Between Population Density
and Average Day-Night Noise Levels**

Location	Persons/Sq. Mile	L_{dn} (dBA)
Rural		
Undeveloped	20	35
Partially Developed	60	40
Suburban		
Quiet	200	45
Normal	600	50
Urban		
Normal	2000	55
Noisy	6000	60
Very Noisy	20,000	65

Source: National Research Council, United States.

Existing activities at SONGS 2 & 3 will be associated with a heavy industrial facility and will typically be approximately 65 to 75 dBA L_{dn} .

4.11.2 No Project Alternative

4.11.2.1 Replacement Facilities – New Generation Component

Sensitive receptors such as wildlife or residents could occur near the area of potential effect.

4.11.2.2 Replacement Facilities - New Transmission Component

Sensitive receptors such as wildlife or residents could occur near the area of potential effect.

4.11.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.11.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

The existing Reinforced 230 kV SCE/SDG&E Interface transmission line corridor is located near sensitive receptors such as residences and commercial businesses. Existing conditions vary and these conditions would require description and analysis in a PEA before approval.

4.11.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Modifications to the existing substations and switchyard would not be expected to increase noise in the area, such that no sensitive receptors are anticipated to occur within the areas of potential effect.

4.11.2.2.2 Imperial Valley-Ramona No Project Alternative

4.11.2.2.2.1 Imperial Valley-Ramona Transmission Lines

Portions of the Imperial Valley-Ramona transmission lines would likely be located near existing noise sources, such as highways. Portions of the Imperial Valley-Ramona transmission lines would be located adjacent to existing lines. Sensitive receptors in the area would likely include residences and commercial businesses. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.11.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The siting location of the new Ramona Substation is unknown. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval. Modifications to the

existing substations would not be expected to increase noise in the area, such that no sensitive receptors are anticipated to occur within the areas of potential effect.

4.11.2.2.3 Valley-Rainbow No Project Alternative

4.11.2.2.3.1 Valley-Rainbow Transmission Lines

According to the Valley-Rainbow Interconnect PEA, the major noise sources in the Valley-Rainbow Transmission Line area of potential effect include a State highway, railroad, and the French Valley Airport. Residential housing also exists in the Valley-Rainbow Transmission Line area (SDG&E 2001). The new transmission line for the No Project Alternative may be located in a similar setting.

The major noise sources in the area include two State highways. The sensitive receptors for the existing Talega-Escondido Transmission Line are residences and commercial businesses where the line route is through the city of San Marcos and the city of Escondido. In some locations, the line is less than 500 feet from residences and businesses in both of these cities.

4.11.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The new Rainbow Substation site, as described within the Valley-Rainbow Interconnect PEA, would be in an area that is currently relatively undeveloped. It is anticipated that there may be residential development near the substation site in the future. No parks or sensitive roads are nearby the area of the new Rainbow Substation. A single residence is present within 500 feet of the proposed substation. There are no other residences. Similar situations may apply to a new Rainbow substation site. Modifications to the existing substations would not be expected to increase noise in the area, such that no sensitive receptors are anticipated to occur within the areas of potential effect.

4.12 POPULATION/HOUSING

4.12.1 Proposed Project

Project activities will require temporary employees and/or contractors. The Project vicinity has an adequate supply of lodging, with San Clemente to the north and Oceanside to the south. SONGS 2 & 3 has a developed campground/recreational vehicle (RV) park operated specifically for temporary employees and contractors during high demand periods, such as planned RFOs.

San Onofre State Park, which is adjacent to SONGS 2 & 3, has two campgrounds, the Bluffs and San Mateo. The Bluffs Campground has approximately 221 camp sites with parking for a RV at each site. Some sites have electrical hook-ups for RV's, but no sewer hook ups. The campground has a dump station. Each site is restricted to no more than eight people. Reservations can be made as early as seven months in advance or as soon as two days in advance. Camping is limited to no more than seven consecutive days per season, which includes off-season and peak season. The Bluffs Campground closed on October 1, 2003 and will re-open some time in March, 2004 (State Parks 2003). Typically, the campground is closed only approximately three months beginning on December 1 and re-opening some time in March. San Mateo Campground has approximately 157 total camp sites, with electrical and water RV hook-ups at 67 of the sites. The campground also has a dump station. Each site is restricted to no more than eight people. Reservations can be made as early as seven months in advance or as soon as two days in advance. No person is permitted to camp at the campground for more than 28 days total in a year, with a maximum of two, 14-day stays with 48 hours in between each stay.

4.12.2 No Project Alternative

4.12.2.1 Replacement Facilities - New Generation Component

Each new CCGT generation facility would likely require anywhere from 15-30 permanent full-time employees. There may or may not be enough permanent housing in close proximity for the new workers. Additionally, new generation may or may not displace existing housing.

4.12.2.2 Replacement Facilities - New Transmission Component

4.12.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.12.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

Although the Reinforced 230 kV SCE/SDG&E Interface No Project Alternative would result in a temporary increase in population and the temporary increased need for housing because of necessary, related construction workers, the amount of existing long-term and temporary housing available in Orange County is expected to be substantial relative to these needs. Before approval, existing conditions would need to be described within a PEA.

4.12.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

The existing substation and switchyard modifications would occur within San Diego, Riverside, Orange, Imperial, and San Bernardino counties. Although a temporary housing analysis for this alternative has not been conducted, it is likely that these two areas would have adequate temporary housing. Permanent housing would not be required, other than for individuals already living in the area. Before approval, existing conditions would need to be described within a PEA.

4.12.2.2 Imperial Valley-Ramona No Project Alternative**4.12.2.2.1 Imperial Valley-Ramona Transmission Lines**

Although the Imperial Valley-Ramona transmission lines would result in a temporary increase in population and the temporary increased need for housing because of necessary, related construction workers, the amount of existing and long-term temporary housing available in Imperial and San Diego Counties is expected to be substantial relative to Imperial Valley-Ramona needs. Before approval, existing conditions would need to be described within a PEA.

4.12.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The substation modifications would occur within San Diego, Riverside, Orange, Imperial, and San Bernardino counties. Although a temporary housing analysis for this alternative has not been conducted, it is likely that these two areas would have adequate temporary housing. Permanent housing would not be required, other than for individuals already living in the area. Before approval, existing conditions would need to be described within a PEA.

4.12.2.2.3 Valley-Rainbow No Project Alternative**4.12.2.2.3.1 Valley-Rainbow Transmission Lines**

The Valley-Rainbow Transmission Line and the existing Talega-Escondido Transmission Line area, as described within the Valley-Rainbow Interconnect PEA, is among the fastest growing areas in the United States. When the Valley-Rainbow Interconnect PEA was prepared, more than 100 specific plans and tract developments were in some stage of approval or development near the area of potential effect. As of January, 1999, Riverside County's population was estimated at 1,473,300, which is approximately 4.4% of the population of California. Riverside County was California's fastest growing

major county-based on population change from 1998-1999. San Diego County's population was estimated at 2,853,300 people and was the second fastest growing county in California for that period (SDG&E 2001). Riverside County had approximately 569,287 total housing units (up from 483,847 units in 1990) and a 16.9% vacancy rate. Within Riverside County, single detached homes accounted for 64.4% of the total housing (SDG&E 2001).

The general study area of the Valley-Rainbow Transmission Line has an overall increase in visitors and an associated increase in demand for temporary accommodations over the summer months. According to interviews with lodging representatives in the Valley-Rainbow Transmission Line study area, there is no specific high season where the demand for accommodations spikes significantly over a prolonged period. The steady demand for temporary accommodations is attributed to the generally mild local climate and the year-round nature of the visitor attractions in the area, such as the winemaking facilities/vineyards in and around Temecula. However, there are two specific weekends (the Rod Run in February and the Balloon & Wine Festival in June) of peak demand in the Valley-Rainbow Transmission Line study area that cause most hotels in the surrounding area to achieve full occupancy (SDG&E 2001). The new transmission line for the No Project Alternative would likely have a similar setting.

Within the more urbanized areas (Temecula, Murrieta, and Hemet, in particular) and to a lesser extent in the surrounding smaller communities, there are numerous apartment complexes and houses in which longer term accommodations can be rented, with leases available predominantly month-to-month (SDG&E 2001). Installing a second circuit on the existing Talega-Escondido Transmission Line would also require temporary workers.

4.12.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The substation modifications would occur within San Diego, Riverside, Orange, and San Bernardino counties. Although a temporary housing analysis for this alternative has not been conducted for San Diego County, north Orange County, and San Bernardino County, it is likely that these two areas would have adequate temporary housing. Permanent housing would not be required, other than for individuals already living in the area.

4.13 PUBLIC SERVICES**4.13.1 Proposed Project**

SONGS 2 & 3 currently receives necessary public services, such as fire and police protection, schools, and parks. Public services on MCBCP are provided and controlled by MCBCP.

4.13.2 No Project Alternative**4.13.2.1 Replacement Facilities - New Generation Component**

New generation may require the need for additional public services, such as police or fire. Adequate services may or may not exist in the project area.

4.13.2.2 Replacement Facilities - New Transmission Component

New transmission may require the need for additional public services, such as police or fire. Adequate services may or may not exist in the area.

4.13.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.13.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

An inventory of public services has not been conducted in the area. The area likely receives the necessary public services. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.13.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

An inventory of public services has not been conducted in the area. The area likely receives the necessary public services. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.13.2.2.2 Imperial Valley-Ramona No Project Alternative**4.13.2.2.2.1 Imperial Valley-Ramona Transmission Lines**

An inventory of public services has not been conducted in the area. The area likely receives the necessary public services. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.13.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

An inventory of public services has not been conducted in the area. The area likely receives the necessary public services. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.13.2.2.3 Valley-Rainbow No Project Alternative**4.13.2.2.3.1 Valley-Rainbow Transmission Lines**

The Valley-Rainbow Transmission Line area receives necessary public services and the existing Talega-Escondido Transmission Line area, also currently receives necessary public services. The new transmission line for the No Project Alternative would likely have a similar setting.

4.13.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The new Rainbow Substation area and the existing substations currently receive necessary public services.

4.14 RECREATION**4.14.1 Proposed Project**

Although there are no recreational resources at SONGS 2 & 3, the adjacent San Onofre State Park provides opportunities for camping, surfing, beach access, and nature viewing. San Onofre State Park, which is adjacent to SONGS 2 & 3, has two campgrounds, the Bluffs and San Mateo. The Bluffs Campground has approximately 221 camp sites with parking for a RV at each site. Some sites have electrical hook-ups for RV's, but no sewer hook ups. The campground has a dump station. Each site is restricted to no more than eight people. Reservations can be made as early as seven months in advance or as soon as two days in advance. Camping is limited to no more than seven consecutive days per

season, which includes off-season and peak season (Wess 2003). The Bluffs Campground closed on October 1, 2003 and will re-open some time in March, 2004 (State Parks 2003). Typically, the campground is closed only approximately three months, beginning in December 1, and re-opening some time in March. San Mateo Campground has approximately 157 total camp sites, with electrical and water RV hook-ups at 67 of the sites. The campground also has a dump station. Each site is restricted to no more than eight people. Reservations can be made as early as seven months in advance or as soon as two days in advance. No person is permitted to camp at the campground for more than 28 days total in a year, with a maximum of two, 14-day stays with 48 hours in between each stay.

4.14.2 No Project Alternative

4.14.2.1 Replacement Facilities - New Generation Component

Recreation opportunities may be present in the area.

4.14.2.2 Replacement Facilities - New Transmission Component

Recreation opportunities may be present in the area.

4.14.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.14.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

Several parks and/or recreation areas are within or immediately adjacent to the existing Reinforced 230 kV SCE/SDG&E Interface transmission line corridor. From North to South, these parks and/or recreation areas are as follows: Stanton Park, College Park, Palos Verdes Park, Pleasant View Park, Westmont Park, Fulton Park, Courreges Park, Harper Park, and Talbert Park. Specific existing conditions would vary and additional parks and/or recreation areas likely exist. A more detailed description and analysis in a project specific PEA would be required before approval.

4.14.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Existing substation and switchyard improvements will occur within the existing fence lines.

4.14.2.2.2 Imperial Valley-Ramona No Project Alternative**4.14.2.2.2.1 Imperial Valley-Ramona Transmission Lines**

The new portions of the Imperial Valley-Ramona transmission lines would likely run through or near existing parks and recreation areas. The exact locations of the transmission lines are currently unknown, and existing conditions would vary. These conditions would require description and analysis in a PEA before approval.

4.14.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The new Ramona Substation would likely not be sited in a park or recreation area. The exact location of the new Ramona Substation is currently unknown, and existing conditions would vary. These conditions would require description and analysis in a PEA before approval. A land use inventory was not conducted for the other existing substations that require modification. Except for Sycamore Canyon, which will require minimal disturbance outside the fence line, the other substation modifications will occur within the existing fence lines.

4.14.2.2.3 Valley-Rainbow No Project Alternative**4.14.2.2.3.1 Valley-Rainbow Transmission Lines**

The Valley-Rainbow Transmission Line, as proposed within the Valley-Rainbow Interconnect PEA, would cross parks and recreation and preservation areas. The existing Talega-Escondido Transmission Line crosses through the Santa Margarita Ecological Reserve and the BLM Santa Margarita Ecological Reserve (SDG&E 2001). The new transmission line for the No Project Alternative would likely cross parks, recreation, and preservation areas as well.

4.14.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The new Rainbow Substation, as proposed within the Valley-Rainbow Interconnect PEA, would not be located on or adjacent to existing or proposed parks, recreation areas, or preservation areas (SDG&E 2001). A land use inventory was not conducted for the other existing substations that require modification. Modifications to the existing Mission, Miguel, Valley, Sycamore Canyon, Talega, Devers, and Serrano Substations would occur. Only the Sycamore Canyon and Mission Substation improvements would extend beyond the fence line and onto SDG&E-owned and SDG&E-leased lands.

4.15 TRANSPORTATION/TRAFFIC

4.15.1 Proposed Project

The focus of this section is on roads and highways off the SONGS 2 & 3 site. Therefore, the areas for the RSG transport options are emphasized herein.

4.15.1.1 *Beach and Road Route Transport Option*

The Beach and Road Route Transport Option involves the use of the beach and existing military roads on MCBCP, a short reach of I-5, and a portion of Old Highway 101 between MCBCP and SONGS 2 & 3. The minor transitions from MCBCP to and from I-5 will be off roads. See segments A through E on MCBCP, segment F on I-5 off MCBCP, segments G and H on MCBCP, and segments I and J off MCBCP on Figures A-1 through A-9.

The transportation route on MCBCP is on existing roads. Even the beach portion of this route that will be used for transport is an existing military transport and training route that is actively used by military vehicles on MCBCP as part of MCBCP's operations. All roads and lands on MCBCP are part of exclusive use Federal lands dedicated to operations by MCBCP and wholly controlled by MCBCP. All use of these existing roads and other lands are at the sole discretion and control of MCBCP.

The portions of Old Highway 101 that will be used for this transport option are within the San Onofre State Park (segments I and J). Within the San Onofre State Park, Old Highway 101 serves as the primary access to all park facilities, including camping areas. This roadway serves both northbound and southbound access and provides a link to the proposed transport route south of SONGS 2 & 3 for this Project. This portion of Old Highway 101 does not serve a substantial volume of traffic.

I-5 consists of four travel lanes in each direction and carries approximately 130,000 vehicles per day. SONGS 2 & 3 is located north of an approximate 15-mile segment of freeway from the Camp Pendleton/Harbor Drive interchange. The Aliso Creek Safety Roadside Rest Area is located between the Las Pulgas Road and Oceanside Harbor Drive interchanges. A Border Patrol checkpoint/truck weigh station is approximately 3 miles north of the rest area. When operational, the Border Control checkpoint can cause substantial travel delays for northbound traffic only; southbound traffic is not affected. Because of the low density of interchanges per mile or other friction factors near SONGS 2

& 3, southbound traffic generally suffers little to no delay and generally the southbound portions of I-5 operate under free-flow conditions at speeds at or exceeding the posted 65 mph speed limit.

4.15.1.2 Inland Route Transport Options

The Inland Route Transport Options (the I-5/Old Highway 101 and MCBCP Inland options) involve a combination of roads and portions of roads on MCBCP, Old Highway 101, and I-5, as with the Beach and Road Route Transport Option. The existing environmental setting for these roads are described above in Section 4.15.1, and that description applies to these inland route options. The primary differences between the Beach and Road Route Transport Option and the Inland Route Transport Options are the relative lengths of the respective routes on MCBCP roads, I-5, and Old Highway 101. These differences affect the assessment of potential Project impacts on transportation and traffic, and these potential impacts are described in Section 5.15. For the purposes of this PEA, the segments off MCBCP are of concern, and these segments are M, N, R, S, F, AA, AB, and AC on I-5; AD, I, and J on Old Highway 101, and areas of I-5 that may otherwise be effected.

4.15.1.3 SONGS 2 & 3 Site

General access to the SONGS 2 & 3 site is via I-5 from the north or south to Basilone Road, and then to Old Highway 101 to the entrances for SONGS 2 & 3. This combination of roads also provides access to the San Onofre State Park.

4.15.2 No Project Alternative

4.15.2.1 Replacement Facilities - New Generation Component

A variety of transportation, such as highways, low-volume roads, and rail transport could occur within the area of potential effect.

4.15.2.2 Replacement Facilities - New Transmission Component

A variety of transportation, such as highways, low-volume roads, and rail transport could occur within the area of potential effect.

4.15.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative**4.15.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines**

The Reinforced 230 kV SCE/SDG&E Interface transmission line corridor has existing access roads. However, existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.15.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

Circulation elements exist near each of the existing substations. Access roads are used to maintain the substations, when necessary.

4.15.2.2.2 Imperial Valley-Ramona No Project Alternative**4.15.2.2.2.1 Imperial Valley-Ramona Transmission Lines**

The Imperial Valley-Ramona transmission lines would likely be located in an area with roads and other transportation facilities. Portions of the new transmission lines that are adjacent to existing transmission lines, such as the existing Imperial Valley-Miguel transmission line, would likely have existing access roads. However, new portions of the Imperial Valley-Ramona line would require new access roads. The exact locations of the Imperial Valley-Ramona transmission lines are currently unknown. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.15.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

Circulation elements exist near each of the existing substations and likely the new Ramona Substation. The exact location of the new Ramona Substation is currently unknown. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval. Access roads are used or would be used to maintain the substations, when necessary.

4.15.2.2.3 Valley-Rainbow No Project Alternative**4.15.2.2.3.1 Valley-Rainbow Transmission Lines**

As described within the Valley-Rainbow Interconnect PEA, highways, a railroad, and an airport exist within the Valley-Rainbow Transmission Line and the Talega-Escondido Transmission Line areas

(SDG&E 2001). The new transmission line for the No Project Alternative would likely be in a similar setting.

4.15.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

Circulation elements exist near each of the existing substations and the new Rainbow Substation. Access roads are used or would be used to maintain the substations, when necessary.

4.16 UTILITIES/SERVICES SYSTEMS

4.16.1 Proposed Project

SONGS 2 & 3 currently has all necessary infrastructure and services required for this Project. No additional infrastructure or services will be required. Utilities for trailers, facilities, and operations at the SONGS 2 & 3 site associated with this Project will be installed as necessary. Some equipment described in Section 3.0 will be self-powered by a variety of sources, such as engines and generators.

4.16.2 No Project Alternative

Portable utilities would be used as necessary during construction. The impacts regarding utilities required for operation are discussed below.

4.16.2.1 Replacement Facilities - New Generation Component

Utilities, such as water, electricity, or gas infrastructure may exist within the area.

4.16.2.2 Replacement Facilities - New Transmission Component

Utilities, such as water, electricity, or gas infrastructure may exist within the area.

4.16.2.2.1 Reinforced 230 kV SCE/SDG&E Interface No Project Alternative

4.16.2.2.1.1 Reinforced 230 kV SCE/SDG&E Interface Transmission Lines

The Reinforced 230 kV SCE/SDG&E Interface transmission line corridor would likely not require additional utilities, except for related improvements that are part of this No Project Alternative, but would provide for the continued transmission of electricity. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.16.2.2.1.2 Reinforced 230 kV SCE/SDG&E Interface Substation Changes/Modifications

The existing substation and switchyard modifications would increase transmission capacity. Therefore, consideration of utilities and service systems is not dependent on the status of existing conditions.

4.16.2.2.2 Imperial Valley-Ramona No Project Alternative**4.16.2.2.2.1 Imperial Valley-Ramona Transmission Lines**

The Imperial Valley-Ramona transmission lines would likely not require additional utilities, except for the new Ramona Substation and related improvements that are part of this No Project Alternative, but would provide for the transmission of electricity. Existing conditions could vary and these conditions would require description and analysis in a PEA before approval.

4.16.2.2.2.2 Imperial Valley-Ramona Substation Changes/Modifications

The new Ramona Substation would not require additional utilities. The transmission lines to the Ramona Substation are part of this alternative. The substation modifications would increase transmission capacity. Therefore, consideration of utilities and service systems is not dependent on the status of existing conditions.

4.16.2.2.3 Valley-Rainbow No Project Alternative**4.16.2.2.3.1 Valley-Rainbow Transmission Lines**

The Valley-Rainbow Transmission Line would not require additional utilities, except for the new Rainbow Substation and related improvements, but would provide for the transmission of electricity. The second circuit to be installed on the Talega to Escondido Transmission Line would also increase the amount of electricity that is currently transmitted. The new Transmission Line in the No Project Alternative would likely be similar to the Valley-Rainbow Transmission Line setting.

4.16.2.2.3.2 Valley-Rainbow Substation Changes/Modifications

The new Rainbow Substation would not require additional utilities. The transmission lines to the Rainbow Substation are part of this alternative. The substation modifications would increase transmission capacity. Therefore, consideration of utilities and service systems is not dependent on the status of existing conditions.