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E.7 System Alternatives

E.7.1 LEAPS Transmission-Only Alternative

E.7.1.1 LEAPS Transmission-Only Alternative Description

The Lake Elsinore Advanced Pumped Storage (LEAPS) Project, described in SDG&E's PEA Section 3.3.3.10 (incorporated by reference) and in the LEAPS Project Final EIS (incorporated by reference; published by the Federal Energy Regulatory Commission as Lead Agency, with U.S. Forest Service as a cooperating agency, FERC Project No. 11858, FERC/FEIS-0191F, January 2007), proposes to transmit electric power along a proposed 32-mile 500 kV new transmission line between the proposed Lake and Pendleton Substations (the proposed Lake-Pendleton transmission line) and an additional 48-mile 230 kV circuit on existing 230 kV transmission towers between the existing Talega and Escondido Substations (the existing Talega-Escondido transmission line). The transmission facilities being proposed under the LEAPS Project are considered as a system alternative to the SRPL in this EIR/EIS, and are known henceforth as the LEAPS Transmission-Only Alternative.¹ The LEAPS Transmission-Only Alternative differs from the LEAPS Project in that the former is a hypothetical project considered as an alternative to the Sunrise Powerlink Project, however it is considered as hypothetically identical to the transmission component of the LEAPS Project. The LEAPS Project is co-sponsored by the Elsinore Valley Municipal Water District, a public non-profit agency, and the Nevada Hydro Company, Inc. (proponents). The LEAPS Transmission-Only Alternative would hypothetically be carried out by these entities, but could also be carried out by SDG&E or another entity. The LEAPS Transmission-Only Alternative would traverse Riverside County Cleveland National Forest, Trabuco Ranger District) and northern San Diego County, including Marine Corps Base Camp Pendleton (Camp Pendleton).

Figure E.7.1-1 illustrates the LEAPS Transmission-Only Alternative. This alternative would fully implement the "staff alternative" identified in the January 2007 LEAPS Project Final EIS. Note that the pumped-storage generation component of the LEAPS Project as proposed in the LEAPS Final EIS is considered along with the transmission component as a separate alternative, the LEAPS Generation and Transmission Alternative, discussed in Section E.7.2, below and described in Section 4.9.1 of Appendix 1.

The LEAPS Transmission-Only Alternative would include:

- 31.8 miles of new single-circuit 500 kV transmission line forming the Talega-Escondido to Serrano-Valley 500 kV Interconnect line (TE/VS Interconnect or Lake-Pendleton 500 kV Transmission Line).
- New 500 kV switching station (Lake Substation) to interconnect with SCE's existing Serrano-Valley 500 kV line.
- New 500/230 kV substation (Pendleton Substation) within Camp Pendleton including two phase-shifting transformers.

¹ The LEAPS Transmission-Only Alternative is commonly known as the Talega-Escondido/Valley-Serrano (TE/VS) Interconnect Project. The Forest Service has an application on file for this "transmission line only" project commonly referred to as the Talega-Escondido/Valley-Serrano (TE/VS) Interconnect. EVMWD is the applicant, the Nevada Hydro Company is the agent for the applicant. The applicant (EVMWD) requested the Forest Service to delay processing the application for the TE/VS project pending the outcome of its application to FERC for the LEAPS project. If FERC issues a license for the LEAPS project as modified by staff, the Forest Service will use the FEIS to support its decision on the Special Use Permit required for the LEAPS project.

- New second Talega-Escondido 230 kV line.
- Modification of SDG&E’s existing Talega-Escondido 69 kV transmission circuit (between the existing Pala and Lilac Substations) on new wood and steel poles adjacent to the existing 230 kV poles within the existing Talega-Escondido ROW.

Description of LEAPS Transmission-Only Alternative

The proposed 31.8-mile, new 500 kV transmission line (the Lake-Pendleton line) would connect the LEAPS Project to two existing transmission lines: one a 230 kV SDG&E line to the south in San Diego County called the Talega-Escondido transmission line and the other a 500 kV SCE line to the north called the Serrano-Valley transmission line.

The northern segment of the transmission line would interconnect with SCE’s 500 kV transmission system in Riverside County at MP 0 via a 500 kV looped interconnection on two sets of parallel lattice steel towers approximately 130 feet apart. Figure E.7.1-2a depicts the northern segment of the Lake-Pendleton transmission line. The line would continue southwest on parallel towers for 2.5 miles across the Lake Mathews-Estelle Mountain Preserve into a new 500 kV switching station (Lake Substation) just north of Interstate 15 (I-15), about 20 miles west of SCE’s existing Valley Substation. The overhead line would continue southwest from the proposed Lake Substation on tubular steel poles and cross I-15, turning due south at MP 2.5 for approximately 2 miles across private land, adjacent to the Sycamore Creek development and the Glen Eden Sun Club. The line would turn south-southeast for 0.5 miles on private land, crossing the CNF boundary on lattice steel towers near MP 5 and heading roughly south-southwest for another 1.5 miles primarily on CNF land and a few privately held inholdings at MP 6 and 6.5. Turning southwest for 0.5 miles, it would cross and run southeast roughly parallel to the Orange County line for approximately 3 miles. Just before MP 10 it would cross back over into Riverside County, heading east for 0.5 miles across Ortega Highway (SR 74) and South Main Divide Road (Killen Trail) within the forest boundary. West of South Main Divide Road, the 500 kV line would transition underground for approximately 2 miles from just north of the Decker Canyon upper reservoir site southeast along South Main Divide Road. This underground segment would avoid hang gliding launch areas.

The southern segment of the Lake-Pendleton transmission line would transition overhead just before MP 14 and meander in a southeasterly direction on CNF land for four miles. Figure E.7.1-2b depicts the southern segment of the Lake-Pendleton transmission line. At MP 18, the line would turn southwest following and occasionally crossing the forest boundary into private parcels. Just before MP 21, the route would veer southeast for a quarter mile to avoid the San Mateo Canyon Wilderness boundary. At MP 21, the line would cross over the forest boundary several times in a southwesterly direction for approximately four miles, crossing over the Tenaja grazing allotment after MP 24 and entering San Diego County at MP 25. The route would turn west-southwest for less than a mile, then south-southeast for over a mile, crossing through the Miller Mountain grazing allotment and private parcels for a mile near MP 26. At MP 27, the line would veer southeast on CNF land for 0.5 miles, due south for approximately 2 miles, and east for another 2 miles crossing into Camp Pendleton about 1,000 feet before its terminus at the proposed Pendleton Substation. Table E.7.1-1 summarizes the structure types that would support the proposed Lake-Pendleton transmission line.

Table E.7.1-1. Tower Types and Locations

Milepost	Type	Number
MP 0-2.4	Lattice steel tower	Two sets of 10
MP 2.4-4.9	Tubular steel monopole	16
MP 4.9-31.4	Lattice steel tower	Approx 130

Figure E.7.1-1. LEAPS Transmission-Only Alternative
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Figure E.7.1-2a. LEAPS Transmission-Only Alternative: Lee Lake to Elsinore
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Figure E.7.1-2b. LEAPS Transmission-Only Alternative: Elsinore to Pendleton Substation
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At the Pendleton Substation, the line would interconnect with SDG&E's system at MP 11.5 of the Talega-Escondido 230 kV transmission line. At the Pendleton Substation, there would be two phase-shifting transformers. These transformers would regulate the flow of capacity from south to north along the transmission line. This new 500 kV transmission line would have a designed capacity of 1,300 to 1,600 MW.

An additional 51-mile 230 kV circuit would be installed on existing 230 kV transmission towers between the existing Talega and Escondido Substations as an upgrade to the existing 230 kV single-circuit Talega-Escondido transmission line, as illustrated in Figures E.7.1-2c and E.7.1-2d. Modification of SDG&E's existing 69 kV transmission circuit between the Pala and Lilac Substations would be required in order to accommodate the additional 230 kV circuit. The existing Talega-Escondido 69 kV circuit is currently located on the adjacent circuit position of the existing 230 kV transmission towers between the existing Pala and Lilac Substations, and would be moved onto new wood and steel poles adjacent to the existing 230 kV poles within the existing Talega-Escondido ROW in order to accommodate the additional 230 kV circuit.

Construction of upgrades to the Talega-Escondido 230 kV transmission line would take place over the course of approximately one year, and construction of the proposed new Lake-Pendleton 500 kV transmission line would take place over the course of three years.

LEAPS Transmission-Only Alternative operations would entail use and maintenance of the proposed new Lake-Pendleton 500 kV transmission line and the existing Talega-Escondido 230 kV transmission line.

LEAPS Project Objectives, Purpose, and Need

The LEAPS Transmission-Only Alternative would provide a new second extra-high voltage (EHV) interconnection into the SDG&E system. This would substantially satisfy two of the major project objectives: to maintain reliability in the delivery of power and reduce the cost of energy in the region. It also avoids the "common corridor" concern expressed by SDG&E for alternatives that would follow the path of the existing 500 kV Southwest Power Link (SWPL) between the Imperial Valley and Miguel Substations.

The LEAPS Project Alternative would only partially achieve the objective to accommodate delivery of renewable energy from the Imperial Valley because it would be principally dependent upon the completion of other transmission upgrades between the Imperial County and SCE system, namely the proposed Green Path Coordinated Projects (addressed in Section 2.6 of Appendix 1). The Green Path Coordinated Projects would eventually include 500 kV connection between the IID transmission system and the Devers Substation. Green Path as proposed in conjunction with SCE's second Devers-Valley 500 kV line (approved by CPUC in January 2007) would provide a path for importing renewable power from the Imperial Valley and other locations, such as Tehachapi and San Geronio wind resource areas, into SDG&E territory. SDG&E has raised concerns about the ability of the LEAPS Transmission-Only Alternative to provide economical access to renewable generation, such as that previously contracted by SDG&E in the Imperial Valley.² These concerns could be mitigated in light of the access to low cost generation that would be provided by the second Devers-Palo Verde and Devers-Valley 500 kV lines.

² See CPUC Resolution E-3965, December 15, 2005 and Resolution E-4073, March 15, 2007 where procurement of renewable power is made contingent on SDG&E being able to license and construct a new 500 kV line from the Imperial Valley area to San Diego by 2010.

The combination of these two recently approved 500 kV lines in SCE territory, with the LEAPS Transmission-Only Alternative, could allow for the importation of low cost conventional generation from the Palo Verde hub in Arizona, thereby freeing capacity on the existing SWPL to import renewable power from the Imperial Valley.

By providing a second 500 kV interconnection to San Diego, the LEAPS Transmission-Only Alternative would help address SDG&E's concerns regarding improving the regional transmission system.

The environmental setting and impacts related to the LEAPS Transmission-Only Alternative are presented below for each issue area. The information about the LEAPS project impacts summarized in this report are discussed in detail in the following three documents: LEAPS EIS (FERC, 2007), LEAPS Proponent's Environmental Assessment (PEA; Nevada Hydro, 2007), and SDG&E Valley-Rainbow 500 kV Interconnect Project Administrative Draft EIR/EIS (Dudek, 2002).

Significance Criteria and Approach to Impacts Assessment

Significance criteria for the LEAPS Transmission-Only Alternative are the same as for the Proposed Project.

The USFS mitigation Conditions outlined for each significant environmental impact were developed by the Forest Service for its Final 4(e) Terms and Conditions (Conditions) for the Lake Elsinore Advanced Pumped Storage Hydroelectric Project (FERC Project No. 11585) in accordance with 18 CFR 4.34(b)(1)(i), and these would be required upon FERC project approval and subsequent to approval of a Forest Special Use Permit, if granted. The FERC Environmental Measures were developed by FERC as mitigation measures that would be required upon approval of the LEAPS Project as modified by staff. The Mitigation Measures were developed for the Sunrise Powerlink Project. The USFS Conditions and the FERC Environmental Measures would apply only to the Lake-Pendleton transmission line and substations, and the Mitigation Measures would apply to both the 500 kV and 230 kV project facilities across all jurisdictions.

Applicant Proposed Measures

Table E.7.1-2 identifies the proponent's Protection, Mitigation, and Enhancement Measures (PME; similar to APMs for the Proposed Project) that would be followed during all project-related construction activity. The proponent proposes to implement these measures, as illustrated in Section 2 and Appendix A of the Proponent's Environmental Assessment, dated June, 2007. The proponent has committed to implementing these measures in order to reduce the potential direct and indirect impacts that could result from project activities. Therefore, the PMEs are considered part of the project description.

The impact analysis in this EIR/EIS assumes implementation of all PMEs. However, where other impacts are identified that are not addressed by these PMEs, or where the PMEs are not adequate to reduce impacts to less than significant levels, the EIR/EIS recommends additional mitigation measures. PMEs will be incorporated into the Mitigation Monitoring, Compliance, and Reporting Program developed for this alternative, and implementation of the PMEs will be monitored in the same fashion as the mitigation measures developed in this EIR/EIS.

Figure E.7.1-2c. LEAPS Transmission-Only Alternative: Talega Substation to Pala
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Figure E.7.1-2d. LEAPS Transmission-Only Alternative: Pala to Escondido
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Table E.7.1-2. Applicant Proposed Protection, Mitigation, and Enhancement Measures for the LEAPS Transmission-Only Alternative

Number	Description
B-PME-1	Employ a qualified biologist or natural resource specialist to monitor construction activities and help prevent adverse effects on sensitive species or habitats.
B-PME-2	Conduct wetlands delineations and prepare habitat mitigation and management plans in consultation with the U.S. Army Corps of Engineers (Corps), the California Department of Fish and Game (CDFG), and the USFS.
B-PME-3	Develop and implement a plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas.
B-PME-4	Design and construct the transmission line to the standards outlined in 1996 by the Avian Power Line Interaction Committee (APLIC).
B-PME-5	Consult with the USFS and Interior to identify appropriate parcels for mitigation of habitat losses including 2:1 replacement ratio for about of 20 acres of oak woodlands and 1:1 replacement of 31 acres of coastal sage scrub.
B-PME-6	Provide compensation of \$500 per acre to Riverside County for project effects within Stephens' Kangaroo Rat Fee Assessment Area.
B-PME-7	Retain a qualified biologist or natural resource specialist to serve as an environmental construction monitor to ensure that incidental construction effects on biological resources are avoided or limited to the maximal feasible extent.
B-PME-8	Establish appropriate setbacks from streams, avoid sediment discharge, and implement BMPs identified by the USFS to avoid any effects on the existing steelhead recovery efforts in the San Mateo Watershed as part of the erosion control plan.
V-PME-1	Prepare a plan to avoid or minimize disturbances to the quality of the existing visual resource of the project area.
V-PME-2	Install temporary roads on the National Forest System lands only with USFS approval and according to USFS policies, and remove, re-contour, and re-vegetate roads following construction except where the USFS authorizes continued use of the roads for transmission line maintenance.
LU-PME-1	Acquire fee simple or leasehold interests in lands needed for project purposes by voluntary sale or conveyance to the extent possible.
WR-PME-1	Develop and implement a detailed site plan of construction sites and laydown areas relative to existing recreational facilities and contingencies for restricting public access to these areas and provision of alternative facilities.
WR-PME-2	Provide the USFS with an ancillary structure that would complement the fire fighters' memorial along Ortega Highway.
WR-PME-4	Develop and implement a recreation plan, including the construction of a botanical garden, and provision of powerhouse tours and other amenities at the Santa Rosa or Evergreen powerhouse site.
CP-PME-1	Consult with the State Historic Preservation Officer (SHPO) at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project. (If activity is on National Forest System lands, also consult with the USFS at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project.)
CP-PME-2	If previously unidentified archaeological or historic properties are discovered during the course of constructing or developing the project works or other facilities at the project, stop all land-clearing and land-disturbing activities in the vicinity of such properties and consult with the SHPO. (Also consult with the USFS, if archaeological site or historic property is identified on National Forest System lands.)
CP-PME-3	Implement measures proposed in the draft historic properties management plan (HPMP) developed in consultation with the SHPO and the USFS and filed with the Commission, including provisions for the following: (1) completing pre-construction archaeological surveys in the area of potential effects (APE), (2) determining the need for intensive surveys, (3) monitoring archaeological sites and buildings during construction, (4) appointing a Tribal liaison, (5) studying the potential effects of ground acceleration on historic buildings, (6) developing a program to monitor archaeological sites for 5 years, and (7) developing a public interpretation program.
CP-PME-4	Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources.

Table E.7.1-2. Applicant Proposed Protection, Mitigation, and Enhancement Measures for the LEAPS Transmission-Only Alternative

Number	Description
CP-PME-5	Prepare any recovered fossil remains to the point of identification, and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.
N-PME-1	Conduct all construction activities in accordance with the noise element of the County of Riverside Comprehensive General Plan, city of Elsinore construction noise standards and any applicable codes or standards.
T-PME-1	Develop and implement traffic management and control plans to address construction traffic and access to and from active construction sites.
PH-PME-1	Retain a board of three or more qualified independent engineering consultants experienced in critical disciplines, such as geotechnical, mechanical, and civil engineering, to review the design specifications and construction of the project for safety and adequacy.
WQ-PME-1	Develop and implement a plan for installing drainage and flood control measures and any water detention structures to control storm run-off over the term of any license issued for the project.
WQ-PME-2	Prepare a hazardous substances spill prevention and control plan.
WQ-PME-3	Consult with the Riverside Flood Control and Water Conservation District (Flood Control District) and formulate and implement plans to avoid adversely affecting existing drainage facilities and to control any project-related drainage.
G-PME-1	Conduct additional geotechnical studies.
G-PME-2	Develop an erosion control plan prior to construction, and implement erosion control measures during construction.

Impacts Identified

The environmental setting and impacts related to the LEAPS Transmission-Only Alternative are presented below for each issue area. Impacts are classified as Class I (significant, cannot be mitigated to a level that is less than significant), Class II (significant, can be mitigated to a level that is less than significant), Class III (adverse, but less than significant), or Class IV (beneficial impacts). At the start of the impacts and mitigation measures sections for each issue area tables are presented that summarize the impacts identified for the LEAPS Transmission-Only Alternative. The objective of the mitigation measures, when applicable, is to reduce the impacts to a level that is less than significant.

E.7.1.2 Biological Resources

Impacts to biological resources from the LEAPS Transmission-Only Alternative are presented in the following section. Impacts to biological resources from the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.2, below.

Environmental Setting – Lake-Pendleton 500 kV New Transmission Line

Vegetation mapping for the Lake-Pendleton 500 kV new transmission line was conducted by Michael Brandman Associates (Lake Substation south to Pendleton Substation; Figures Ap.8K-1 through Ap.8K-6 in Appendix 8K) and HELIX Environmental Planning, Inc. (Pendleton Substation; Figure Ap.8K-6 in Appendix 8K). The Lake-Midpoint segment (MP 0 to MP 12.6) of the new 500 kV transmission line would cross a variety of vegetation communities; the predominant plant communities are non-native grassland from approximately I-15 to the north and northern mixed chaparral from I-15 south to MP 12.6. The predominant vegetation communities along the Midpoint-Pendleton segment (MP 12.6 to MP 31.8) of the transmission line are also northern mixed chaparral and non-native grassland. The transmission line facilities (i.e., Lake Substation, Camp Pendleton Substation, access roads, and construction staging areas) would be located in areas supporting predominantly northern mixed chaparral, coastal sage scrub, non-native grassland, and coast live oak woodland. In addition, the proposed transmission line would cross nine named drainages. The largest drainage features crossed by the transmission line include Temescal Creek (a tributary of Santa Ana River) and Los Alamos Creek (a tributary of San Mateo Creek). These vegetation types and creeks provide habitat for a wide range of species, and they support, or are likely to support, a number of special status species.

Overview of Special Habitat Management Areas. This alternative would cross through the CNF, Marine Corps Base Camp Pendleton, and the Fee Area and Core Reserve Area for the Stephens' kangaroo rat (SKR).

Designated Critical Habitat. This alternative occurs within designated critical habitat for the quino checkerspot butterfly (QCB), coastal California gnatcatcher, and Munz's onion. QCB critical habitat occurs north of I-15. Coastal California gnatcatcher critical habitat occurs along the northern portion of the transmission line route, at the Lake Substation, and along several access roads (Figure Ap.8K-1 in Appendix 8K). Designated critical habitat for the Munz's onion occurs south of I-15 and just within the study corridor for the Lake-Pendleton 500 kV transmission line.

Special Status Plant Species. Using the same definition of special status for the SRPL Proposed Project in Section D.2.1.1, the following four special status (listed or sensitive) plant species were documented along or near the route of the proposed Lake-Pendleton 500 kV transmission line and substations during six years of focused surveys. Focused plant species surveys were not conducted at the Pendleton Substation site.

- Munz's onion
- Heart-leaved pitcher sage
- Rainbow manzanita
- Hammitt's clay-cress

The following special status (non-listed, sensitive) plant species have moderate to high potential to occur based on the habitats present and/or documented CNDDDB or USDA Forest Service records; however, they, although it is likely that most of these species would have been observed during the six

years of focused plant surveys (where they were conducted) if they were present. Focused plant species surveys were not conducted at the Pendleton Substation site.

- Davidson's saltscale
- Thread-leaved brodiaea
- Orcutt's brodiaea
- Long-spined spineflower
- Summer holly
- Slender-horned spineflower
- Many-stemmed dudleya
- Sticky dudleya
- San Diego button-celery
- Coulter's goldfields
- Parish's meadowfoam
- Hall's monardella
- California Orcutt grass
- San Miguel savory
- Parry's tetracoccus

For more specific information about the special status plant species and their listing or sensitivity status, see the LEAPS Project Final EIS.

Special Status Wildlife Species. No listed wildlife species were documented along or near the route of the proposed Lake–Pendleton 500 kV transmission line. The listed QCB, arroyo toad, coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher were believed to have moderate to high potential to occur based on the habitats present and the project's location in designated critical habitat (for the QCB and gnatcatcher). Therefore, multiple years of USFWS protocol surveys were conducted for these species (six consecutive years QCB; four years arroyo toad; and six consecutive years coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher), and none was found. Although the project occurs in special habitat management areas for the SKR, focused surveys were not conducted for the species because the specific locations of project features were not designed until 2007; therefore, the SKR is assumed present in these areas. The State listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore.

The following non-listed, sensitive wildlife species were documented along or near the route of the proposed Lake–Pendleton 500 kV transmission line and substations, although they were not observed during surveys.

- Coastal California newt
- Coastal rosy boa
- Red-diamond rattlesnake
- Coast (San Diego) horned lizard
- Two-striped garter snake
- Cooper's hawk
- Southern California rufous-crowned sparrow
- Loggerhead shrike
- California spotted owl

The following non-listed, sensitive wildlife species have moderate to high potential to occur along or near the route of the proposed Lake–Pendleton 500 kV transmission line and at the two substation sites based on the habitats present and/or documented CNDDDB or USDA Forest Service records, although they were not observed during surveys.

- Western spadefoot toad
- Belding's orange-throated whiptail
- San Diego ringneck snake
- Southwestern pond turtle
- Coronado skink
- San Diego mountain kingsnake
- Long-eared owl
- Burrowing owl
- White-tailed kite
- Northwestern San Diego pocket mouse
- Western red bat

For more specific information about the special status wildlife species and their sensitivity status, see the LEAPS Project Final EIS.

Management Indicator Species. The National Forest Management Act of 1982 requires that the USDA Forest Service address Management Indicator Species (MIS) during the development of forest plans (USDA, 2005). Five MIS are known to occur in the project area as listed below.

- Engelmann oak
- Mountain lion
- Mule deer
- Song sparrow
- California spotted owl

One other MIS, arroyo toad, has potential habitat in the project area, but the species was not found during focused surveys. See Section E.1.1.1 and Appendix G of the LEAPS Project Final EIS for a discussion of these species.

Jurisdictional Waters and Wetlands. Jurisdictional waters and wetlands were surveyed by MBA at the proposed Lake and Pendleton Substation sites during October, 2007 (MBA, 2007). Three features were identified within the Lake Substation site: two drainages and one swale. Three ephemeral drainages with associated tributaries were identified within the Pendleton Substation site.

Environmental Impacts and Mitigation Measures – Lake-Pendleton 500 kV New Transmission Line

Table E.7.1-3 summarizes the biological resource impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-3. Impacts Identified – Biological Resources

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
B-1	Construction activities would result in temporary and permanent losses of native vegetation	I, II
B-2	Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality	II
B-3	Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species	II
B-4	Construction activities would create dust that would result in degradation of vegetation	II
B-5	Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants	I
B-6	Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality	III
B-7	Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (includes Impacts B-7A through B-7O for individual wildlife resources)	I, II, No Impact
B-8	Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)	II
B-9	Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites	I, II, III
B-10	Presence of transmission lines may result in electrocution of, and/or collisions by, listed or sensitive bird species	No impact (electrocution) I, II (collision)
B-11	Presence of transmission lines may result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers	III
B-12	Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality	II, III

Impacts to biological resources of the Lake-Pendleton 500 kV transmission line are presented below along with measures to mitigate these impacts to a level that is less than significant, when applicable. Even with implementation of the Applicant Proposed Protection, Mitigation, and Enhancement Measures listed in Table E.7.1-2, none of the impacts to biological resources are reduced to a level of less than significant with the measures. The reason for this is that the measures are either not specific enough, do not contain enough information, or are not up to date. Therefore, other measures are provided below to reduce the level of significance where applicable.

The Conditions listed below were developed by the Forest Service for its Final 4(e) Terms and Conditions (Conditions) for the Lake Elsinore Advanced Pumped Storage Hydroelectric Project (FERC Project No. 11585) in accordance with 18 CFR 4.34(b)(1)(i), and these would be required upon FERC project approval and subsequent to approval of a Forest Special Use Permit, if granted. The FERC Environmental Measures were developed by FERC as mitigation measures that would be required upon approval of the LEAPS Project as modified by staff. The Mitigation Measures (e.g., B-1a) listed below were developed for the Sunrise Powerlink Project. The USFS Conditions would apply only to facilities on Forest Service land, the FERC Environmental Measures would apply only to the Lake-Pendleton transmission line and substations, and the Mitigation Measures would apply to both the 500 kV and 230 kV project facilities across all jurisdictions.

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation, vegetation management, and type conversion; Class III for non-sensitive vegetation)

Construction of the Lake-Pendleton 500 kV transmission line would cause both temporary (during construction from vegetation clearing) and permanent (displacement of vegetation with project features such as towers, permanent access roads, substation sites) impacts to vegetation communities (see Table E.7.1-4). Construction activities would also result in the alteration of soil conditions, including the loss of native seed banks and changes in topography and drainage, such that the ability of a site to support native vegetation after construction is impaired.

Impacts to sensitive vegetation communities would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). These impacts are not mitigable to less than significant levels (Class I) because it is unknown if enough mitigation land is available to compensate for the impacts because adequate mitigation land may not be available to compensate for the impacts. Implementation of USFS-38, FERC-12, and Mitigation Measures B-1a(LE) and B-1c(LE) is required to, at least in part, compensate for impacts to sensitive vegetation communities. Impacts to non-sensitive vegetation (i.e., disturbed habitat) would be adverse but less than significant (Class III), and no mitigation is required.

Table E.7.1-4. Impacts to Vegetation Communities – Lake-Pendleton 500 kV Transmission Line (acres)

Vegetation Community	Transmission Line Temporary Tower	Transmission Line Permanent Tower	Lake Substation*	Pendleton Substation*	Access Roads	Total Temporary Impacts	Total Permanent Impacts
Non-Native Vegetation, Developed Areas, and Disturbed Habitat							
Disturbed habitat	1.5	0.3	22.0	1.1	8.4	1.5	31.8
Coastal and Montane Scrub Habitats							
Coastal sage scrub	0.3	0.1	3.6	0	0	0.3	3.7

Table E.7.1-4. Impacts to Vegetation Communities – Lake-Pendleton 500 kV Transmission Line (acres)

Vegetation Community	Transmission Line Temporary Tower	Transmission Line Permanent Tower	Lake Substation*	Pendleton Substation*	Access Roads	Total Temporary Impacts	Total Permanent Impacts
Grasslands and Meadows							
Native grassland	0	0	0	3.1	0	0	3.1
Non-native grassland	5.5	1.1	13.2	12.4	11.5	5.5	38.2
Non-native grassland (disturbed)	0	0	0	1.9	0	0	1.9
Chaparrals							
Chamise chaparral	0	0	0	3.8	0	0	3.8
Chamise chaparral (disturbed)	0	0	0	0.13	0	0	0.13
Northern mixed chaparral	18.6	3.5	0	0	43.7	18.6	47.2
Woodlands and Forests							
Coast live oak woodland	0.2	0.1	0	5.9	0.8	0.2	6.8
Engelmann oak woodland	0	0	0	2.4	0	0	2.4
Riparian Scrubs							
Mule fat scrub	0	0	0	0.18	0	0	0.18
Southern willow scrub	0	0	0	0.4	0	0	0.4
Riparian Forests and Woodlands							
Southern coast live oak riparian forest	0	0	0	1.5	0	0	1.5
Riparian woodland	0	0	0	0.12	0	0	0.12
GRAND TOTAL	26.1	5.1	38.8	32.9	64.4	26.1	141.2

* It is assumed that construction staging for the substation sites would occur on those sites. Should any impacts exceed those shown in the table above (this would be determined during monitoring required in Mitigation Measure B-1c[LE]), mitigation would be required per Mitigation Measure B-1a[LE].

Vegetation Management (Loss of Trees). It has been estimated that up to approximately 1,500 coast live oak trees would be removed to maintain proper clearance between vegetation and the transmission lines along the entire length of the Lake-Pendleton 500 kV New Transmission Line. This estimate is likely high because trees that occur in drainages that would be spanned by the lines were included in the count to be conservative. Furthermore, it is estimated that up to 80 coast live oak/Engelmann oak trees would be removed for construction of the Pendleton Substation. Native shrubs may also need to be removed as well as non-native trees or shrubs that may be present.

The loss of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they typically do not support special status wildlife species. However, removal of a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). Likewise, removal of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 (Construction activities would

result in a potential loss of nesting birds [violation of the Migratory Bird Treaty Act]; Section D.2.12) for how construction activities (including tree/shrub removal) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act. The loss of native trees and shrubs would be a significant impact (Class I) for these reasons:

- it can have a substantial adverse effect on candidate, sensitive, or special status species (Significance Criterion 1)
- it can have a substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criterion 2)
- it can have a substantial adverse effect on federally protected water quality or wetlands (Significance Criterion 3)
- it can interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criterion 4)
- it can conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criterion 5; see discussion in Section D.16).

No estimates were made for trees that would need to be trimmed; instead all trees were considered removed in this analysis. However, if it is determined that some trees do not need to be removed and only trimmed, the following explains the significance of trimming. Although the trimming of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they usually do not support special status wildlife species, trimming a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). Likewise, trimming of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 for how construction activities (including tree trimming) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act.

Trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and 5 listed above. The loss (or trimming) of this large number of native trees is considered a significant impact that would not be mitigable to less than significant levels (Class I) because adequate mitigation land required by Mitigation Measure B-1a(LE) for restoration and/or acquisition may not be available. However, Mitigation Measure B-1a(LE) is required to reduce the impacts to the greatest extent possible.

Type Conversion. As discussed in Section E.7.1.15, the construction and operation of new transmission lines in areas with high fire risk could cause wildfires, and could reduce the effectiveness of fire fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of southern California is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly

flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. If the project were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would be significant (Class I) according to Significance Criterion 1 (substantial adverse effect through habitat modification on any species identified as candidate, sensitive, or special status) and/or Significance Criterion 2 (substantial adverse effect on a riparian habitat or other sensitive natural community).

Extensive mitigation for fire risk is presented in Section E.7.1.15. However, not all fires can be prevented. Although future fires may not cause type conversion in all instances, the impact must be considered significant because of the severity of potential habitat loss. This impact is not mitigable to less than significant levels (Class I). Implementation of the vegetation management program (described above) would reduce the fire risk of the project, although not to a less than significant level. Please note, the full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation

USFS-38 Condition No. 38—Habitat Mitigation Plan. Within 1 year from license issuance or prior to any ground disturbing activities, and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the Licensee shall file with the Commission habitat mitigation plan approved by the Forest Service. This plan must identify requirements for construction and mitigation measures to meet Forest Service habitat objectives and standards. Where project features create unavoidable effects that are inconsistent with CNF Land and Resource Management Plan Habitat Objectives, additional activities shall be performed to offset the direct effects of project construction.

The replacement in kind of lost habitat would be most appropriately located within the project area, but if opportunities are not fully available there, then alternatively and in order of priority, to be located elsewhere within the Elsinore “Place” (as identified by the LRMP), the Trabuco Ranger District, or the Cleveland NF. Replacement habitat must be manageable by the Forest Service. The plan also must include dates for accomplishing these objectives and standards and must identify needs for and timing of any additional studies necessary. The plan must consist of the following minimum mitigation ratios for permanent loss of habitat:

- 3:1 for riparian oak woodland
- 2:1 for habitats that are sensitive or support listed species
- 2:1 for coastal sage scrub
- 2:1 for grassland
- 1:1 for chaparral

FERC-12 Environmental Measure 12—Habitat Mitigation Plan. Prepare a habitat mitigation plan in consultation with the USDA Forest Service, Interior, CDFG, and Riverside County to identify appropriate mitigation of habitat losses.

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. Mitigation Measure B-1a(LE) is identical to Mitigation Measure B-1a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”,

and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”. CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring. Mitigation Measure B-1c(LE) is identical to Mitigation Measure B-1c for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”. CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is.

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

The proposed Lake–Pendleton 500 kV transmission line would cross nine named drainages. A number of these drainage features crossed by the transmission line qualify as either Waters of the United States or Waters of the State. The largest drainage features crossed by the transmission line area include Temescal Creek (a tributary of Santa Ana River) and Los Alamos Creek (a tributary of San Mateo Creek). Many of the small drainage features appear to be ephemeral as indicated by the lack of hydrophytic vegetation (EVMWD, 2007).

Construction of the Lake Substation could would affect approximately 0.49 acres of 0.3 acres of Waters of the U.S. and 1.10.41 acres of Non-wetland and 0.04 acres of Wetland Waters of the State. Construction of the Pendleton Substation would affect 3.97 acres of Waters of the U.S. and 1.18 acres of Non-wetland and 0.02 acres of Wetland Waters of the State. No estimates are available for the Pendleton Substation, but the following vegetation communities are present at the site that are often jurisdictional: southern willow scrub, mule fat scrub, and southern coast live oak riparian forest. These impacts are considered significant according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) and Significance Criterion 3.b., if the project fails to provide an adequate buffer to protect the function and values of existing wetlands, but mitigable to less than significant levels (Class II) with implementation of Forest Service conditions 15 and 35 and Mitigation Measure B-2a(LE).

Mitigation Measures for Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

USFS-15 Condition No. 15—Erosion Control Plan. During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project.

The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include:

- A description of the actual site conditions
- Detailed descriptions, design drawings, and specific topographic locations of all control measures
- Measures to divert runoff away from disturbed land surfaces
- Measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites
- Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources
- Measures to dissipate energy and prevent erosion and,
- A monitoring and maintenance schedule.

USFS-35 Condition No. 35—Surface Water Resources Management Plan. The Licensee shall within 6 months after license issuance file with the Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater-related surface water and other groundwater-dependent resources. At a minimum the plan shall:

1. Develop in consultation with and approved by Forest Service technical specialists and their consultants an inventory of springs and other water courses within 1 mile of Morrell and Decker canyon and their related riparian areas. The inventory shall include water chemistry and physical analysis in addition to monthly and annual hydrographs. Riparian areas shall be delineated and inventoried. Inventories shall include flora and fauna specific to each water source and shall also include special indicator species (i.e. spring snails), as required by the Forest Service technical specialists, which describe the overall health of the system.
2. Develop and implement in consultation with and approved by Forest Service technical specialists and their consultants a riparian vegetation and surface water monitoring plan addressing springs and other surface water courses in the canyon selected for the storage portion of the Pumped Storage Project and their associated riparian areas. Baseline data prior to initiation of the project shall be obtained for both water quantity and quality because project activities could alter groundwater levels and quality, with subsequent alteration of surface water dynamics. The surface water monitoring should include intermittent as well as any perennial systems, and should be done no less frequently than monthly. Surface water monitoring stations shall be established at locations (e.g., at bedrock outcroppings) that would be unlikely to become unusable due to sedimentation or erosion. Riparian vegetation monitoring shall include quantifying extent of riparian vegetation associated with springs, streams, and other riparian areas. The monitoring plan shall be in effect upon approval for pre-construction so that baseline data can be established and shall continue for the entire duration of the project while in construction, and for the post construction period as long as project related impacts to groundwater and/or surface waters are anticipated by the Forest Service technical specialists and their consultants.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. Mitigation Measure B-2a(LE) is identical to Mitigation Measure B-2a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”. CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is. See Table D.2-7 for compensation ratios.

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

A variety of invasive, non-native plant species are known to occur in the Lake–Pendleton 500 kV transmission line study area. These include red brome, black mustard, castor bean, tree tobacco, Russian thistle, yellow sweet clover, bristly ox-tongue, and giant reed.

Construction of the Lake–Pendleton 500 kV transmission line would cause soil disturbance throughout the project area. Soil disturbance creates conditions that promote the establishment and spread of invasive, non-native plant species, and these species may be carried into and out of the project area by construction equipment or in fill material. These impacts are considered significant, but would be mitigable to less than significant levels (Class II) with implementation of the mitigation measures listed below.

During project operation, weed establishment and spread would be a continuing consideration as a result of off-road vehicles on access roads. This activity could cause soil disturbance, introduce more weed seed, and promote the spread of weeds. The introduction and spread of invasive, non-native, or noxious plant species in these areas would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of the mitigation measures listed below.

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

USFS-29 Condition No. 29—Annual Employee Awareness Training. The licensee shall, beginning the first full calendar year after license issuance, provide annual employee awareness training in coordination with the Forest Service. The goal of the training shall be to familiarize the licensee’s maintenance and operations staff with local Forest Service issues. Topics to be covered in this training include local resource issues, special status species, invasive weeds, procedures for reporting to the Forest Service, and Forest Service orders that pertain to the CNF lands in the vicinity of the project.

Information on special status species and invasive weeds and their locations in the project area shall be provided to licensee’s field personnel.

USFS-33 Condition No. 33—Vegetation and Invasive Weed Management Plans. Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission Vegetation and Invasive Weed Management Plan approved by the Forest Serviced. Invasive weeds will be those weeds identified in the California Department Food and Agriculture (CDFA) code, and other non-native species of concern identified by the Forest Service and other resource agencies. The plan will address both aquatic and terrestrial invasive weeds within the project boundary and adjacent to project features

directly affecting National Forest lands including recreation facilities, roads, and distribution and transmission lines.

1) The Invasive Weed Plan will include and address the following elements:

- Inventory and mapping of new populations of invasive weeds using a Forest Service compatible database and GIS software. The Invasive weed GIS data layer will be updated annually and shared with other resource agencies.
- Weed risk assessment.
- Action and/or strategies to prevent and control spread of known populations or introductions of new populations, such as public education and signing, vehicle/equipment wash stations, certified weed-free hay or straw for all construction or restoration needs and use an approved mix of plant species native to the CNF for restoration or erosion control purposes. Formulate an Integrated Pest Management approach for invasive weed control (IPM evaluates alternatives for managing forest pest populations, based on consideration of pest-host relationships).
- Assure that project staff is aware of the current location of invasive weeds and how to identify the invasive weeds likely to occur in the project area.
- Development of a schedule for control of all known A, B, Q (CDFA) and selected other invasive weed species, designated by resource agencies.
- On-going monitoring of known populations of invasive weeds for the life of the license in locations tied to Project actions or effects, such as road maintenance, at project facilities, O&M activities, recreational areas, new construction sites, etc. to evaluate the effectiveness of re-vegetation and invasive weed control measures.
- Avoid use of gravel and fill from known weed infested borrow pits.

New infestations of invasive and noxious weeds shall be controlled within 1 month of detection. At specific sites where other resource objectives need to be met (e.g. recreational use) all classes of invasive weeds may be required to be treated.

Monitoring will be done in conjunction with other project maintenance and resource surveys, so as not to require separate travel and personnel. Monitoring information, in database and GIS formats, will be provided to the Forest Service as part of the annual consultation on affected National Forest resources (Condition No. 5). To assist with this monitoring requirement, training in invasive plant identification will be provided to Project employees and contractors by the Forest Service.

Licensee shall restore/revegetate areas where treatment has eliminated invasive weeds in an effort to eliminate the reintroduction of invasive weed species. Project-induced ground disturbing activities shall be monitored annually for the first 3 years after disturbance to detect and map new populations of Invasive weeds.

2) The Vegetation Management plan shall include and/or address the following elements:

- Hazard tree removal and trimming
- Power line/transmission line clearing to comply with electrical safety and fire clearance requirements
- Vegetation management for native habitat and biodiversity improvement
- Revegetation of disturbed sites (including plant palette, planting methods, plant densities, propagation materials, and plant maintenance)

- Soil fertility and moisture analysis, soil grading, soil amendments, soil protection and erosion control, including use of certified weed free straw
- Use only clean, locally collected, weed free seed
- Irrigation amounts, methods, and schedule
- Pest treatment, monitoring, and prevention methods and schedule.

FERC-9 Environmental Measure 9—Invasive Weed Management Plan. Develop and implement a vegetation and invasive weed management plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas during construction and over the term of any license issued for the project.

FERC-14 Environmental Measure 14—Employee Awareness Training. Develop and implement an annual employee awareness training program regarding special status plants and animals.

B-15a Permanently close access roads along the transmission alignment. Monitor and manage the road closures to assure there is no public access to prevent an increase in disturbance to mountain lions and to prevent the introduction and spread of non-native plant species.

Impact B-4: Construction activities would create dust that may result in degradation of vegetation (Class II)

Construction activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact the plants' photosynthetic capabilities and degrade the overall vegetation community. This impact is considered significant but mitigable to less than significant levels (Class II) with implementation of the Forest Service condition 15 and Mitigation Measure B-4a(LE), both of which require development and implementation of Erosion Control Plans. Condition 15 requires measures to control dust, including revegetating disturbed areas.

Mitigation Measures for Impact B-4: Construction activities would create dust that may result in degradation of vegetation

USFS-15 Condition No. 15—Erosion Control Plan.

B-4a(LE) Erosion Control Plan. A plan including the requirements defined in USFS-15 shall also be developed for non-Forest Service lands.

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I)

One listed (Munz's onion) and three non-listed, sensitive (Rainbow manzanita, Hammitt's clay-cress, and heart-leaved pitcher sage) plant species were documented along or near the route of the proposed Lake-Pendleton 500 kV transmission line. The Munz's onion was observed near the route, and its designated critical habitat is, at its closest, is immediately approximately 125 feet west of the route tower location south of I-15 (Figure Ap.8K-1 in Appendix 8K). Munz's onion and its critical habitat are not anticipated would be impacted by construction of the Lake-Pendleton 500 kV transmission line if its critical habitat is removed or damaged (by being driven over) during tower construction. Since the extent of the potential impacts to Munz's onion critical habitat and the three non-listed, sensitive species has not been determined, it is must be assumed that they would be entirely affected at a significant level that is not mitigable to less than significant levels (Class I). The impacts would be significant according to Significance Criterion 1.a. (any impact to one or more individuals of a species that is federal or State listed as endangered or threatened), or Significance Criterion 1.b. (any impact that would affect the

number or range or regional long-term survival of a sensitive or special status plant species), and/or 1.d. (disturbance of designated critical habitat). Implementation of USDA Forest Service Conditions 15, 30, 35, and 38; FERC Environmental Measures 12, 14, and 15; and Mitigation Measures B-1a(LE), B-1c(LE), B-1d, B-1f through B-1i, B-2a(LE), B-2c, B-4a(LE), and B-5a through B-5d is required to, at least in part, compensate for impacts to special status plant species.

Mitigation Measures for Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants

USFS-15 Condition No. 15—Erosion Control Plan.

USFS-30 Condition No. 30—Special Status Species. The Licensee shall, beginning the first full calendar year after license issuance, in consultation with the Forest Service, annually review the current list of special status plant and wildlife species (species that are, Forest Service Sensitive, CNF Watch List, or U.S. Fish and Wildlife Service Federally listed) that might occur on National Forest System Lands in the project area directly affected by project operations. When a species is added to one or more of the lists, the Forest Service, in consultation with the Licensee, shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on such National Forest System Lands. For such newly added species, if the Forest Service determines that the species is likely to occur on such National Forest System Lands, the Licensee shall develop and implement a study plan in consultation with the Forest Service to assess the effects of the project on the species. The Licensee shall prepare a report on the study including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to the Forest Service for review and approval. The Licensee shall file the report, including evidence of consultation, with the Commission and shall implement those resource management measures required by the Commission.

USFS-35 Condition No. 35—Surface Water Resources Management Plan.

USFS-38 Condition No. 38—Habitat Mitigation Plan.

FERC-12 Environmental Measure 12—Habitat Mitigation Plan.

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS. Consult with USFWS during the process of developing final design drawings on measures to protect fish and wildlife resources.

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-1d Perform protocol surveys.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1g Build access roads at right angles to streambeds and washes.

B-1h Comply with all applicable environmental laws and regulations.

B-1i Restrict the construction of access and spur roads.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-2c Avoid sensitive features.

B-4a(LE) Erosion Control Plan.

B-5a(LE) Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-5a(LE) is identical to Mitigation Measure B-5a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”.

B-5b Conduct biological monitoring.

B-5c No collection of plants or wildlife.

B-5d Salvage sensitive species for replanting or transplanting.

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III)

Adverse effects to general (i.e., non-special status) wildlife are anticipated from construction of the Lake–Pendleton 500 kV transmission line from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since the impacts would be to non-special status species, they would be adverse but less than significant (Class III), and no mitigation is required. However, USDA Forest Service Conditions 15, 29, 35, and 38; FERC Environmental Measures 12, 14, and 15; and Mitigation Measures B-1a(LE) B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are recommended to reduce the disturbance to wildlife and reduce wildlife mortality.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

USFS-15 Condition No. 15—Erosion Control Plan.

USFS-29 Condition No. 29—Annual Employee Awareness Training

USFS-35 Condition No. 35—Surface Water Resources Management Plan.

USFS-38 Condition No. 38—Habitat Mitigation Plan.

FERC-12 Environmental Measure 12—Habitat Mitigation Plan.

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS.

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1i Restrict the construction of access and spur roads.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-2b Identify environmentally sensitive times and locations for tree trimming.

B-4a(LE) Erosion Control Plan.

B-6a Littering is not allowed.

- B-6b** Survey areas for brush clearing.
- B-6c** Protect mammals and reptiles in excavated areas.
- B-6d** Reduce construction night lighting on sensitive habitats.
- B-7a(LE)** Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals). Mitigation Measure B-7a(LE) is identical to Mitigation Measure B-7a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”.

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species. Other impact classes depend on species; see individual discussions)

Listed or sensitive (special status) wildlife species impacts would result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the Lake–Pendleton 500 kV transmission line project. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. A number of listed and non-listed, sensitive wildlife species have potential to occur in these areas; these species are listed at the beginning of Section E.7.1.2 (Environmental Setting – Lake-Pendleton 500 kV New Transmission Line).

Five non-listed, sensitive wildlife species were observed in or near the Lake–Pendleton 500 kV transmission line project study area. These species include coastal California newt, red-diamond rattlesnake, coast (San Diego horned lizard), two-striped garter snake, Cooper’s hawk, southern California rufous-crowned sparrow, loggerhead shrike, and California spotted owl. Other non-listed, sensitive species have moderate to high potential to occur as listed at the beginning of Section E.7.1.2 (Environmental Setting – Lake-Pendleton 500 kV New Transmission Line).

Most of the non-listed, sensitive species’ habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a[LE]) would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate land required by Mitigation Measure B-1a(LE) may not be available, the impacts to non-listed, sensitive wildlife species are considered significant according to Significance Criterion 2.a. (impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not mitigable to less than significant levels (Class I). Implementation of USDA Forest Service Conditions 15, 29, 30, 35, and 38; FERC Environmental Measures 11 through 15; and Mitigation Measures B-1a(LE), B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) is required to compensate, at least in part, for impacts to non-listed, sensitive wildlife species.

The Lake–Pendleton 500 kV transmission line project occurs in special habitat management areas for the SKR; focused surveys were not conducted for the species because the specific locations of project features were not designed until 2007; therefore, the SKR is assumed present in these areas (see Impact B-7L below). No other listed wildlife species were documented along or near the route of the Lake–Pendleton 500 kV transmission line route during multiple years of surveys for all species with potential to occur (i.e., QCB, arroyo toad, least Bell’s vireo, southwestern willow flycatcher, and coastal California gnatcatcher). Therefore, these species are considered absent; however, designated critical habitat for the QCB and coastal California gnatcatcher occurs in the project area, so these species are

addressed below in Impact B-7J and B-7M, respectively. The State listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore; the bald eagle is addressed in Impact B-10 below.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

- USFS-15 Condition No. 15—Erosion Control Plan.**
- USFS-29 Condition No. 29—Annual Employee Awareness Training**
- USFS-30 Condition No. 30—Special Status Species**
- USFS-35 Condition No. 35—Surface Water Resources Management Plan.**
- USFS-38 Condition No. 38—Habitat Mitigation Plan**
- FERC-11 Environmental Measure 11—Special Status Species Surveys. Conduct additional pre-construction special status plant and animal surveys at transmission line tower sites and along transmission alignment access roads to ensure compliance with Western Riverside County Multi-species Habitat Conservation Plan (Multi-Species HCP).**
- FERC-12 Environmental Measure 12—Habitat Mitigation Plan.**
- FERC-13 Environmental Measure 13—Consult with USFS.** Consult with the USFS annually to review the list of special status species and survey new areas as needed.
- FERC-14 Environmental Measure 14—Employee Awareness Training.**
- FERC-15 Environmental Measure 15—Consult with USFWS.** Consult with FWS during the process of developing final design drawings on measures to protect fish and wildlife resources.
- B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities.** See Table D.2-7 for compensation ratios.
- B-1c(LE) Conduct biological monitoring.**
- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1i Restrict the construction of access and spur roads.**
- B-2a(LE) Provide restoration/compensation for affected jurisdictional areas.** See Table D.2-7 for compensation ratios.
- B-2b Identify environmentally sensitive times and locations for tree trimming.**
- B-4a(LE) Erosion Control Plan.**
- B-6a Littering is not allowed.**
- B-6b Survey areas for brush clearing.**
- B-6c Protect mammals and reptiles in excavated areas.**
- B-6d Reduce construction night lighting on sensitive habitats.**
- B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat (Class I)

Surveys for the QCB were conducted for six consecutive years, ending in 2006. No QCB were observed. The nearest reported occurrence of the QCB to the project area is approximately five miles away.

Although the project would not directly impact the QCB, it would impact designated critical habitat for the QCB (Figure Ap.8K-1 in Appendix 8K). These impacts include eight acres in the northern portion of the transmission line route north of I-15 from 14 towers and several proposed access roads. Since adequate land required by Mitigation Measure B-7i(LE) may not be available, the impacts are considered significant according to Significance Criterion 1.d. (disturbance of critical habitat) and is not mitigable to less than significant levels (Class I). However, implementation of USDA Forest Service Conditions 15, 35, and 38; FERC Environmental Measures 12, 14, and 15; and Mitigation Measures B-1a(LE), B-1c (LE), B-2a(LE), B-4a(LE), and B-7i(LE) is required to, at least in part, compensate for impacts to QCB critical habitat.

Mitigation Measures for Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat

USFS-15 Condition No. 15—Erosion Control Plan.

USFS-35 Condition No. 35—Surface Water Resources Management Plan.

USFS-38 Condition No. 38—Habitat Mitigation Plan.

FERC-12 Environmental Measure 12—Habitat Mitigation Plan.

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS.

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-4a(LE) Erosion Control Plan.

B-7i(LE) Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7i(LE) is identical to Mitigation Measure B-7i for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”, and CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The applicant shall provide compensation for temporary and permanent loss of critical habitat at a ratio of 2:1. The total required mitigation shall include off-site purchase and preservation of 16 acres of QCB critical habitat or other habitat acceptable to USFWS. The remainder of the mitigation shall be implemented as is applicable.

Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat (Class II)

Suitable SKR habitat is present in grasslands and areas of sparse shrub cover along the transmission line alignment and at the proposed Lake Substation. The SKR is assumed present in these areas; surveys for the species were not conducted. These areas are located within the SKR Fee Assessment Area (50.2 acres of temporary and permanent impacts), and the northernmost segments of the transmission line are located inside the Lake Mathews–Estelle Mountain Core Reserve (7.6 acres of temporary impact; 0.4 acres of permanent impact). These acreages represent the worst-case scenario for impacts; project

impacts are likely to be less. Impacts to the species would be significant according to Significance Criterion 1.a. (substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State listed species) but and not mitigable to less than significant levels (Class II) because adequate mitigation land for the SKR may not be available to compensate for the impacts. However, with implementation of FERC Environmental Measures 14 and 15, and Mitigation Measures B-1a(LE), B-1c(LE), B-2a(LE), B-7a(LE), B-7k(LE), and B-17a is required to, at least in part, minimize impacts to the SKR.

Mitigation Measures for Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS.

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).

B-7k(LE) Conduct Stephens' kangaroo rat surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7k(LE) is identical to Mitigation Measure B-7k for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". For the Lake-Pendleton 500 kV New Transmission Line, applicant shall provide 7.6 acres of on-site restoration and 8.4 acres of acquisition and preservation of SKR occupied habitat within or contiguous with the Lake Mathews-Estelle Mountain Core Reserve for impacts to the Lake Mathews-Estelle Mountain Core Reserve.

B-17a Pay the Stephens' kangaroo rat fee assessment per the current Riverside County rate. The applicant shall provide funding for impacts to the SKR Fee Assessment Area.

Impact B-7M: Direct or indirect loss of coastal California gnatcatcher or direct loss of habitat (Class II)

Suitable habitat for the coastal California gnatcatcher (i.e., coastal sage scrub) is located from I-15 west into the foothills of CNF along the northern portion of the transmission line route (Figure Ap.8K-1 in Appendix 8K). Focused surveys for the gnatcatcher began in 2001 and continued for six consecutive years; the gnatcatcher was not found. Impacts to approximately 55.1 acres (temporary and permanent impacts) of designated critical habitat for the gnatcatcher (Figure Ap.8K-1 in Appendix 8K) would occur during construction of the Lake-Pendleton 500 kV transmission line project.

Additionally, gnatcatcher breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

Any impact to coastal California gnatcatcher-occupied habitat, critical habitat, or to coastal California gnatcatcher breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.d. (disturbance of critical habitat); Significance Criterion 1.g. (substantial adverse effect through

activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise).

Any direct impact to the gnatcatcher or its occupied or critical habitat would be significant but mitigable to less than significant levels (Class II) with implementation of FERC Environmental Measures 12, 14, and 15; and Mitigation Measures B-1a(LE), B-1c (LE), B-2a (LE), and B-7l(LE). Any impact to gnatcatcher breeding from excessive noise would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-7l(LE).

Mitigation Measures for Impact B-7M: Direct or indirect loss of coastal California gnatcatcher or direct loss of habitat

USFS-38 Condition No. 38—Habitat Mitigation Plan.

FERC-12 Environmental Measure 12—Habitat Mitigation Plan.

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS.

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-7l(LE) Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7l(LE) is identical to Mitigation Measure B-7l for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”. CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The applicant shall provide compensation for the permanent loss of gnatcatcher critical habitat at a ratio of 2:1 through acquisition and preservation of gnatcatcher critical habitat or other habitat acceptable to USFWS. The applicant shall also provide on-site restoration of all and temporary loss disturbance of critical habitat at a ratio of 1:1. The mitigation shall include off-site purchase and preservation of gnatcatcher critical habitat or other habitat acceptable to USFWS. The remainder of the mitigation shall be implemented as is applicable.

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act) (Class II)

The Lake-Pendleton 500 kV transmission line project area contains a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird nest is fully protected against take pursuant to the federal Migratory Bird Treaty Act. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

Even with mitigation, the project would have a significant impact if it was to violate the Migratory Bird Treaty Act and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criterion 1.g). Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of FERC Environmental Measures 14 and 15, and Mitigation Measures B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b.

Mitigation Measures for Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1g Build access roads at right angles to streambeds and washes.

B-1h Comply with all applicable environmental laws and regulations.

B-1i Restrict the construction of access and spur roads.

B-2b Identify environmentally sensitive times and locations for tree trimming.

B-2c Avoid sensitive features.

B-6b Survey areas for brush clearing.

B-8a(LE) Conduct pre-construction surveys and monitoring for breeding birds. Mitigation Measure B-8a(LE) is identical to Mitigation Measure B-8a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”. CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is.

B-8b Removal of raptor nests.

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class I for mountain lion; Class II for bat colonies; Class III linkages or wildlife movement corridors; No impact movement of fish)

The proposed Lake–Pendleton 500 kV transmission line would cross nine named drainages but would not directly impact any of them. The largest drainage features crossed by the transmission line area include Temescal Creek (a tributary of Santa Ana River) and Los Alamos Creek (a tributary of San Mateo Creek). Many of the small drainage features appear to be ephemeral as indicated by the lack of hydrophytic vegetation (EVMWD, 2007) and, therefore, do not contain perennial flows that could support fish and other species that are dependent on permanent water sources (No Impact).

Due to the intermittent locations and temporary nature of the transmission line construction activity, wildlife would not be physically prevented from moving around project equipment in the transmission corridor. During project operation, the widely spaced towers would not physically obstruct wildlife movement; wildlife could move around or under the towers. Additionally, the creation of permanent access roads may, in some cases, make wildlife movement through otherwise dense vegetation easier.

However, the transmission line corridor passes through two Multi-Species HCP Core Areas (Core Areas B and C and a proposed core expansion area), and it crosses two Linkages between Core Areas. For the reasons stated above, the impacts to these Core Areas and Linkages are considered adverse but less than significant (Class III), and no mitigation is required. An exception to this is for the mountain lion. Core Area B represents a large proportion of the remaining habitat for mountain lions in the Santa Ana Range. Modeling of the Santa Ana mountain lion population indicates it is demographically unstable and at risk of extinction because it is isolated from other populations (Beier, 1993). Removal or disturbance of suitable habitat within Core Area B would result in additional adverse effects on mountain lions. A five-year study of mountain lions in the Santa Ana Mountains showed that one animal (a young male) occupied a home range that included the transmission line corridor near Decker Canyon (Beier and Barrett, 1993). Therefore, the impact to Core Area B for the mountain lion is considered significant (according to Significance Criterion 4.b. – interfere with connectivity or corridor or linkage) and not mitigable to less than significant levels (Class I).

Although there are only two bat species with potential to occur in the project area (one with low potential and one with moderate potential [pallid bat and western red bat, respectively]), impacts to a bat nursery colony would be significantly impacted if humans approached an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure such as a bridge is disturbed by construction. A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to bat nursery colonies would be significant according to Significance Criterion 4 (impede the use of native wildlife nursery sites) but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-9a.

Mitigation Measure for Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites

B-9a Survey for bat nursery colonies.

Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species (No impact for electrocution; Class I for collision for listed species; Class II for collision for non-sensitive species or daytime migration)

The risk of electrocution is the same for this project as for the Proposed Project in Section D.2.14: No Impact.

The primary issue with respect to birds is collision with transmission towers or lines in migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. Most of this migration takes place at night. Mortality as a result of collision with these features would be greatest where the movements of migrating birds are the most concentrated. One such area could be where the proposed 500 kV transmission line would cross Temescal Wash near Lee Lake. This crossing could represent a high risk to waterfowl because of the presence of extensive wetlands and agricultural fields along the Lee Lake shoreline. In addition to Temescal Wash, the northern segment of the proposed 500 kV transmission line would cross seven other named drainages (Cow Canyon, Horsethief Canyon, McVicker Canyon, Leach Canyon, Los Alamos Canyon, Tenaja, and San Mateo Creeks). Topographic maps indicate that McVicker Canyon and Leach Canyon may support moderate amounts of avian-supporting riparian vegetation and may thus pose a moderate

risk of avian collision. Aerial photographs indicate that Los Alamos Canyon, Tenaja, and San Mateo Creeks support moderate amounts of riparian vegetation and may represent a moderate risk of transmission line collision for some waterfowl and wading birds (FERC, 2007). These areas were highlighted because of their potential use by waterfowl or wading birds, but other types of birds could still be affected by collision with the project transmission lines, towers, poles, or static wires. Since most birds migrate at night, and migration corridors have never been studied systematically, there is no way to know how many birds and what species of birds could actually be impacted by collision with transmission lines, towers, poles, or static wires. Therefore, as with the SRPL Proposed Project, it is assumed that some species could be federal or State listed or of other special status, and their mortality would be a significant impact that is not mitigable to less than significant levels (Class I) according to Significance Criterion 1.a. (impact one or more individuals of a species that is federal or State listed), Significance Criterion 1.f. (directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife), and Significance Criterion 1.g. (killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Also, like the Proposed Project, for non-sensitive species or species that migrate during the day, collision would be significant according to Significance Criteria 1.f. and 1.g. but would be mitigable to less than significant levels (Class II) with implementation of USDA Forest Service Condition 34; FERC Environmental Measures 15 and 26; and Mitigation Measure B-10a(LE).

According to a local eagle expert (Bittner, 2007), eagles do not tend to be collision victims, except on the smaller distribution lines, because their eyesight is so acute. This alternative would install large, 500 kV transmission lines, so the bald eagle is not expected to be impacted by collision with this project.

Mitigation Measure for Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species

USFS-34 Condition No. 34—Wildlife Management. The licensee shall, within one year after license issuance, implement the following raptor/avian safety measures on National Forest System lands or on areas directly affecting National Forest System lands to maintain and enhance existing native wildlife species potentially affected by the project:

- All power lines, power stations, and other facilities on or affecting National Forest System lands shall be constructed to conform with the “Suggested Practices for Raptor Protection on Power Lines” by the Avian Power Line Interaction Committee (1996), including marking the power lines themselves if they are adjacent to Lake Elsinore or in a flyway where bird strikes may occur.

FERC-15 Environmental Measure 15—Consult with USFWS.

FERC-26 Environmental Measure 26—Avian Protection. Ensure all transmission facilities conform to APLIC et al. (1996) guidelines, including power lines to reduce risks of bird strikes. The co-applicants should conform to the April 2005 avian protection plan guidelines.

B-10a(LE) Utilize collision-reducing techniques in installation of transmission lines. Mitigation Measure B-10a(LE) is identical to Mitigation Measure B-10a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The area requiring markers for the Lake-Pendleton 500 kV New Transmission Line includes where the transmission line would cross Temescal Wash near Lee Lake, Cow Canyon, Horsethief Canyon, McVicker Canyon, Leach Canyon, Los Alamos Canyon, and Tenaja, and San Mateo Creeks. The remainder of the mitigation shall be implemented as is.

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class III)

The common raven has not been documented to prey on any listed or sensitive wildlife present along the Lake-Pendleton 500 kV Transmission Line route (Liebezeit et al., 2002).; Although, the predation may still occur on a limited basis, and impacts would be adverse but less than significant (Class III). No mitigation is required.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II general maintenance; Class III for short-term helicopter access)

These types of impacts would occur from maintenance activities: impacts to nesting birds if vegetation is cleared during the breeding season and mortality of special status species from grading, vegetation clearing, or the use of access roads. Disturbance to wildlife and potential wildlife mortality from maintenance would result in significant impacts if they impact listed species (Significance Criterion 1.a.); disturb critical habitat (Significance Criterion 1.d.); directly/indirectly cause the mortality of candidate, sensitive, or special status species (Significance Criterion 1.f.); violate the Migratory Bird Treaty Act (Significance Criterion 1.g.), or have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (Significance Criterion 2.b.; this impact would degrade wildlife habitat — see Mitigation Measures B-3a[LE] and B-15b).

Impacts to non-listed, sensitive wildlife species from maintenance activities would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of USDA Forest Service Condition 29; FERC Environmental Measures 13 and 14; and Mitigation Measure B-12a(LE).

Impacts to SKR from maintenance would occur from brush clearing if it damages burrows or if vehicles crush burrows on dirt access roads. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of USDA Forest Service Condition 29; FERC Environmental Measures 13 and 14; and Mitigation Measure B-12a(LE).

Although the QCB and coastal California gnatcatcher are not currently present in the project area, designated critical habitat for these species is present. Maintenance activities would not remove additional vegetation from the project area, but maintenance activities could adversely affect the QCB where access roads are maintained (if the QCB is present in the future) and could adversely affect the gnatcatcher through excessive noise during its breeding season should it be present in the future. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of USDA Forest Service Condition 29; FERC Environmental Measures 13 and 14; and Mitigation Measures B-7i(LE) and B-12a(LE).

Transmission line maintenance activities that would include the use of helicopters would cause short-term, localized, adverse but less than significant impacts (Class III) to wildlife.

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

USFS-29 Condition No. 29—Annual Employee Awareness Training

FERC-13 Environmental Measure 13—Consult with USFS.

FERC-14 Environmental Measure 14—Employee Awareness Training.

B-3a(LE) Prepare and implement a Weed Control Plan.

B-4a(LE) Erosion Control Plan.

B-7i(LE) Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/minimization/compensation strategies.

B-12a(LE) Conduct maintenance activities outside the general avian breeding season. Mitigation Measure B-12a(LE) is identical to Mitigation Measure B-12a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is.

B-15b Develop and implement an Invasive Weed Management Plan. Develop and implement a vegetation and invasive weed management plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas during construction and over the term of any license issued for the project. The management plan shall include a pre-construction weed inventory; specific weed abatement methods, practices, and treatment timing; and long-term measures to control the introduction and spread of noxious weeds.

Environmental Setting – Talega-Escondido 230 kV Transmission Upgrades

The existing Talega-Escondido 230 kV transmission corridor is located in northern San Diego County. A portion of the corridor is bordered to the north by the CNF. HELIX Environmental Planning, Inc. mapped the vegetation for the section of 69 kV rebuild between the Pala and Lilac Substations (Figures Ap.8K-7 and Ap.8K-8 in Appendix 8K). The remainder of the Talega-Escondido ROW vegetation mapping (Figures Ap.8K-9 through Ap.8K-14 in Appendix 8K) is from the LEAPS Project Final EIS. Most of the Talega-Escondido area is comprised 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 are small areas of riverine and wetland habitat, grass- and herb-dominated communities, and woodland and forest vegetation. The southern end of the route becomes increasingly urban as it approaches Escondido (EVMWD, 2007).

Riverine and wetland habitat along the Talega-Escondido transmission line corridor are associated with numerous creeks and rivers, including Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton; the Santa Margarita River along the northeastern portion; and Gomez Creek, San Luis Rey River, and Keys Creek on the Rainbow to Escondido portion (EVMWD, 2007).

The approximately 16-mile portion of the Talega-Escondido transmission line located within Camp Pendleton is primarily native scrub (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 predominated by native grassland interspersed with Engelmann oak woodland (Figure Ap.8K-9 in Appendix 8K). The approximately 22-mile portion from the eastern edge of Camp Pendleton to Pala Road is predominantly native scrubs

interspersed with groves and orchards along the hillsides (Figure Ap.8K-10 through Figure Ap.8K-13 Appendix 8K). The approximately 8-mile segment south of Pala Road to the south of Old Castle Road is covered mostly with groves with patches of chaparral and sage scrub, riparian vegetation, and developed areas (Figures Ap.8K-9 through Ap.8K-14 in Appendix 8K). The southernmost segment is primarily developed residential, with small patches of native scrub (EVMWD, 2007; Figure Ap.8K-14 in Appendix 8K).

Overview of Special Habitat Management Areas. The Talega-Escondido transmission line corridor would cross through Marine Corps Base Camp Pendleton.

Designated Critical Habitat. The Talega-Escondido transmission line route traverses designated critical habitat for the coastal California gnatcatcher (between MP 0-3.5, 21.8-27.8, and 33-36.8), least Bell's vireo (between MP 24-24.5 and 34.5-35), and southwestern willow flycatcher (between MP 24-24.5 and 34.5-35). The 69 kV relocation portion of the transmission line (MP 34 to 36) occurs within designated critical habitat for the coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher (Dudek, 2002).

Special Status Plant Species. Using the same definition of special status for the SRPL Proposed Project in Section D.2.1.1, these special status (listed or non-listed, sensitive) plant species have moderate to high potential to occur along the Talega-Escondido transmission line corridor according to the Proponent's Environmental Assessment (PEA) for the LEAPS/Talega-Escondido Valley-Serrano 500 kV Interconnect Project (The Nevado Hydro Company, Inc., 2007), or were observed (Dudek, 2002; MPs provided where observed):

- Munz's onion
- San Diego ambrosia
- Slender-horned spineflower
- Many-stemmed dudleya (MP 2)
- Ramona horkelia (MP 12.5)
- Gander's ragwort
- Vail Lake ceanothus
- Sticky dudleya (MPs 7 and 9.5)
- San Diego button-celery
- Spreading navarretia
- California Orcutt grass
- Encinitas baccharis (MP 7)
- Lakeside ceanothus (MP 29.7)
- Parry's tetraococcus (MP 31.8)

Special Status Wildlife Species. The following listed species have moderate to high potential to occur along the Talega-Escondido transmission line corridor according to the PEA (The Nevada Hydro Company, Inc., 2007), or were observed (Dudek, 2002; MPs provided where observed).

- Least Bell's vireo (MP 1)
- Southwestern willow flycatcher
- QCB
- Coastal California gnatcatcher (MP 0.2 and 4.5)
- Arroyo toad (between MP 1 and 7, and at MP 17 and 35)
- SKR
- Riverside fairy shrimp

The highly sensitive golden eagle is also known to nest near the transmission line corridor.

The following non-listed, sensitive species have moderate to high potential to occur along the Talega-Escondido transmission line corridor according to the PEA (The Nevada Hydro Company, Inc., 2007) and Dudek (2002), along with other species that occur in upland or riparian/wetland habitats in coastal and inland San Diego County (see Table D.2-4 for additional species).

- Belding's orange-throated whiptail
- Southern California rufous-crowned sparrow

- Coast (San Diego) horned lizard
- Coastal cactus wren
- White-tailed kite

Environmental Impacts and Mitigation Measures – Talega-Escondido 230 kV Transmission Upgrades

Potential impacts to biological resources of the Talega-Escondido 230 kV transmission upgrades are presented below along with measures to mitigate these impacts to a level that is less than significant, when applicable. Several assumptions have been made in the analysis of impacts below since final engineering has not been conducted:

Pull sites for installing the new 230 kV transmission line on the existing 230 kV transmission towers would occur in the existing Talega-Escondido ROW in developed areas, disturbed habitat, or along existing access roads.

Based on new access roads and poles for the SRPL Proposed Project, the new access roads for the modification of SDG&E's existing Talega-Escondido 69 kV transmission circuit (between the existing Pala and Lilac Substations) would be 20 feet wide, and the total impact footprint for each new wood or steel pole would be 64 square feet. Despite what may be shown on Ap.8K-7 and Ap.8K-8 (these project features have not been engineered, and their locations are conceptual), as with the SRPL Proposed Project, impacts to riparian/wetland habitats would likely be avoided by spanning drainages, and access roads would ultimately be designed to avoid these resources as well.

Despite what may be shown on Figures Ap.8K-7 and Ap.8K-8 all staging areas for the upgrades (the staging areas have not been engineered, and their locations are conceptual) would occur in the existing Talega-Escondido ROW in developed areas, disturbed habitat, or along existing access roads.

Should any impacts exceed those estimated in this analysis, additional mitigation would be required.

Impact B-1: Project construction would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation, vegetation management, and type conversion; Class III for non-sensitive vegetation)

The Talega-Escondido 230 kV transmission upgrade would entail installing a second 230 kV circuit on the vacant position of SDG&E's Talega-Escondido transmission line and making upgrades to the Talega and Escondido Substations (upgrades would occur within existing substation facilities — no impacts to biological resources). In order to accommodate an additional conductor, it would be necessary to rebuild a 7.7-mile section (interconnecting SDG&E's existing Pala and Lilac Substations) of the existing 69 kV transmission circuit on new 69 kV wood and steel pole structures adjacent to the existing 230 kV line within the existing 300-foot-wide Talega-Escondido ROW.

It is assumed that no impacts to sensitive vegetation communities would occur from the use of pull sites to install the second 230 kV circuit because it is assumed that they would occur in the existing Talega-Escondido ROW in developed areas, disturbed habitat, or along existing access roads. Impacts to developed areas or disturbed habitat, should pull sites not be located in existing access roads, would be adverse but less than significant (Class III). If impacts were to occur to sensitive vegetation communities, they would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during

construction, grading, clearing, or other activities). The impacts would not be mitigable to less than significant levels (Class I) because adequate mitigation land may not be available to compensate for the impacts. Implementation of FERC-12, and Mitigation Measures B-1a(LE) and B-1c(LE) is required to, at least in part, compensate for impacts to sensitive vegetation communities.

Furthermore, impacts from rebuilding the 69 kV transmission circuit on new poles adjacent to the existing 230 kV line within the existing Talega-Escondido ROW would impact sensitive and non-sensitive vegetation communities as described below. Impacts to non-sensitive communities would be adverse but less than significant (Class III). Impacts to sensitive vegetation communities would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). The impacts would not be mitigable to less than significant levels (Class I) because adequate mitigation land may not be available to compensate for the impacts. Implementation of Mitigation Measures B-1a(LE) and B-1c(LE) is required to, at least in part, compensate for impacts to sensitive vegetation communities.

Impacts to non-sensitive communities would include two acres of replacement of extensive agriculture with towers and access roads.

Impacts to sensitive communities include from permanent tower footings would include 0.03 acres of Diegan coastal sage scrub, 0.01 acres of non-native grassland, and 0.01 acres of southern mixed chaparral.

Impacts to sensitive communities include from permanent access roads would include 1.8 acres of Diegan coastal sage scrub, 0.2 acres of Diegan coastal sage scrub-disturbed, 0.8 acres of non-native grassland, 1.3 acres of southern mixed chaparral, and 0.04 acres of coast live oak woodland.

Should any impacts exceed those described above (this would be determined during monitoring required in Mitigation Measure B-1c[LE]), mitigation would be required per Mitigation Measure B-1a(LE).

Vegetation Management (Loss of Trees). It has been estimated that up to approximately 150 native oak trees would be removed for new pole placement and an additional 250 native and 250 non-native trees (the latter in orchards — extensive agriculture) would be removed for line clearance from the Pala to Lilac Substations. Native or non-native shrubs may also need to be removed if they are present.

The loss of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they typically do not support special status wildlife species. However, removal of a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). Likewise, removal of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 (Construction activities would result in a potential loss of nesting birds [violation of the Migratory Bird Treaty Act]; Section D.2.12) for how construction activities (including tree/shrub removal) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act. The loss of native trees and shrubs would be a significant impact (Class I) for these reasons:

- it can have a substantial adverse effect on candidate, sensitive, or special status species (Significance Criterion 1)

- it can have a substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criterion 2)
- it can have a substantial adverse effect on federally protected water quality or wetlands (Significance Criterion 3)
- it can interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criterion 4)
- it can conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criterion 5; see discussion in Section D.16).

No estimates were made for trees that would need to be trimmed; instead all trees were considered removed in this analysis. However, if it is determined that some trees do not need to be removed and only trimmed, the following explains the significance of trimming. Although the trimming of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they usually do not support special status wildlife species, trimming a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). Likewise, trimming of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 for how construction activities (including tree trimming) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act.

Trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and 5 listed above. The loss (or trimming) of this large number of native trees is considered a significant impact that would not be mitigable to less than significant levels (Class I) because adequate mitigation land required by Mitigation Measure B-1a(LE) for restoration and/or acquisition may not be available. However, Mitigation Measure B-1a(LE) is required to reduce the impacts to the greatest extent possible.

Type Conversion. As discussed in Section E.7.1.15, the construction and operation of new transmission lines in areas with high fire risk could cause wildfires, and could reduce the effectiveness of fire fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of southern California is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. If the project were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would be significant (Class I) according to Significance Criterion 1 (substantial adverse effect through habitat modification on any species identified as

candidate, sensitive, or special status) and/or Significance Criterion 2 (substantial adverse effect on a riparian habitat or other sensitive natural community).

Extensive mitigation for fire risk is presented in Section E.7.1.15. However, not all fires can be prevented. Although future fires may not cause type conversion in all instances, the impact must be considered significant because of the severity of potential habitat loss. This impact is not mitigable to less than significant levels (Class I). Implementation of the vegetation management program (described above) would reduce the fire risk of the project, although not to a less than significant level.

Mitigation Measures for Impact B-1: Project construction would result in temporary and permanent losses of native vegetation (Class I)

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

It is assumed that construction activities associated with the Talega-Escondido upgrades would avoid impacts to riparian/wetland habitats by spanning drainages, and access roads would ultimately be designed to avoid these resources as well.

The project features for the upgrades have not been engineered, and their locations are conceptual. So, it is expected that, as with the SRPL Proposed Project, impacts to riparian/wetland habitats would likely be avoided by spanning drainages, and access roads would ultimately be designed to avoid these resources as well.

Still, impacts to jurisdictional areas (i.e., unvegetated Waters of the U.S. or State or perhaps wetlands) could result during construction (which could cause erosion, and sedimentation and/or degradation of water quality). Impacts to jurisdictional areas would be significant according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) and Significance Criterion 3.b. if the project fails to provide an adequate buffer to protect the function and values of existing wetlands. These impacts, should they occur, would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1c(LE) and B-2a(LE).

Mitigation Measure for Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

Construction of the Talega-Escondido upgrades would cause soil disturbance that creates conditions that promote the establishment and spread of invasive, non-native plant species, and these species may be carried into and out of the project area by construction equipment or in fill material. These impacts are

considered significant but would be mitigable to less than significant levels (Class II) with implementation of the mitigation measures listed below.

During project operation, weed establishment and spread would be a continuing consideration as a result of off-road vehicles on access roads, should this occur. This activity could cause soil disturbance, introduce more weed seed, and promote the spread of weeds. The introduction and spread of invasive, non-native, or noxious plant species in native habitat areas would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of the mitigation measures listed below.

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

B-3a(LE) Prepare and implement a Weed Control Plan. Mitigation Measure B-3a(LE) is identical to Mitigation Measure B-3a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is.

B-15a Permanently close access roads along the transmission alignment.

B-15b Develop and implement an Invasive Weed Management Plan.

Impact B-4: Construction activities would create dust that may result in degradation of vegetation (Class II)

Construction activities such as grading, pole footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact the plants’ photosynthetic capabilities and degrade the overall vegetation community. This impact is considered significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-4a(LE), which requires measures to control dust, including revegetating disturbed areas.

Mitigation Measure for Impact B-4: Construction activities would create dust that may result in degradation of vegetation

B-4a(LE) Erosion Control Plan.

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (Class I)

Although presence of some special status species is known (see list in Environmental Setting – Talega-Escondido 230 kV Transmission Upgrades), the impacts to them are not quantified because their numbers and precise locations are not known, and the locations of project features are conceptual, and additional species could also be affected if present.; Since it is not possible to adequately assess the amount of impact to the special status plant species therefore, impacts to special status plant species they are considered significant and not mitigable to less than significant levels (Class I) according to Significance Criterion 1.a. (any impact to one or more individuals of a species that is federal or State listed as endangered or threatened) or Significance Criterion 1.b. (any impact that would affect the number or range or regional long-term survival of a sensitive or special status plant species).

Implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-1d, through B-1i, B-2a(LE), B-2c, B-4a(LE), and B-5a(LE) through B-5d is required to, at least in part, compensate for impacts to special status plant species.

Mitigation Measures for Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants

- B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities.** See Table D.2-7 for compensation ratios.
- B-1c(LE) Conduct biological monitoring.**
- B-1d Perform protocol surveys.**
- B-1e Train project personnel.** [BIO-APM-2]
- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1g Build access roads at right angles to streambeds and washes.**
- B-1h Comply with all applicable environmental laws and regulations.**
- B-1i Restrict the construction of access and spur roads.**
- B-2a(LE) Provide restoration/compensation for affected jurisdictional areas.** See Table D.2-7 for compensation ratios.
- B-2c Avoid sensitive features.**
- B-4a(LE) Erosion Control Plan.**
- B-5a(LE) Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies.**
- B-5b Conduct biological monitoring.**
- B-5c No collection of plants or wildlife.**
- B-5d Salvage sensitive species for replanting or transplanting.**

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III)

Adverse effects to general (i.e., non-special status) wildlife are anticipated from construction of the Talega-Escondido Upgrades from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since the impacts would be to non-special status species, they would be adverse but less than significant (Class III), and no mitigation is required. However, Mitigation Measures B-1a(LE) B-1c(LE), B-1e, B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are recommended to reduce the disturbance to wildlife and reduce wildlife mortality.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

- B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities.** See Table D.2-7 for compensation ratios.
- B-1c(LE) Conduct biological monitoring.**
- B-1e Train project personnel.**

- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1i Restrict the construction of access and spur roads.**
- B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.**
- B-2b Identify environmentally sensitive times and locations for tree trimming.**
- B-4a(LE) Erosion Control Plan.**
- B-6a Littering is not allowed.**
- B-6b Survey areas for brush clearing.**
- B-6c Protect mammals and reptiles in excavated areas.**
- B-6d Reduce construction night lighting on sensitive habitats.**
- B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species. Other impact classes depend on species; see individual discussions)

Listed or sensitive (special status) wildlife species impacts would result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the Talega-Escondido Upgrades. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. A number of listed and non-listed, sensitive wildlife species have moderate to high potential to occur in these areas; these species are listed above in Environmental Setting – Talega-Escondido 230 kV Transmission Upgrades. The listed species are Riverside fairy shrimp, QCB, arroyo toad, least Bell's vireo, southwestern willow flycatcher, coastal California gnatcatcher, and SKR. The highly sensitive golden eagle is known to nest near the transmission line corridor. Impacts to these species are addressed individually below.

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a[LE]) would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate land required by Mitigation Measure B-1a(LE) may not be available, the impacts to non-listed, sensitive wildlife species are considered significant according to Significance Criterion 2.a. (impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-1e, B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) is required to compensate, at least in part, for impacts to non-listed, sensitive wildlife species.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

- B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.**
- B-1c(LE) Conduct biological monitoring.**
- B-1e Train project personnel.**

- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1i Restrict the construction of access and spur roads.**
- B-2a(LE) Provide restoration/compensation for affected jurisdictional areas.** See Table D.2-7 for compensation ratios.
- B-2b Identify environmentally sensitive times and locations for tree trimming.**
- B-4a(LE) Erosion Control Plan.**
- B-6a Littering is not allowed.**
- B-6b Survey areas for brush clearing.**
- B-6c Protect mammals and reptiles in excavated areas.**
- B-6d Reduce construction night lighting on sensitive habitats.**
- B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat (Class II)

The least Bell's vireo was observed at MP 1 (Dudek, 2002). Furthermore, designated critical habitat for the least Bell's vireo occurs from MP 24 to 24.5 and MP 34.5 to 35. Based on the assumptions made for this project, the Talega-Escondido Upgrades would not directly impact the least Bell's vireo, vireo habitat, or designated critical habitat for the least Bell's vireo (i.e., wetland/riparian habitats). The project features for the upgrades have not been engineered, and their locations are conceptual. So, it is expected that, as with the SRPL Proposed Project, impacts to riparian/wetland habitats would likely be avoided by spanning drainages, and access roads would ultimately be designed to avoid these resources as well.

However, least Bell's vireo breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

A noise impact to least Bell's vireo breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise).

This excessive noise impact would be mitigable, however, to less than significant levels (Class II) with implementation of Mitigation Measure B-7e(LE).

Mitigation Measure for Impact B-7D: Direct or indirect loss of least Bell's vireo or direct loss of habitat

- B-7e(LE) Conduct least Bell's vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.** Mitigation Measure B-7e(LE) is identical to Mitigation Measure B-7e for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies," State Parks, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service,

and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is where applicable.

Impact B-7E: Direct or indirect loss of southwestern willow flycatcher or direct loss of habitat (Class II)

Designated critical habitat for the southwestern willow flycatcher occurs from MP 24 to 24.5 and MP 34.5 to 35. Based on the assumptions made for this project, the Talega-Escondido Upgrades would not directly impact the vireo southwestern willow flycatcher, flycatcher habitat, or designated critical habitat for the southwestern willow flycatcher. (i.e., wetland/riparian habitats). The project features for the upgrades have not been engineered, and their locations are conceptual. So, it is expected that, as with the SRPL Proposed Project, impacts to riparian/wetland habitats would likely be avoided by spanning drainages, and access roads would ultimately be designed to avoid these resources as well.

However, southwestern willow flycatcher breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

A noise impact southwestern willow flycatcher breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise).

This excessive noise impact would be mitigable, however, to less than significant levels (Class II) with implementation of Mitigation Measure B-7e(LE).

Mitigation Measure for Impact B-7E: Direct or indirect loss of southwestern willow flycatcher or direct loss of habitat

B-7e(LE) Conduct least Bell’s vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.

Impact B-7H: Direct or indirect loss of golden eagle or direct loss of habitat (Class I)

The golden eagle is very sensitive to human activity, especially in the vicinity of its nesting area(s), and even distant construction activity (or maintenance activity; see Impact B-12 below) could cause abandonment of a nest, subsequent reproductive failure, and continuing decline of the species. These impacts would be significant according to Significance Criterion 1.e. (substantial adverse effect on the breeding success of the golden eagle), 1.f. (directly or indirectly cause the mortality of a special status species), 1.g. (result in the abandonment of migratory bird nests and/or eggs), and 1.h (take golden eagles, eagle eggs, or any part of an eagle). Human activity within 4,000 feet of a nest site is considered significant and not mitigable to less than significant levels (Class I). Exceptions to this are if the activity within 4,000 feet of the nest site (without direct line-of-sight and activity is below the nest site) occurs where there is already an existing disturbance such as a highly traveled road or a utility corridor that already contains large structures, or if the project is underground (Bittner, 2007).

There is one golden eagle nest area that occurs less than 4,000 feet from the existing Talega-Escondido corridor, and there is direct line-of-sight between the nest area and the transmission line. The specific location of this nest area is not disclosed in this EIR/EIS in order to protect the golden eagle. SDG&E will be made aware of the MPs subject to mitigation in an unpublished document. Impacts to this eagle pair from construction of this project would be significant and not mitigable to less than significant

levels (Class I) because of the distance between the nest area and the project (less than 4,000 feet) and the direct line-of-sight that would occur. Implementation of Mitigation Measure B-7h, is required to, at least in part, compensate for impacts to the golden eagle.

Impacts/mitigation relating to golden eagles and electrocution/collision with transmission towers/lines is discussed in Section D.2.14 and in Impact B-10 below.

Mitigation Measure for Impact B-7H: Direct or indirect loss of golden eagle or direct loss of habitat

B-7h Implement appropriate avoidance/minimization strategies for eagle nests.

Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat (Class I)

Parts of the northern portion of the Talega-Escondido Upgrades occur in USFWS protocol Surveys Areas 2 and 5 for the QCB. These are areas in which protocol surveys are required in suitable QCB habitat. While it is unlikely that the upgrades would impact much (if any) QCB-occupied habitat, with the lack of definitive survey data, the upgrades must be assumed to have a significant impact on this species. Since the magnitude of the impact is unknown, and adequate land required by Mitigation Measure B-7i may not be available, the impacts are considered significant according to Significance Criterion 1.a. (impact one or more individuals of a species that is federal or State listed as endangered or threatened) and is not mitigable to less than significant levels (Class I). However, implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-2a(LE), and B-7i(LE) is required to, at least in part, compensate for impacts to the QCB.

Mitigation Measures for Impact B-7J: Direct or indirect loss of quino checkerspot butterfly or direct loss of habitat

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-7i(LE) Conduct quino checkerspot butterfly surveys, and implement appropriate avoidance/minimization/compensation strategies.

Impact B-7K: Direct or indirect loss of arroyo toad or direct loss of habitat (Class II)

The arroyo toad has been observed between MP 1 and 7, at MPs 17 and 35 (Dudek, 2002). Based on the assumptions made for this project, the Talega-Escondido Upgrades would not directly impact arroyo toad riparian breeding habitat (i.e., wetland/riparian habitats). The project features for the upgrades have not been engineered, and their locations are conceptual. So, it is expected that, as with the SRPL Proposed Project, impacts to riparian/wetland habitats would likely be avoided by spanning drainages, and access roads would ultimately be designed to avoid these resources as well.

However, upland burrowing habitat for the toad would be impacted by any new access road construction that occurs within suitable upland burrowing habitat (i.e., upland vegetation communities such as coastal sage scrub or oak woodland that contain sandy soil; can have gravel or cobbles) within one kilometer of arroyo toad occupied breeding habitat. Potential indirect impacts to the arroyo toad from erosion, sedimentation, or decrease in water quality would occur if they were also to affect arroyo toad

breeding habitat if they were to occur. All of these impacts would be significant according to Significance Criterion 1.a. (substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State listed species) but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-2a(LE), and B-7j(LE).

Mitigation Measures for Impact B-7K: Direct or indirect loss of arroyo toad or direct loss of habitat

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-7j(LE) Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7j(LE) is identical to Mitigation Measure B-7j for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”.

Impact B-7L: Direct or indirect loss of Stephens’ kangaroo rat or direct loss of habitat (Class II)

A portion of the Talega-Escondido Upgrades would occur in the ROW that crosses through grassland habitat on Camp Pendleton that has the potential to support the SKR. Although pull sites for installing the new 230 kV transmission line on the existing 230 kV transmission towers is assumed to occur in the ROW in developed areas, disturbed habitat, or along existing access roads, there is the potential for SKR to be directly affected by construction should vehicles crush burrows that occur in these areas.

Direct and indirect impacts to the SKR and its occupied habitat from habitat removal or disturbance (e.g., vehicles crushing burrows) from construction (e.g., vehicles crushing burrows) would be significant according to Significance Criterion 1.a. (substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State listed species).

The pre-construction survey required in Mitigation Measure B-7k(LE) would conclusively define the presence/absence of the SKR and all the impacts to the SKR from construction of the Talega-Escondido Upgrades could occur. With the small number of acres likely required for mitigation, it is expected that appropriate mitigation land would be available to satisfy the mitigation requirement. These Construction impacts to the SKR would be significant but mitigable to less than significant levels (Class II) through implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-2a(LE), B-7a(LE), and B-7k(LE).

Mitigation Measures for Impact B-7L: Direct or indirect loss of Stephens’ kangaroo rat or direct loss of habitat

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).

B-7k(LE) Conduct Stephens' kangaroo rat surveys, and implement appropriate avoidance/minimization/compensation strategies.

Impact B-7M: Direct or indirect loss of coastal California gnatcatcher or direct loss of habitat (Class II)

The coastal California gnatcatcher was observed at MP 0.2 and 4.5 (Dudek, 2002). Furthermore, designated critical habitat for the gnatcatcher occurs between MP 0-3.5, 21.8-27.8, and 33-36.8.

Approximately two acres of gnatcatcher habitat (1.8 acres of Diegan coastal sage scrub and 0.19 acres of Diegan coastal sage scrub-disturbed — some of which is critical habitat; see Figures Ap.8K-9 through Ap.8K-14 in Appendix 8K) would be directly impacted by construction of the Talega-Escondido Upgrades between the Pala and Lilac Substations. With the small number of acres required for mitigation, it is expected that appropriate mitigation land would be available to satisfy the mitigation requirement because this type of mitigation for the gnatcatcher is typically available and regularly provided in San Diego County.

Additionally, gnatcatcher breeding can be affected by excessive construction noise (considered to be 60 dB(A) Leq at the edge of occupied habitat by the USFWS [USFWS, 2007c; American Institute of Physics, 2005]).

Any impact to coastal California gnatcatcher-occupied or critical habitat or to coastal California gnatcatcher breeding would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species), Significance Criterion 1.d. (disturbance to critical habitat), Significance Criterion 1.g. (substantial adverse effect through activities that result in the killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs), and Significance Criterion 4.d. (adversely affect wildlife through an increase in noise).

Any direct impact to the gnatcatcher or its occupied or critical habitat would be significant but mitigable to less than significant levels (Class II) with implementation of FERC Environmental Measures 14 and 15 and Mitigation Measures B-1a(LE), B-1c(LE), B-2a(LE), and B-7l(LE). Any impact to gnatcatcher breeding from excessive noise would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-1a(LE), B-1c(LE), B-2a(LE), and B-7l(LE).

Mitigation Measures for Impact B-7M: Direct or indirect loss of coastal California gnatcatcher or direct loss of habitat

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-7l(LE) Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies.

Impact B-7N: Direct or indirect loss of San Diego fairy shrimp (and/or Riverside fairy shrimp) or direct loss of habitat (Class II)

Although no vernal pools are known to occur in the Talega-Escondido ROW, water-holding basins do have the potential to occur, and these could support the Riverside fairy shrimp, particularly on Camp Pendleton. The types of impacts that could occur to fairy shrimp include direct construction impacts from grading or vegetation removal that affects water-holding basins that support fairy shrimp, as well as indirect impacts to fairy shrimp caused by alterations of the watersheds of basins by even slight topographic changes or increases in sedimentation. Direct and indirect impacts to fairy shrimp and its occupied habitat from habitat removal or disturbance would be significant according to Significance Criterion 1.a. (substantial adverse effect through any impact to one or more individuals of a federal or State listed species). These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1b(LE), B-1c(LE), and B-2a(LE).

Mitigation Measures for Impact B-7N: Direct or indirect loss of San Diego fairy shrimp (and/or Riverside fairy shrimp) or direct loss of habitat

B-1b(LE) Implement appropriate avoidance/minimization/compensation strategies for vernal pools and fairy shrimp habitat. Mitigation Measure B-1b(LE) is identical to Mitigation Measure B-1b for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is.

B-1c(LE) Conduct biological monitoring.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act) (Class II)

The Talega-Escondido ROW contains a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird nest is fully protected against take pursuant to the federal Migratory Bird Treaty Act. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

Even with mitigation, the project would have a significant impact if it was to violate the Migratory Bird Treaty Act and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criterion 1.g). Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b.

Mitigation Measures for Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)

FERC-14 Environmental Measure 14—Employee Awareness Training.

FERC-15 Environmental Measure 15—Consult with USFWS.

- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1g Build access roads at right angles to streambeds and washes.**
- B-1h Comply with all applicable environmental laws and regulations.**
- B-1i Restrict the construction of access and spur roads.**
- B-2b Identify environmentally sensitive times and locations for tree trimming.**
- B-2c Avoid sensitive features.**
- B-6b Survey areas for brush clearing.**
- B-8a(LE) Conduct pre-construction surveys and monitoring for breeding birds.**
- B-8b Removal of raptor nests.**

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class II for bat colonies; No impact linkages or wildlife movement corridors or movement of fish)

The Talega-Escondido transmission line crosses numerous creeks and rivers, including Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton; the Santa Margarita River along the northeastern portion; and Gomez Creek, San Luis Rey River, and Keys Creek on the Rainbow to Escondido portion (EVMWD, 2007). The upgrades would span these creeks and rivers, so they would not affect fish movement (No Impact).

Due to the intermittent locations and temporary nature of the transmission line construction activity, wildlife would not be physically prevented from moving around project equipment in the transmission corridor. During project operation, the widely spaced towers and poles would not physically obstruct wildlife movement; wildlife could move around or under the towers and around the poles. Additionally, the creation of permanent access roads may, in some cases, make wildlife movement through otherwise dense vegetation easier (No Impact).

Impacts to a bat nursery colony would be significantly impacted if humans approached an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure such as a bridge is disturbed by construction. A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to bat nursery colonies would be significant according to Significance Criterion 4 (impede the use of native wildlife nursery sites) but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-9a.

Mitigation Measure for Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites

- B-9a Survey for bat nursery colonies.**

Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species (No Impact for electrocution; Class I for collision for listed species; Class II for collision for non-sensitive species or daytime migration)

The risk of electrocution is the same for this project as for the Proposed Project in Section D.2.14: No Impact.

The primary issue with respect to birds is collision with transmission towers or lines in migration, especially in spring migration when strong winds and storms are more likely to force the birds to fly at relatively low altitudes. Most of this migration takes place at night. Mortality as a result of collision with these features would be greatest where the movements of migrating birds are the most concentrated. The Talega-Escondido transmission line crosses numerous creeks and rivers, including Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton; the Santa Margarita River along the northeastern portion; and Gomez Creek, San Luis Rey River, and Keys Creek on the Rainbow to Escondido portion (EVMWD, 2007) that may provide migration corridors for waterfowl or wading birds that are often victims of collisions with transmission lines, towers, poles, or static wires. However, other types of birds can also be collision victims, and migration corridors have never been studied systematically, there is no way to know how many birds and what species of birds could actually be impacted by collision with the Talega-Escondido Upgrades.

Therefore, as with the SRPL Proposed Project, it is assumed that some species could be federal or State listed or of other special status, and their mortality would be a significant impact that is not mitigable to less than significant levels (Class I) according to Significance Criterion 1.a. (impact one or more individuals of a species that is federal or State listed), Significance Criterion 1.f. (directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife), and Significance Criterion 1.g. (killing of migratory birds or destruction or abandonment of migratory bird nests and/or eggs). Also, like the SRPL Proposed Project, for non-sensitive species or species that migrate during the day, collision would be significant according to Significance Criteria 1.f. and 1.g. but would be mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-10a(LE).

According to a local eagle expert (Bittner, 2007), eagles do not tend to be collision victims, except on the smaller distribution lines (i.e., less than 69 kV), because their eyesight is so acute. This alternative would install a second 230 kV circuit on an existing tower and would place a 69 kV line on new poles along a 7.7-mile stretch of the Talega-Escondido ROW between the Pala and Lilac Substations adjacent to the existing 230 kV towers. Therefore, the golden eagle is not expected to be impacted by collision with the upgrades (No Impact).

Mitigation Measure for Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species

B-10a(LE) Utilize collision-reducing techniques in installation of transmission lines. Mitigation Measure B-10a(LE) is modified only to include “other agencies with jurisdiction over the project.” The area requiring markers for this project the Talega-Escondido upgrades includes where the transmission line would cross Cristianitos Creek, San Mateo Creek, and Roblar Creek on Camp Pendleton; the Santa Margarita River along the northeastern portion; and Gomez Creek, San Luis Rey River, and Keys Creek. The remainder of the mitigation shall be implemented as originally defined.

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (Class III)

The common raven has not been documented to prey on any listed or sensitive wildlife present along the Talega-Escondido corridor (Liebezeit et al., 2002); although, the predation may still occur. The ROW already contains towers that could be used by ravens for nesting. The Talega-Escondido Upgrades would not install new towers but would install steel or wood poles between the Pala and Lilac Substations that are unlikely to support a raven nest. Therefore, if ravens did nest in the ROW, the potential increase in raven predation would occur only on a limited basis and would be adverse but less than significant (Class III). No mitigation is required.

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II)

Disturbance to wildlife and potential wildlife mortality from maintenance would result in significant impacts if they impact listed species (Significance Criterion 1.a.); disturb critical habitat (Significance Criterion 1.d.); directly/indirectly cause the mortality of candidate, sensitive, or special status species (Significance Criterion 1.f.); violate the Migratory Bird Treaty Act (Significance Criterion 1.g.), or have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (Significance Criterion 2.b.; this impact would degrade wildlife habitat — see Mitigation Measures B-3a[LE] and B-15b).

Impacts to non-listed, sensitive wildlife species from maintenance activities would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Maintenance activities would impact the least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher if the noise threshold (i.e., 60 dB[A] Leq hourly) is met or exceeded at the edge of their nesting territories during their breeding seasons. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Maintenance activities would impact the golden eagle if they would occur within 4,000 feet of an active golden eagle nest. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-7h.

Impacts to SKR from maintenance would occur from brush clearing if it damages burrows or if vehicles crush burrows on dirt access roads. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

The QCB has potential to occur in USFWS protocol Survey Areas 2 and 5. Maintenance activities would not remove additional vegetation from the project area but could adversely affect the QCB where access roads are maintained. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-7i(LE).

Maintenance activities (i.e., road maintenance that fills in water-holding basins or driving through such basins) would cause disturbance to, and possible mortality of Riverside fairy shrimp. These impacts

would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-1b (LE).

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

B-1b(LE) Implement appropriate avoidance/minimization/compensation strategies for vernal pools and fairy shrimp habitat.

B-3a(LE) Prepare and implement a Weed Control Plan.

B-4a(LE) Erosion Control Plan.

B-7h Implement appropriate avoidance/minimization strategies for eagle nests.

B-7i(LE) Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/minimization/compensation strategies.

B-12a(LE) Conduct maintenance activities outside the general avian breeding season.

B-15b Develop and implement an Invasive Weed Management Plan.

E.7.1.3 Visual Resources

Analysis of visual resources impacts of the LEAPS Transmission-Only Alternative are presented in the following section. Visual impacts related to the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.7, below.

Environmental Setting

The LEAPS Transmission-Only Alternative consists of two components: the Lake-Pendleton 500 kV New Transmission Line, a new 31.8-mile 500 kV circuit and the proposed Lake and Pendleton Substations, and the Talega-Escondido 230 kV transmission upgrade consisting of both an additional 51-mile 230 kV circuit on existing towers located between the existing Talega and Escondido Substations and new towers for a 7.8-mile segment between the existing Pala and Lilac Substations that would be necessary to accommodate an existing 69 kV circuit currently occupying the space for the proposed additional 230 kV circuit. For both of these components, one or more Key Viewpoints (KVPs) have been established from which detailed setting characterizations have been developed to represent typical visual resources along that component. The location of each KVP for the LEAPS Transmission-Only Alternative is shown on Figure E.7.1.3-1.

Lake-Pendleton 500 kV New Transmission Line

This transmission line would cross primarily undeveloped lands characterized by forests, chaparral, and coastal sage habitats, sometimes in the vicinity of single-family homes or other land uses, such as a private airstrip and the Wildomar OHV area. This stretch of primarily National Forest System land provides a natural area with limited development surrounded by densely populated urbanized areas all less than an hour drive away (FERC, 2007).

The Cleveland National Forest (CNF) Land Management Plan designates almost all of the forest lands that this transmission line would cross as having a High Scenic Integrity Objective (SIO). In areas of High SIO, deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such a scale that they are not visually evident. This is the minimum level of visual quality to which any National Forest landscape with a High SIO is to be managed from an aesthetics standpoint.

While all the CNF lands in the northern portion of the proposed 500 kV transmission line are designated High SIO, the southern portion of the proposed transmission line would cross small and scattered areas designated as Moderate SIO; however, the Moderate lands represent only about 2 to 3 percent of the entire line.

Note: After each viewpoint heading, one of the following notations is made: (VRM), (SMS), or (VS-VC). This designation indicates the methodology to which that particular viewpoint is subject — either the BLM's Visual Resource Management (VRM) methodology, the Forest Service's Scenery Management System (SMS), or the Visual Sensitivity-Visual Change (VS-VC) methodology for non-BLM or non-USFS lands. See Section D.3.4.1 for a more detailed discussion of this methodology.

LEAPS Key Viewpoint L1 – DePalma Frontage Road and Interstate 15 (VS-VC)

LEAPS Key Viewpoint L1 was established on southbound DePalma Road, a frontage road to I-15, just south of the Indian Truck Trail Interchange and across the freeway from the proposed Lake Substation (see Figure E.7.1.3-2a). Views to the northeast toward steep mountains in the foreground, middle

ground, and background exhibit barren, rocky mountainsides that are mostly devoid of woody vegetation, and are covered only with seasonal grasses. The LEAPS Transmission-Only Alternative would entail a looped 500 kV transmission line (two parallel transmission lines) in the foreground and middle ground and a proposed substation in the foreground. This location was selected to generally characterize the existing landscape in the vicinity of the I-15 crossing north of Lake Elsinore.

Visual Quality. Moderate. The foreground, middle ground and background views from I-15 near Indian Truck Trail Interchange are constrained by steep, barren, rocky mountainsides that are brown and tan in color. Rockforms and landforms are distinctive, but vegetation is lacking. The water surface of the existing Lee Lake is visible from KVP-L1, as is its dam. Vertical lines of existing electric distribution lines are present in the landscape, as are barren and graded roadway medians and undeveloped freeway-commercial sites. The lack of vegetation and barren graded sites detract from the distinctive landforms, resulting in an overall moderate visual quality.

Viewer Concern. Moderate. Travelers on I-15 and DePalma Road are provided distinct mountain views as the terrain encroaches upon the freeway from both right and left (north and south), creating a 'narrowing' portal effect. Although there are some commercial and light industrial uses along the freeway and near this location, any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (rocky mountain slopes) would be seen as an adverse visual change.

Viewer Exposure. High. There is no vegetative or topographic screening for the proposed loop 500 kV transmission line or the Lake Substation; however, the substation equipment would be enclosed within a concrete building. Viewing distances allow details to be seen in the foreground and context to be evaluated in the middle ground. Sometimes, atmospheric conditions (smog, haze, fog) mute the colors and textures of this landscape, as displayed in the existing condition photograph. Viewing times are brief for travelers on DePalma Road and I-15, but are extended for residents located just west of KVP-1 in a new subdivision. The number of viewers would be high and the duration of view would be extended given that the loop transmission line and substation would be visible within the primary cone of vision (45 degrees either side of the primary direction of view) for a considerable distance on approach to the crossing from either northbound or southbound I-15. Consequently, viewer exposure is high.

Overall Visual Sensitivity. Moderate-to-High. For travelers on DePalma Road and I-15 in the vicinity of the loop transmission line and Lake Substation, combining the equally moderate visual quality, moderate viewer concern, and high viewer exposure lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

LEAPS Key Viewpoint L2 – Lake Elsinore (SMS)

LEAPS Key Viewpoint L2 was established on the lake surface of Lake Elsinore near the boat ramp at the east shore. Views to the Lake-Pendleton transmission line as it would cross the face of the mountains west of Lake Elsinore are similar from many vantage points in the City of Lake Elsinore, on the lake surface, on city streets, and along Interstate 15. Two specific vantage points — Interstate 15 and Lake Elsinore — would view the same target landscape — the front zone of Lake Elsinore on Cleveland National Forest — and visual effects would be similar, and are analyzed in detail here (see Figures E.7.1.3-3a and E.7.1.3-4a).

Interstate 15 is a federal interstate highway located less than one mile at its closest point to the east shore of Lake Elsinore and receives heavy commercial as well as non-commercial travel use. The towers, conductors, and resulting footprint of the 500 kV transmission line would be visible from Interstate 15

Figure E.7.1.3-1. LEAPS Transmission-Only Alternative: Key Viewpoints
[CLICK HERE TO VIEW](#)

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and the City of Lake Elsinore. This would introduce additional structure contrast and industrial character to an otherwise primarily natural appearing landscape (though existing utility distribution lines are visible in portions of the suburban interface zone).

Boaters on Lake Elsinore are afforded 360 degree views of the lake in the foreground and the mountains in almost all directions in the distance. Due to the hazy conditions that often predominate at Lake Elsinore, the Lake-Pendleton transmission line would be somewhat obscured, depending on weather conditions. The presence of water in this landscape increases visual quality, and with the contrasting vertical landforms southwest of the lake, visual variety is considered Class A. Visual sensitivity is high, based on a high number of viewers who value and appreciate scenic quality of the surrounding landscape from their homes, streets, highways, and businesses.

Although KVP-L2 was established on the shoreline of Lake Elsinore outside the CNF, the affected landscape is NFS land. When establishing scenic integrity objectives, the Forest Service considered views onto NFS lands from outside the Forest, such as from Lake Elsinore, as well as views to NFS lands from inside the Forest. The FS Land Management Plan has established a High SIO for this target landscape, and any activities in this landscape should not be visually evident, but should repeat naturally established form, line, color, texture and scale.

LEAPS Key Viewpoint L3 – South Main Divide Road Near North Transition Station (SMS)

LEAPS Key Viewpoint L3 was established on the South Main Divide Road looking southeast, near where the 500 kV transmission line would leave the Lake Elsinore viewshed and cross over into the San Mateo Canyon Wilderness viewshed. The existing visual quality is high in this area, with only visible deviations being the South Main Divide Road and Elsinore Peak Electronic Site on the skyline to the left in this photo (see Figure E.7.1.3-5a). Landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline. Vegetation is low growing chemise and chaparral with only small clumps of trees scattered in ravines. Granitic rock outcrops add visual interest to the skyline of San Mateo Wilderness in the background and one foreground rock outcrop. This scene has high existing scenic integrity, and the FS has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

LEAPS Key Viewpoint L4 – South Main Divide Road Near South Transition Station (SMS)

LEAPS Key Viewpoint L4 was established on the South Main Divide Road looking northwest, near where the underground 500 kV transmission line would ‘transition’ from underground to overhead. The existing visual quality is high in this area, with only visible deviations being the South Main Divide Road which is just out-of-frame on the right of this photo (see Figure E.7.1.3-6a), and cut slopes in the middle ground/background. Like KVP-L3, landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline in the foreground. Background landforms are more rugged, looking to the northwest. Vegetation is mature oaks in this ravine, in the immediate foreground, and middle ground mountainsides have low growing chemise and chaparral. A small pile of rocks are evident in the immediate foreground, possible a remnant of construction in the Rancho Capistrano subdivision, which is just behind the camera position to the south. This scene has high existing scenic integrity, and the FS has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

LEAPS Key Viewpoint L5 – Ortega Highway (SMS)

LEAPS Key Viewpoint L5 was established on the Ortega Highway looking northeast up Decker Canyon to the South Main Divide Road and the skyline, near the North Transition Station site (see Figure E.7.1.3-7a). Like KVPs L3 and L4, the existing visual quality is high in this area, with only visible deviations being this Forest Adventure Pass parking area along Ortega Highway in the immediate foreground and the South Main Divide Road cut slopes in the middle ground. This is a parking area for wilderness access, forest recreation, and sight-seeing. Landforms are gently rolling mountains with a predominance of horizontal lines on the skyline in the middle ground. Small rock outcrops are evident in the middle ground, adding visual variety to this intact scene. This scene has high existing scenic integrity, and the FS has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

LEAPS Key Viewpoint L6 – Hombre Lane in LaCresta Subdivision (SMS and VS-VC)

LEAPS Key Viewpoint L6 was established on Hombre Lane in the LaCresta Subdivision, looking north into the Cleveland National Forest. The overhead 500 kV transmission line would follow the road in the middle-left of this photo (see Figure E.7.1.3-8a), which is the boundary of the National Forest, then proceed for a short distance on private land to avoid a location where the San Mateo Wilderness boundary and Forest boundary are contiguous. The existing visual quality of the NFS lands is high and very high in this area, with only visible deviations being cut slopes of the Wildomar Road which has evident cut slopes in the middle ground. Background mountain landforms are more rugged on the left, in the San Mateo Wilderness, and more horizontal on the right near the Elsinore Peak Electronic Site. Vegetation in the National Forest is predominantly continuous chaparral and chemise with no openings. In the foreground, subdivision roads have created openings in the brush, and in the ravine near the bottom of Hombre Lane, native Sycamores line the draw in the immediate foreground. NFS lands in this scene have very high and high existing scenic integrity, and the FS has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

For areas outside the National Forest in LaCresta subdivision, visual sensitivity is evaluated as follows.

Visual Quality. High. The foreground is dominated by Hombre lane and its cut slopes. Landforms in the foreground are sloping but lack distinctive contrasts and are covered by continuous dark-green chaparral and chemise. There is no water evident in this landscape. The lack of vegetation patterns and barren graded roadway detracts from the scene, resulting in an overall low visual quality for the private land in this scene. However, adjacent scenery inside the CNF boundary affects the rating of visual quality along Hombre Lane, and cultural landscapes that have been created by home owners in LaCresta, out of view of this photograph, and that has raised the visual quality to high for the overall environment.

Viewer Concern. High. Residents in LaCresta and travelers on Hombre Lane are provided distinct mountain views of the San Mateo Wilderness and the road portion of the Cleveland National Forest. Any addition of industrial character to the predominantly natural appearing landscape of the National Forest or blockage of views to more valued landscape features (San Mateo Wilderness) would be seen as an adverse visual change.

Viewer Exposure. High. There is no vegetative or topographic screening for the proposed 500 kV transmission line as seen from Hombre Lane. Foreground and middle ground viewing distances would allow details to be seen and context to be evaluated. Viewing times are brief for travelers on Hombre

Lane but are extended for residents of LaCresta along Hombre Lane and other neighborhood roads that would look directly at the transmission line. The number of viewers would be moderate and the duration of view would be extended. Consequently, viewer exposure is high.

Overall Visual Sensitivity. High. For travelers on Hombre lane and residents of LaCresta in the vicinity of the 500 kV transmission line, combining the low visual quality, high viewer concern, and high viewer exposure would normally lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics. However, because of the extreme value of the undisturbed landscape on the CNF, it is anticipated that the overall visual sensitivity of this scene will be HIGH, based on public response and scoping comments. Therefore, the low visual quality rating of the subdivision lands visible from KVP-L6, as described above, will be over-ridden by the visual quality of NFS lands and the visual quality rating will be raised to high. This will result in an overall visual sensitivity rating of HIGH.

LEAPS Key Viewpoint L7 – Tenaja Trailhead (SMS)

LEAPS Key Viewpoint L7 was established at the Tenaja Trailhead to the San Mateo wilderness and near the Tenaja Guard Station which is situated just south of this site (see Figure E.7.1.3-9a). The existing visual quality in this area is high, with the only visible deviations in this landscape being the Forest Service trailhead and its facilities in the immediate foreground. This is a parking area for wilderness access, forest recreation, and sight-seeing. Landforms are steep mountains with widely scattered, large granitic boulders that create high visual variety. There are no water features present in this landscape, but large oak trees create welcome shade and visual variety in the foreground. This scene has high existing scenic integrity, and the FS has designated this entire area as High SIO outside the wilderness boundary. The transmission line would cross this skyline and proceed out of frame to the right, and would be very visually evident.

Talega-Escondido 230 kV Transmission Upgrade

The visual quality of the Talega-Escondido transmission line area is predominantly Class A and B. Between the Escondido and Rainbow Substations, the landscape character varies from urban developments to open mountainous terrain. Urban community areas are crossed in Escondido, while dispersed rural residential areas predominate most of the Peninsular Range landscape between Escondido and Rainbow Substations. Overall, the rural areas are Class A scenery due to the dramatic mountainous terrain, granitic rock outcroppings, visual diversity and intactness of the rural agricultural areas that support orchards and nurseries. Class B areas are generally associated with the more urban landscapes.

From the Rainbow Substation to Talega Substation, the transmission line initially traverses through semi-rural residential developments of Rainbow and crosses I-15. Landscape qualities vary from hills and valleys characterized by dense chaparral and granitic rock outcroppings to intensive orchard developments. To the west of I-15, the corridor primarily crosses undeveloped mountains, hills and valleys on the Marine Corps Base Camp Pendleton. Visual characteristics in this stretch are generally representative of the Peninsular Range. The visual integrity and intactness of the natural landscapes are generally high, except where base activities are evident. The presence of the existing 230 kV transmission line and widely scattered rural roads are the primary cultural features through much of this area. East of the Talega Substation, the visual character of the area is heavily influenced by both the natural landscapes of Camp Pendleton to the south and the urbanized communities of San Clemente to the north. Areas of potentially sensitive viewers are concentrated in the communities of Escondido, Rainbow and San Clemente, and at the crossing of I-15.

LEAPS Key Viewpoint L8 – West Lilac Road (VS-VC)

LEAPS Key Viewpoint L8 was established on West Lilac Road, east of Interstate 15 and between the Pala and Old Castle Road interchanges, looking north along the existing 230 kV transmission line on private property. The new 69 kV transmission line would follow this existing 230 line in the middle of this photo (see Figure E.7.1.3-10a). The 7.7-mile portion of this new line, where the 69 kV transmission line would be relocated to new wood and steel poles is situated in the Class A rural agricultural area.

Visual Quality. Moderate. The foreground is dominated by West Lilac Road and its pavement, while the middle ground has scattered large-lot residences, residential landscaping, and scattered avocado groves. The foreground landform slopes dramatically away from the viewpoint, and middle ground landforms are gently rolling with distinct horizontal lines at the skyline. Existing 230 kV transmission towers protrude above the skyline and dominate the view. There is no water evident in this landscape, although irrigation is obviously evident at cultural landscapes. The resulting visual quality has an overall rating of moderate in this scene.

Viewer Concern. High. Residents along West Lilac Road and other residential areas along the 7.7-mile stretch of new transmission line would have high concern for scenic quality. Any addition of industrial character to the rural-agricultural landscape or additional blockage of skyline views would be seen as an adverse visual change.

Viewer Exposure. Moderate-to-High. There is no vegetative or topographic screening for the proposed 69 kV transmission line as seen from West Lilac Road. Foreground and middle ground viewing distances would allow details to be seen and context to be evaluated. Viewing times are brief for travelers on West Lilac Road but are extended for residents throughout the 7.7 mile stretch which includes other neighborhood roads that would provide vantage points to the transmission line. The number of viewers would be moderate and the duration of view would be extended for residents, brief for travelers on this narrow, twisting road. Consequently, viewer exposure is moderate-to-high.

Overall Visual Sensitivity. Moderate-to-High. For travelers on West Lilac Road and nearby residents in the vicinity of the proposed 69 kV transmission line, combining the moderate visual quality, high viewer concern, and high viewer exposure would lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

Environmental Impacts and Mitigation Measures

Table E.7.1-5 summarizes the visual resource impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-5. Impacts Identified – Visual Resources

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
V-S-1	Long-term visibility of land scars in arid and semi-arid landscapes	Class I, II
V-S-2	Introduction of substation and transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L1, on DePalma Frontage Road and Southbound Interstate 15	Class I

Table E.7.1-5. Impacts Identified – Visual Resources

Impact No.	Description	Impact Significance
V-S-3	Introduction of structure contrast and industrial character associated with the Lake-Pendleton 500 kV transmission line, when viewed from Key Viewpoint L2 on Lake Elsinore and I-15	Class I
V-S-4	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L3, southbound on South Main Divide Road	Class I
V-S-5	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, skylining, and unnatural vegetative clearing when viewed from Key Viewpoint L4, northbound on South Main Divide Road	Class I
V-S-6	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L5, on Ortega Highway	Class I
V-S-7	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L6, on Hombre Lane in LaCresta Subdivision	Class I
V-S-8	Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L7, at Tenaja Trailhead to San Mateo Canyon Wilderness	Class I
Talega-Escondido 230 kV Transmission Upgrades		
V-S-9	Introduction of structure contrast and industrial character associated with the Talega-Escondido 230 kV transmission line upgrade	Class III
V-S-10	Introduction of structure contrast and industrial character associated with the Pala-Lilac 69 kV transmission line upgrade, when viewed from Key Viewpoint L8, at West Lilac Road	Class III

Note: After each viewpoint heading, one of the following notations is made: (VRM), (SMS), or (VS-VC). This designation indicates the methodology to which that particular viewpoint is subject — either the BLM's Visual Resource Management (VRM) methodology, the Forest Service's Scenery Management System (SMS), or the Visual Sensitivity-Visual Change (VS-VC) methodology for non-BLM and non-NFS lands. See Section D.3.4.1 for a more detailed discussion of this methodology.

Lake-Pendleton 500 kV New Transmission Line

Impact V-S-1: Long-term visibility of land scars in arid and semi-arid landscapes (Class I for CNF land, Class II for other lands) (SMS and VS-VC)

Construction of 32 miles of transmission line and an estimated 167 towers would require a network of access and spur roads that have yet to be planned or surveyed. Constructing the access and spur roads in mountainous terrain would cause visible scars, especially where there would be side-casting of waste materials along the roads, where trees would be felled, or where linear swaths would be cleared through thick brush. The presence of new road cuts and a new transmission line would introduce linear elements into the predominantly natural appearing mountainsides within the CNF and affected private lands. Furthermore, the vegetation type consists of generally low-growing chaparral and chemise shrubs whose effectiveness at screening these tall industrial structures and linear features would be marginal (FERC, 2007). Such land scarring would be long-lasting (several years) in arid and semi-arid environments where vegetation recruitment and growth are slow. In-line views of linear land scars or newly bladed roads are particularly problematic and introduce adverse visual change and contrast by causing unnatural vegetative lines and soil color contrast from newly exposed soils.

From the city of Lake Elsinore, views of the proposed transmission alignment would generally be in the middle ground and background. Along Interstate 15, Ortega Highway, South Main Divide Road, and Wildomar Road, segments of the 500 kV transmission line route would be close to or cross these travel ways. Consequently, on National Forest System lands, there are numerous points where the transmis-

sion structures, access roads, spur roads, and land scars would be visible in the foreground, middle ground, and background, conflicting with the High SIO designation and resulting in significant, effects (Class I). These effects would be partially mitigated through implementation of the mitigation measures listed below, particularly Mitigation Measure V-2d, which would require helicopter construction in lieu of creating access roads. However, the land scarring from transmission towers would remain in conflict with the high SIO designation, and this impact would remain significant.

On non-NFS lands, the new transmission line structures and conductors would be prominently visible from numerous vantage points throughout the 51-mile length, and would introduce additional industrial character into the landscape. The structures and conductors would be skyline (extend above the horizon line) and cause view blockage of background sky and distant mountains from numerous vantage points. As a result, visual contrast would be high and the Proposed Project would appear co-dominant with the existing landscape features (primarily the undeveloped mountain ranges). View blockage of background sky and mountains would vary from none-to-high, depending on structure locations and viewing angles. The overall visual change would be moderate-to-high and in the context of the existing landscape's moderate-to-high visual sensitivity, the resulting visual impact would be adverse and potentially significant (Class II).

On non-NFS lands, the longer duration of land scarring impacts would generally constitute significant visual impacts in the short-term, and in the long-term could be mitigated to levels that would be less than significant (Class II). Mitigation Measures V-2a, V-2b, and V-2d shall be implemented throughout, and will lessen visual impacts, but not achieve the HIGH SIO on NFS lands (Class I). In addition, on non-NFS lands Mitigation Measure V-2c shall be implemented in order to reduce impacts to less than significant levels in the long-term (Class II). The full text of all mitigation measures can be found in Appendix 12.

Mitigation Measures for Impact V-S-1: Long-term visibility of land scarring in arid and semi-arid landscapes

- V-2a Reduce in-line views of land scars.**
- V-2b Reduce visual contrast from unnatural vegetation lines.**
- V-2c Reduce color contrast of land scars.**
- V-2d Construction by helicopter.**

Impact V-S-2: Introduction of substation and transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L1, on DePalma Frontage Road and Southbound Interstate 15 (Class I)

Two parallel aboveground transmission lines would be clearly visible from northbound and southbound travelers on DePalma Road and Interstate-15 (I-15), as would the new Lake Substation. Almost the entire length (approximately two-miles) of these two parallel transmission lines would be visible from KVP-L1 (see Figure E.7.1.3-2b). Several new subdivisions are being developed in the general vicinity, just north of this viewpoint, and certain streets and houses would have views similar to KVP-1. The new 500 kV switching station (Lake Substation) would be visible from these viewpoints, as it would be situated between I-15 and Lee Lake, and there is no topographic or vegetative screening for the substation or transmission lines.

As shown in the simulation, the new transmission line structures and conductors, plus the Lake Substation, would be prominently visible from DePalma Road and I-15, and would introduce additional industrial character into the I-15 corridor. The structures and conductors would be skyline (extend above the

horizon line) and cause view blockage of background sky and distant mountains. As a result, visual contrast would be high and the Proposed Project would appear co-dominant with the existing landscape features (primarily the undeveloped mountain ranges). View blockage of background sky and mountains would be moderate. The overall visual change would be moderate-to-high and in the context of the existing landscape's moderate-to-high visual sensitivity, the resulting visual impact would be adverse and significant (Class I).

The high level of change that would result from the two new parallel transmission lines and new switching station would be very visually evident in this barren, rocky landscape that is almost devoid of woody vegetation. Because there is no tall woody vegetation in this vicinity, and rockforms are readily apparent on the surface of these mountains, it is imperative that no access or spur roads be constructed on these steep slopes. Therefore, Mitigation Measure V-7a requires that transmission structures shall be constructed by helicopter, and no new access or spur roads shall be built (Mitigation Measure V-7a).

The relatively open terrain that is totally lacking in tall vegetation and available sightlines do not offer opportunities for better screening of these tall, industrial-scale structures. Relocation of the loop transmission line to an area 1,000 feet southeast where there is a landform backdrop would greatly reduce visual contrast, however this would place a longer segment of the line through the Lake Mathews-Estelle Mountain Reserve and is therefore not recommended. Visual impacts from KVP L1 would remain significant.

Mitigation Measures V-2c, V-2d, and V-7a would reduce the visual impact of the 500 kV loop transmission line, but not to a level that would be less than significant. This viewpoint analysis is considered representative of project views of the LEAPS alternative from DePalma Road plus both southbound and northbound lanes of Interstate 15.

Mitigation Measure for Impact V-S-2: Introduction of substation and transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L1, on DePalma Frontage Road and Interstate-15

V-2c Reduce color contrast of land scars.

V-2d Construction by helicopter.

Impact V-S-3: Introduction of structure contrast and industrial character associated with the Lake-Pendleton 500 kV transmission line, when viewed from Key Viewpoint L2 on Lake Elsinore and I-15 (Class I)

Views to the Lake-Pendleton transmission line as it would cross the face of the mountains west of Lake Elsinore are similar from many vantage points in the City of Lake Elsinore, on the lake surface, on city streets, and along Interstate 15. Two specific vantage points — Interstate 15 and Lake Elsinore — would view the same landscape. Visual effects would be similar, and are analyzed in detail here.

Interstate 15 is a federal interstate highway located less than one mile at its closest point to the east shore of Lake Elsinore and receives heavy commercial as well as non-commercial travel use. The towers, conductors, and resulting footprint of the corridor would be visible from Interstate 15 and the City of Lake Elsinore. This would introduce additional structure contrast and industrial character to an otherwise primarily natural appearing landscape (though existing utility lines are visible in portions of the suburban interface zone).

Boaters on Lake Elsinore are afforded 360 degree views of the lake in the foreground and the mountains in almost all directions in the distance. Due to the hazy conditions that often predominate at Lake Elsinore, the Lake-Pendleton transmission line would be somewhat obscured, depending on weather conditions. Presence of the transmission line may introduce a modest degree of structure contrast and industrial character to the mountains that serve as a scenic backdrop to residents and recreationists in Lake Elsinore (see Figures E.7.1.3-3b and E.7.1.3-4b). Skylining from key scenic viewpoints would not occur due to the placement of the transmission line on mountain faces (side-slopes) rather than ridgelines.

As shown in the simulations, the LEAPS alternative would introduce prominent built structures with substantial industrial character into a predominantly natural landscape absent similar features. The resulting visual contrast would be substantial. The openness of the terrain and large scale of the structures would allow distant views of the transmission line structures and conductors from Lake Elsinore and I-15, and would allow foreground views to these structures from adjacent forest lands. View blockage of the surrounding hills would also occur, as would skylining (extending above the horizon as seen from other foreground locations). Skylining would exacerbate structure prominence and the transmission line would reduce the integrity of the existing landscape. The resulting level of change would be moderate-to-high.

The moderate-to-high level of change that would result from this alternative would not be consistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the applicable SIO. Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable "HIGH" SIO. Indeed, the structures would be prominent features in the landscape.

Visual effects of the transmission line would be significant and unmitigable (Class I). However, the following mitigation measures would be required to improve the visual quality of this project as it is situated in the landscape.

V-7a Reduce visual contrast associated with ancillary facilities.

Figure E.7.1.3-2a. LEAPS KVP L1 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-2b. LEAPS KVP L1 Simulation
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Figure E.7.1.3-3a. LEAPS KVP L2 Existing Conditions
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Figure E.7.1.3-3b. LEAPS KVP L2 Simulation
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-4a. LEAPS KVP L2 Existing Conditions
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-4b. LEAPS KVP L2 Simulation
[CLICK HERE TO VIEW](#)

Mitigation Measure for Impact V-S-3: Introduction of structure contrast and industrial character associated with the Lake-Pendleton 500 kV transmission line, when viewed from Key Viewpoint L2 on Lake Elsinore and Interstate 15

V-2a Reduce in-line views of land scars.

V-2b Reduce visual contrast from unnatural vegetation lines.

V-2c Reduce color contrast of land scars.

V-2d Construction by helicopter.

V-3a Reduce visual contrast of towers and conductors.

USFS-37 Condition No. 37 – Scenery Conservation Plan. Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify actions that would minimize the project's disturbance to the naturally established scenery. While implementation of this plan is not expected to achieve the Scenic Integrity Objectives of the Cleveland National Forest LMP in many areas, it would enable achievement of the highest scenic integrity possible.

The Forest's "High" Scenic Integrity Objective is applicable to almost the entire project area. This objective is to maintain a natural appearing condition, and to design landscape alterations so they remain visually unnoticed from sensitive public viewpoints. These viewpoints include the South Main Divide Road, Ortega Highway, Grand Avenue, Lake Elsinore and nearby communities, other nearby communities including LaCresta, Wildomar, Rancho Capistrano, Interstate 15, Morgan Trail, San Mateo Canyon Wilderness, and Wildomar Road viewpoints including the OHV recreation area, and road segments near Los Alamos Canyon and Tenaja Trailhead.

In order to achieve the greatest consistency with the Forest's High Scenic Integrity Objective, the project shall integrate the following design recommendations into the Scenery Conservation Plan:

- **Power Lines and Support Towers:** Transmission lines shall be non-specular (non-reflective) and neutral in coloration. To appear as visually transparent as possible within the natural landscape pattern, power lines, and support towers shall be custom-colored to harmonize with the natural vegetation and sky. Towers shall be designed to minimize their visual prominence and their contrast with the natural landscape patterns. They shall be surfaced with a flat, non-reflective finish. Towers beyond 0.75 miles shall visually recede into the natural appearing landscape. Support towers within the "foreground" (approximately 0.75 miles) of sensitive viewpoints shall typically be of monopole design offering a simple, clean and less industrial appearance. Support towers viewed beyond approximately 0.75 miles from sensitive viewpoints shall typically be of a more open, steel lattice design presenting less visual mass, allowing the natural scenery to be viewed through its more open structure. Selection of support tower design along the alignment shall consider both foreground and background sensitive views, as well as the tower's nearby landscape appearance. Vegetation and ground clearing at the foot of each tower, and between towers, would be limited to the clearing necessary to comply with electrical safety requirements. Mitigation, such as placement of a dark colored vegetation barrier/matting, shall be incorporated to reduce the visual contrast of vegetation clearing.

- **Reservoir:** Conceal the unnatural views into the upper storage reservoir that may be visible from South Main Divide and Ortega Highway, nearby recreation areas, trails and wilderness. The reservoir shall be surrounded by an earth berm with irregular form and profile to reflect the local topography. This landform shall be planted with local species native to the area, to blend with the natural appearing landscape. Security fencing shall be colored to blend with, and be screened by, planted native vegetation.
- **Roads:** New temporary roads (maximum 15% ground slope) or roads needing reconstruction/expansion shall be configured to minimize the creation of cut/fill slopes, and where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species.
- **Penstock:** Penstocks shall be located in underground tunnels and any associated ground disturbance shall be reshaped to natural appearing contours and revegetated with native species.
- **Structures:** All structures and structural elements constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast. Structures must blend with and complement the adjacent natural landscape appearance.

The Licensee shall provide photorealistic visual simulations of the project features and scenery mitigation measures. These simulations shall demonstrate the effectiveness of the project in achieving LMP Scenic Integrity Objectives for the Elsinore Place as viewed from sensitive viewpoints. These simulations provide information necessary for the Forest Service to approve final project designs. Simulations shall support project refinement of location, design, color and other scenery considerations of the proposed power lines and poles, upper reservoir, and powerhouse. Simulations shall use high quality photography to effectively portray potential scenery effects of the proposed facilities across the project's full geographic range, as seen from most of the sensitive views listed above. Appropriate lighting and atmospheric clarity within the photographs are needed to accurately simulate the potential effects.

Where project features create unavoidable scenery effects that are inconsistent with CNF Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas to offset those effects.

FERC-20 Environmental Measure 20—Scenery Conservation Plan. Prepare and implement a scenery conservation plan to achieve the greatest consistency possible with the High Scenic Integrity Objectives of the Cleveland National Forest Land Management Plan.

Impact V-S-4: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L3, southbound on South Main Divide Road (Class I)

The aboveground transmission lines would be clearly visible from north- and south-facing vistas along South Main Divide Road, specifically along the road between the intersection with Ortega Highway and the proposed transition station where the 500 kV line would go underground, near the hang-gliding area. The proposed transmission line would cross overhead above the viewer and proceed to the North Transition Station where it would 'transition' from overhead to underground and would proceed underground for approximately 1½ miles. Overhead transmission structures would be very visually evident

and would dominate the view, with large size and industrial character that does not meet the High SIO. Skyline blockage and interference would occur at each lattice tower and at the transition station, and views to higher value landscapes (San Mateo Wilderness) would be blocked or impaired. The underground portion of 500 kV transmission line would create an unnatural straight-edged opening in existing vegetation approximately 100 feet wide and 2¼ miles long (see Figure E.7.1.3-5b).

The high level of change that would result from the transmission line would not be consistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the applicable SIO. Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable "HIGH" SIO. Indeed, the structures would be prominent features in the landscape. Furthermore, the transmission line would not qualify for the exceptions of (1) a minor adjustment (one level reduction with approval) to the SIO, or (2) a temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10. The resulting visual impact would be significant (Class I).

The relatively open terrain and available sightlines do not offer opportunities to either better screen the structures from view or blend them more effectively with a different background. Therefore, localized reroutes would not be effective. However, Mitigation Measures V-3a and USFS-37 are recommended to reduce the visual impact along this alternative. While implementation of these measures would not achieve the HIGH SIO, they would enable achievement of the highest scenic integrity possible. This viewpoint analysis is considered representative of views of overhead 500 kV transmission structures from South Main Divide Road and Wildomar Road.

Mitigation Measure for Impact V-S-4: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L3, southbound on South Main Divide Road

- V-2a** **Reduce in-line views of land scars.**
- V-2b** **Reduce visual contrast from unnatural vegetation lines.**
- V-3a** **Reduce visual contrast of towers and conductors.**
- USFS-37** **Condition No. 37 – Scenery Conservation Plan.**

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Figure E.7.1.3-5a. LEAPS KVP L3 Existing View
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Figure E.7.1.3-5b. LEAPS KVP L3 Simulation
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Impact V-S-5: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, skylining, and unnatural vegetative clearing when viewed from Key Viewpoint L4, northbound on South Main Divide Road (Class I)

About a quarter mile of the overhead 500 kV transmission lines would also be visible from vistas off northbound South Main Divide Road near the community of Rancho Capistrano (see Figure E.7.1.3-6b). However, because the lines would be positioned on the northeast face of the mountains in this area, the visual effect would be somewhat less than if they were placed along the ridgeline. The southern extent of the 100-foot-wide and 2¼-mile-long underground transmission line would terminate at the southern Transition Station in an ephemeral stream channel in the vicinity of Key Viewpoint L4. This location would help to reduce visual prominence of the transition station, as compared to other possible locations on ridge tops near Key Viewpoint L4, which are all higher in elevation and more visually prominent. A high level of change would nonetheless result due to a the straight-edged 2¼-mile-long and 100-foot-wide clearing for undergrounding in mature vegetation that would be very visually evident as an unnatural occurrence, and would not re-vegetate to this mature size quickly in this drought-prone area.

As was the case for Key Viewpoint L3 above, the high level of change that would result from the underground 500 kV transmission line and South Transition Station would not be consistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the High SIO. The resulting visual impact would be significant and unavoidable (Class I).

The stations position in an ephemeral stream offers topographic screening and the large trees offer vegetative screening for this structure as seen from South Main Divide Road and Rancho Capistrano subdivision. However, the straight-edged 2¼-mile-long and 100-foot-wide clearing for undergrounding in mature vegetation would be very visually evident as an unnatural occurrence, and would not re-vegetate to this mature size quickly in this drought-prone area. However, Mitigation Measures V-3a and USFS-37 are recommended to reduce the visual impact along this alternative. While implementation of these measures would not achieve the HIGH SIO, they would enable achievement of the highest scenic integrity possible.

Mitigation Measure for Impact V-S-5: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, skylining, and unnatural vegetative clearing when viewed from Key Viewpoint L4, northbound on South Main Divide Road

- V-2a Reduce in-line views of land scars.**
- V-2b Reduce visual contrast from unnatural vegetation lines.**
- V-3a Reduce visual contrast of towers and conductors.**
- USFS-37 Condition No. 37 – Scenery Conservation Plan.**

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Figure E.7.1.3-6a. LEAPS KVP L4 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-6b. LEAPS KVP L4 Simulation
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Impact V-S-6: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L5, on Ortega Highway (Class I)

Ortega Highway is a two-lane, paved state highway connecting Riverside and Orange Counties. This heavily traveled route is popular for scenic driving as well as commuting, and is eligible for designation as a State Scenic Highway. Travel speeds on Ortega Highway play a strong roll in the ability to view details in the surroundings as traffic flow is typically in the 45 to 55 mph range. Further limiting the views on Ortega highway west of South Main Divide are the numerous turns, vegetation, and steep canyon walls on both sides of the road as the highway nears the crest. East of South Main Divide Road the landscape views open up as the highway descends the mountains with numerous vistas of Lake Elsinore and beyond (FERC, 2007). The towers, conductors, and resulting footprint of the corridor would be visible from Ortega Highway, introducing structure contrast and industrial character to an otherwise primarily natural-appearing landscape. Key Viewpoint L5 was established at a gravel turnout on the eastbound lane of Ortega Highway at a “Forest Adventure Pass Parking” Area (see Figure E.7.1.3-7b).

The moderate-to-high level of change that would result from the transmission line would not be consistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the applicable SIO. Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable “HIGH” SIO. Indeed, the structures would be prominent features in the landscape. Furthermore, the transmission line would not qualify for the exceptions of (1) a minor adjustment (one level reduction with approval) to the SIO, or (2) a temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10. The resulting visual impact would be significant and unavoidable (Class I).

The relatively open terrain and available sightlines do not offer opportunities to either better screen the structures from view or blend them more effectively with a different background. Therefore, localized reroutes would not be effective. However, Mitigation Measures V-2b, V-3a and USFS-37 are required to reduce the visual impact along this alternative. While implementation of these measures would not achieve the HIGH SIO, they would enable achievement of the highest scenic integrity possible. This viewpoint analysis is considered representative of views of this alternative from Ortega Highway.

Mitigation Measure for Impact V-S-6: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L5, on Ortega Highway

V-2b Reduce visual contrast from unnatural vegetation lines.

V-3a Reduce visual contrast of towers and conductors.

USFS-37 Condition No. 37 – Scenery Conservation

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Figure E.7.1.3-7a. LEAPS KVP L5 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-7b. LEAPS KVP L5 Simulation
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Impact V-S-7: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L6, on Hombre Lane in LaCresta Subdivision (Class I)

Key Viewpoint L6 was established on Hombre Lane in LaCresta, looking north toward the Cleveland National Forest, including Wildomar Road and above the road, the San Mateo Canyon Wilderness. LaCresta Subdivision is a rural-residential subdivision with large lot sizes (mostly 5-acre minimum; FERC, 2007). The towers, conductors, and resulting footprint of the corridor would be visible from Hombre Lane and numerous other roads in the LaCresta Subdivision, introducing high visual contrast of large structures with industrial character to an otherwise primarily natural-appearing landscape. The transmission line would dominate the view from Hombre Lane and other vantage points within LaCresta, and would block views to valued landscapes (San Mateo Wilderness and CNF lands), resulting in a high level of change (see Figure E.7.1.3-8b).

The high level of change that would result from the transmission line would not be consistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the applicable SIO. Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable "HIGH" SIO. Indeed, the transmission line structures would be prominent features in the landscape and would protrude above the skyline as seen from this and other locations in LaCresta. Furthermore, the transmission line would not qualify for the exceptions of (1) a minor adjustment (one level reduction with approval) to the SIO, or (2) a temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10. The resulting visual impact on NFS lands would be significant and unavoidable (Class I).

For the relatively short distance that the transmission line would be on private lands (outside of CNF boundary), as shown in the simulation, the new transmission line structures and conductors would be prominently visible from Hombre Lane and other vantage points within LaCresta, and would introduce a new industrial character into the landscape. The structures and conductors would be skyline (extend above the horizon line) and cause view blockage of background sky and distant mountains. As a result, visual contrast would be high and the Proposed Project would appear co-dominant with the existing landscape features (primarily the undeveloped mountain ranges). View blockage of background sky and mountains would be moderate-to-high. The overall visual change would be moderate-to-high and in the context of the existing landscape's high visual sensitivity, the resulting visual impact would be adverse and significant (Class I).

The relatively open terrain and available sightlines do not offer opportunities to either better screen the structures from view or blend them more effectively with a different background. Therefore, localized reroutes would not be effective. However, Mitigation Measures V-2b, V-3a and USFS-37 are required to reduce the visual impact along this alternative. While implementation of these measures would not achieve the HIGH SIO, they would enable achievement of the highest scenic integrity possible. This viewpoint analysis is considered representative of views of this alternative from many roads in LaCresta Subdivision.

Mitigation Measure for Impact V-S-7: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L6, Hombre Lane in LaCresta Subdivision

- V-2a** **Reduce in-line views of land scars.**
- V-2b** **Reduce visual contrast from unnatural vegetation lines.**
- V-2d** **Construction by helicopter.**
- V-3a** **Reduce visual contrast of towers and conductors.**
- USFS-37** **Condition No. 37 – Scenery Conservation**

Figure E.7.1.3-8a. LEAPS KVP L6 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-8b. LEAPS KVP L6 Simulation
[CLICK HERE TO VIEW](#)

Impact V-S-8: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L7, at Tenaja Trailhead to San Mateo Canyon Wilderness (Class I)

Key Viewpoint L7 was established at the paved parking area near the comfort station, hand-pump well, and interpretive signage. Tenaja Trailhead is a popular destination for scenic driving and a starting point for visitors to the San Mateo Canyon Wilderness. Views from the trailhead, paved parking, and picnic areas are to granitic rock outcroppings, mature shade trees, and open meadows with rustic fencing. The Tenaja Guard Station is nearby to the south (see Section E.7.1.7, Cultural and Paleontological Resources, for description). The visual analysis of Tenaja Trailhead is also applicable to the Guard Station. The towers, conductors, and resulting footprint of the corridor would be visible from Tenaja Trailhead, Tenaja Trail, San Mateo Wilderness, and Tenaja Guard Station, introducing high structure contrast and industrial character to an otherwise primarily natural-appearing landscape. Structures would be skyline, creating co-dominance with the natural landform and rockforms and moderate-to-high skyline blockage (see Figure E.7.1.3-9b).

The high level of change that would result from the transmission line would not be consistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the applicable SIO. Specifically, the transmission line would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that it is not evident, as required by the applicable "HIGH" SIO. Indeed, the structures would be prominent features in the landscape. Furthermore, the transmission line would not qualify for the exceptions of (1) a minor adjustment (one level reduction with approval) to the SIO, or (2) a temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10.

The relatively open terrain and available sightlines do not offer opportunities to better screen the structures from view of the trailhead or historic guard station. In any regard, Mitigation Measures V-2b, V-3a and USFS-37 are required to reduce the visual impact along this alternative. While implementation of these measures would not achieve the HIGH SIO, they would enable achievement of the highest scenic integrity possible. This viewpoint analysis is considered representative of views of this alternative from the Tenaja Trailhead, Tenaja Trail, San Mateo Wilderness, and Tenaja Guard Station. The resulting visual impact would be significant (Class I). Relocation of the transmission line approximately 1,500-feet southeast and parallel to the CNF boundary would avoid visual impacts to both the trailhead and guard station, however this relocation would affect homes in the area and is therefore not recommended.

Mitigation Measure for Impact V-S-8: Inconsistency with USFS Scenic Integrity Objective due to the introduction of transmission line structure contrast, industrial character, view blockage, and skylining when viewed from Key Viewpoint L7, at Tenaja Trailhead to San Mateo Canyon Wilderness

- V-2b Reduce visual contrast from unnatural vegetation lines.**
- V-3a Reduce visual contrast of towers and conductors.**
- USFS-37 Condition No. 37 – Scenery Conservation**

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Figure E.7.1.3-9a. LEAPS KVP L7 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.1.3-9b. LEAPS KVP L7 Simulation
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Talega-Escondido 230 kV Transmission Upgrade

Impact V-S-9: Introduction of structure contrast and industrial character associated with the Talega-Escondido 230 kV transmission line upgrade (Class III)

This portion of the transmission line project would consist primarily of the installation of a second 230 kV circuit on the vacant position of SDG&E's Talega-Escondido transmission line and making upgrades to the Talega and Escondido Substations. However, in order to accommodate an additional 230 kV conductor on existing lattice steel towers, it would be necessary to rebuild a 7.7-mile section (interconnecting SDG&E's existing Pala and Lilac Substations) of the existing 69 kV transmission circuit on new 69 kV wood and steel pole structures adjacent to the existing 230 kV line within the existing 300-foot-wide Talega-Escondido ROW. New conductor wire would be strung on the new 69 kV single poles. The 69 kV poles would be either wood or steel and vary between 60 and 120 feet in height.

Visual impacts associated with the changes to the existing 230 kV Talega-Escondido transmission line would be minimally noticeable as no new structures are proposed. However, the visual impacts of the new structures associated with the rebuild of the 7.7-mile Pala-Lilac 69 kV transmission line would be noticeable (see discussion below at Impact V-S-10). These project-related changes would be subordinate to the existing structures and conductors. The visual contrasts of the additional conductors would be weak. Overall, the visual impact of the Talega-Escondido 230 kV transmission upgrade would be adverse but less than significant (Class III). No mitigation is required.

Impact V-S-10: Introduction of structure contrast and industrial character associated with the Pala-Lilac 69 kV transmission line upgrade, when viewed from Key Viewpoint L8, at West Lilac Road (Class III)

As discussed above for Impact V-S-9, in order to accommodate an additional 230 kV conductor on existing double-circuit lattice towers, it would be necessary to rebuild a 7.7-mile section of the existing 69 kV transmission circuit (interconnecting SDG&E's existing Pala and Lilac Substations) on new 69 kV wood and steel pole structures adjacent to the existing 230 kV line within the existing 300-foot-wide Talega-Escondido ROW. New 69 kV conductors would be strung on new 69 kV single poles. The 69 kV poles would be either wood or steel and would vary between 60 and 120 feet in height.

Visual impacts of the new wood or steel single-pole structures associated with the rebuild of the 7.7-mile Pala-Lilac 69 kV transmission line would be noticeable. These project-related changes would be subordinate to the existing 230 kV lattice steel structures and conductors. The visual contrasts of the additional single-poles would be noticeable but weak because of the travel speeds and curving alignment of West Lilac Road (see Figure E.7.1.3-10b). Nearby property owners in the rural residential areas would have longer viewing times, but the shorter wood poles would be subordinate to the larger lattice steel structures that already exist in the landscape, thereby decreasing the visual effect of the new single poles. Overall, the visual impact of the 7.7-mile Pala-Lilac 69 kV transmission upgrade would be adverse but less than significant (Class III). No mitigation is required.

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Figure E.7.1.3-10a. LEAPS KVP L8 Existing View
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Figure E.7.1.3-10b. LEAPS KVP L8 Simulation
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E.7.1.4 Land Use

Impacts to land use from the LEAPS Transmission-Only Alternative are presented in this section. Impacts from the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.4, below.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

The proposed Lake-Pendleton transmission line crosses primarily undeveloped lands, sometimes in the vicinity of single-family homes or other land uses, such as a private airstrip and the Wildomar OHV area. Most of the proposed transmission line is located within the CNF boundary. The USFS has the authority to impose permit conditions on the project components on USFS lands. The Cleveland National Forest Land Management Plan is described in Section D.16, Policy Consistency.

The USFS land use designations for CNF lands traversed by the proposed 500 kV transmission line include: Back Country (BC); Back Country, Non Motorized (BCNM); Back Country, Motorized Use Restricted (BCMUR); and Developed Area Interface (DAI). Figure E.7.1.4-1 shows the alternative route and these land use designations.

The BC zone includes areas that are undeveloped, with few roads. The level of human use and infrastructure is generally low to moderate. The characteristic ROS objective is Semiprimitive, Motorized (SPM), with limited areas of RN, and the zone is managed for motorized public access on designated roads and trails. A network of low standard Back Country roads provide access for a wide variety of dispersed recreation opportunities in remote areas, and some new trails may be constructed to improve opportunities between trails on the existing system. Although this zone generally allows a broad range of uses, the management intent is to retain the natural character inherent in the zone and limit the level and type of development. USFS managers expect to manage the zone for no increase or a very low level of increase in the national forest road system in this zone. Major utility corridors are permitted in designated areas within this land use zone, and roads are suitable within this zone.

Like the BC zone, the BCMUR zone includes areas that are undeveloped, with few roads. Few facilities are found in this zone, and the level of human use and infrastructure is low to moderate. The characteristic ROS objectives are SPM and Semiprimitive, Non-Motorized (SPNM), and the zone is managed for non-motorized (mechanized, equestrian, and pedestrian) access. The zone allows for a range of low intensity land uses, and the management intent is to retain the natural character of the zone and limit the level and type of development. Some roads may be constructed and maintained, but the intent is to manage the zone for no increase or a very low level of increase in road system development. Major utility corridors are permitted in designated areas within this land use zone, and roads are suitable for authorized use within this zone.

The BCNM zone also includes areas that are undeveloped with few, if any, roads. The characteristic ROS objective is SPNM. Developed facilities supporting dispersed recreation activities are minimal and generally limited to trails and signage. The level of human use and infrastructure is low. This zone is managed for a range of non-motorized uses that include mechanized, equestrian, and pedestrian public access. Administrative access, usually for community protection, is allowed by exception for emergency situations and for short duration management purposes, such as fuel treatment. The intent is to use temporary routes while management is occurring and then close or remove the route. Access to authorized facilities and to private land is not anticipated, but may occur by exception when there are

existing rights to such access. Except for trails, facility construction is generally not allowed, but may occur in remote locations where road access is not needed for maintenance. Temporary facilities are expected to be removed when they are no longer needed. Major utility corridors and roads are not suitable within this land use zone.

Within and adjacent to the proposed 500 kV Lake-Pendleton transmission line and associated substations are lands owned and/or administered by a number of other government agencies in addition to USFS. The lands and administering agencies include the following:

1. U.S. Department of the Navy – A portion of the Midpoint-Pendleton segment of the transmission line and the Pendleton Substation would be located on the Marine Corps Base, Camp Pendleton. The Department of the Navy has the authority to impose permit conditions on the project components on Camp Pendleton.
2. Riverside County – Portions of the Lake-Midpoint segment of the 500 kV line would be located in unincorporated areas of Riverside County, within the sphere of influence of the City of Lake Elsinore. The proposed Lake Substation and a segment of the northern segment of the 500-kV line would be located in unincorporated Riverside County within the sphere of influence of the City of Corona.
3. Orange County – Portions of the proposed transmission line northwest of Ortega Highway would be located in Orange County.
4. San Diego County – The portions of the Midpoint-Pendleton segment of the transmission line generally south of Tenaja Canyon and the proposed Pendleton Substation would be located in San Diego County.

Except where otherwise precluded, those portions of the project sites not located on public lands may be subject to the jurisdiction of the local land use entity (that is, USFS, Department of the Navy, Riverside County, Orange County, or San Diego County). The land use policies that generally govern land use decisions within these jurisdictions are set forth below.

Marine Corps Base Camp Pendleton Integrated Natural Resources Management Plan (INRMP). Camp Pendleton's INRMP is a planning document that guides the management and conservation of natural resources under the Base's control. The integration of natural resources management with training and mission support requirements and responsibilities helps to ensure that Camp Pendleton continues to provide sustained support for the military mission and fulfill stewardship and regulatory requirements.

County of Riverside Comprehensive General Plan. Riverside County's Comprehensive General Plan, adopted October 7, 2003, provides a countywide framework for planning. It includes a General Plan that covers the unincorporated portions of the county and 19 more detailed Area Plans. The thrust of the General Plan is to manage the overall pattern of development in the county more effectively. The Area Plans are designed to provide "a clear and more focused opportunity to enhance community identity within the County and stimulate quality of life at the community level" (County of Riverside, 2003a). The Elsinore Area Plan is the detailed Area Plan that is most relevant to the proposed 500 kV transmission line.

The General Plan Land Use Element functions as a guide to planners, the general public, and decision makers concerning the general pattern of development. Since the Land Use Element governs how land

Figure E.7.1.4-1. LEAPS Alternative: Cleveland National Forest Land Use Zones
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is to be used, many of the issues and policies contained in other plan elements are linked in some degree to the Land Use Element. According to the General Plan, the population of Riverside County is expected to double between 2000 and 2020, growing by approximately 1.4 million people (County of Riverside, 2003a). Thus, the General Plan and the Land Use Element focus primarily on growth-related issues such as community design, project design, and ways to achieve an integrated and coordinated land use, open space, and transportation system. The preferred pattern is to focus growth into strategically located centers or into existing developed areas to minimize development pressures on rural, agricultural, and open space areas. The Land Use Element acknowledges the importance of infrastructure and public facilities in supporting an increase in population, but it does not directly address regional facilities such as the LEAPS Project. It accommodates support services such as governmental facilities, utility facilities (including public and private electric generating stations and corridors), landfills, airports, educational facilities, and maintenance yards with the Public Facility Area Plan Land Use Designation, which is designed to provide for adequate public facilities with the county while ensuring compatibility with surrounding land uses.

The policies for public facilities state, in part, that the Public Facilities Land Use Designation is to:

1. accommodate the development of public facilities in areas appropriately designated by the General Plan and area plan land use maps
2. require new public facilities to protect sensitive uses such as schools and residences from the effects of noise, light, fumes, odors, vehicular traffic, parking, and operational hazards
3. require that public facilities be designed to consider their surroundings and visually enhance, not degrade, the character of the surrounding areas
4. require that development and conservation land uses do not infringe upon existing public utility corridors, corridors, fee owned ROWs, or permanent easements whose true land use is that of public facilities. This policy is to “ensure that the ‘public facilities’ designation governs over what otherwise may be inferred by the large-scale general plan maps” (County of Riverside, 2003a).

Like the Riverside County General Plan of which it is a part, the Elsinore Area Plan was adopted in October 2003. The Elsinore Area Plan describes the area setting and various communities, policy areas, hazard areas, and other attributes. Those most relevant to the LEAPS Project include the following:

1. Unique Features – Unique features include the CNF and the Temescal Wash. As noted previously, the Lake-Pendleton transmission line would be located primarily within the CNF boundary. The Lake-Midpoint segment of the 500 kV Lake-Pendleton transmission line crosses the Temescal Wash, which is an outlet for Lake Elsinore and serves as a linkage for animals between the Santa Ana Mountain and Gavilan Hill habitats on either side of the wash.
2. Unique Communities – The Elsinore Area Plan lists five unique communities, a designation that includes unincorporated areas that may be annexed to one or more cities or special districts, incorporated as a new city, or designated as an Unincorporated Community. The northern segment of the proposed 500 kV transmission line terminates near the Warm Springs community.
3. Policy Areas – The Elsinore Area Plan lists eight special policy areas designed to address important locales that have special significance to the residents in that part of the county. Four of these are relevant to LEAPS Transmission-Only Project sites as follows:
 - As noted above the northern segment of the 500 kV transmission line terminates near the Warm Springs area, which has policies to “protect the life and property of residents and maintain the character of the Gavilan Hills” through adherence to various elements of the General Plan.

- The area of the Temescal Wash that is within the 100-year flood plain is a designated policy area, with policies to encourage the maintenance of the wash in its natural state. The wash is crossed by the northern segment of the proposed 500 kV transmission line.
 - The proposed Lake-Pendleton transmission line passes within one-quarter mile of the Glen Eden Policy Area, which calls for residential development at an average density of 2.5 units per acre, but also encourages the clustering of dwellings within an individual project to provide for the conservation of open space.
4. Rural Overlay Areas – Part of the Lake-Pendleton transmission line crosses private property located in El Cariso Village, which is identified in the Elsinore Area Plan as a Rural Village Overlay study area. As necessary, the General Plan will be amended to establish the final Rural Village Overlay boundaries. The Rural Village Overlay allows a concentration of development within rural areas, but with the intent to control the extent and density of development in order to maintain the areas' rural character through placement of uses so that impacts from noise, light, odors, and traffic to surrounding properties are minimized (County of Riverside, 2003). Rural Village Overlay zoning classifications include Medium Density Residential (2 to 5 dwelling units per acre), Medium High Density Residential (5 to 8 dwelling units per acre), and Commercial Retail areas (County of Riverside, 2003b). The county is currently in the process of updating the zoning of all parcels to conform to the county's General Plan and the relevant Area Plans.
 5. Multi-purpose Open Space – The Elsinore Area Plan indicates that the area contains significant oak woodland areas that should be protected to preserve habitat and the character of the area. This plan component is relevant to the southern segment of the proposed Lake-Pendleton transmission line.
 6. Hazards – The plan sets forth local hazard policies with respect to flooding, wildland fire hazard, seismic faults, and slope instability, indicating which hazards should be avoided entirely and which can be mitigated by special building techniques. All of these factors may be relevant to the LEAPS Project.

County of Orange General Plan. The Orange County General Plan (County of Orange, 2005a) is a blueprint for growth and development, largely implemented through zoning and subdivision decisions. All subdivision, capital improvements, development agreements, projects subject to the zoning code, specific plans, and other land use actions must be consistent with the adopted General Plan. All 34 cities in Orange County have general plans that address their individual jurisdictions. While the Orange County General Plan primarily focuses on the unincorporated area (territory that is not located within a city), the plan also addresses regional services and facilities provided by the County such as regional parks, roads, and flood control facilities. With the probability of more incorporations and city annexations in the future, the County's General Plan is expected to be consistently reevaluated to ensure its policies and programs reflect the unincorporated area's changing territory and population.

The Land Use Element of the General Plan describes objectives, policies, and land use patterns for all unincorporated territory and establishes development criteria and standards, including population density and building intensity. Land use categories are used to depict the general distribution, location, and extent of public and private uses of land. The Land Use Element has two additional purposes. First, the County intends to achieve many of the goals of the General Plan through application of land use policies. These land use policies provide a basis for the evaluation of physical development and growth trends in order to achieve the General Plan goals. Second, these policies are intended to determine land use capacities and the appropriate level of public services and infrastructure necessary to support these land uses.

The Lake-Midpoint segment of the proposed 500 kV transmission line crosses a short distance of Orange County. This area is designated in the Land Use Element either as CNF or, on in-holdings within the national forest, as Open Space (County of Orange, 2005b). The Open Space category indicates the current and near-term use of the land. It is not necessarily an indication of a long-term commitment.

County of San Diego General Plan. The San Diego County General Plan divides San Diego County into a number of community planning areas. The Pendleton–De Luz Community Planning Area encompasses the area directly south of Riverside County where a portion of the proponents’ proposed and the southern segment of the staff alternative transmission alignments are located. Under the current plan, the area is designated national forest and state parks, with some forest conservation initiative areas. There is currently no adopted plan text for that region. A new plan, referred to as General Plan 2020, is currently being developed by the county.

Specific Land Uses. The central section of the proposed transmission line would be placed underground where it would cross a popular hang-gliding area (see Figure E.7.1-1). From this central area, the proposed line would cross primarily undeveloped areas. Development within 0.5 miles of the proposed transmission line includes the following:

- Northern segment of the 500 kV line and Lake Substation – Single-family homes and apartment buildings, the Glen Eden Policy Area, Glen Eden Sun Club community, Sycamore Creek community, Butterfield Elementary School, Interstate 15, and nearby commercial properties; and
- Southern segment of the 500 kV line and Pendleton Substation – Single-family homes in Lakeland Village, single-family homes in the growing residential area of El Cariso Village, single-family homes in the La Cresta area, USFS Tenaja guard station, scattered ranch houses, a private landing strip, and open space and military training areas on Camp Pendleton.

Table E.7.1-6 presents land ownership within the proposed Lake-Pendleton ROW. Table E.7.1-7 presents the approximate number of residential buildings within 1,000 feet of the proposed Lake-Pendleton ROW.

Location	Ownership	Land Use
MP 0-0.5	County	Natural preserve
MP 0.5-1	Private	
MP 1-1.3	County	Natural preserve
MP 1.3-4.9	Private	
MP 4.9-6	USFS	CNF
MP 6-6.2	Private	
MP 6.2-6.5	USFS	CNF
MP 6.5-6.7	Private	
MP 6.7- 9.7	USFS	CNF
MP 9.7-9.8	BLM	
MP 9.8-9.9	Private	
MP 9.9-18.6	USFS	CNF
MP 18.6-18.8	Private	
MP 18.8-19.2	USFS	CNF
MP 19.2-19.4	Private	
MP 19.4-20.1	USFS	CNF
MP 20.1-20.7	Private	
MP 20.7-21	USFS	CNF
MP 21-21.6	Private	
MP 21.6-22.4	USFS	CNF
MP 22.4-24.3	Private	
MP 24.3-24.8	USFS	CNF - Grazing
MP 24.8-25	USFS	CNF
MP 25-25.2	Private	
MP 25.2-25.3	USFS	CNF - Grazing
MP 25.3-25.4	Private	
MP 25.4-25.5	USFS	CNF - Grazing
MP 25.5-25.8	Private	
MP 25.8-26.2	USFS	CNF - Grazing
MP 26.2-26.5	Private	
MP 26.5-30.7	USFS	CNF
MP 30.7-31.2	Private	
MP 31.2-31.6	USFS	CNF
MP 31.6-31.8	Dept of Navy	Camp Pendleton

Talega-Escondido 230 kV Transmission Upgrade

The Talega-Escondido transmission line study area is located within an existing 300-foot SDG&E easement with an existing 230 kV transmission line in place. The existing transmission line is located within San Diego County, and the majority of land within the easement is private and under county jurisdiction. Approximately 17 miles of the easement are within the northern boundary of Marine Corps Base Camp Pendleton (Camp Pendleton). Camp Pendleton is located west of the City of Fallbrook and covers approximately 125,000 acres. The Santa Margarita Ecological Reserve (SMER) and a BLM Area of Critical Environmental Concern (ACEC) are crossed by the existing transmission line for a short distance at MP 24.1 to MP 25. The area within the SMER is included in the Western Riverside County Multiple Species Habitat Conservation Plan (HCP). The Talega-Escondido transmission line crosses additional lands administered by the BLM at MP 20.4 to MP 20.7 and MP 25.3 to MP 25.6. BLM has the authority to impose permit conditions on the project components on BLM lands. Table E.7.1-8 presents land ownership within the proposed Lake-Pendleton ROW. Table E.7.1-9 presents the approximate number of residen-

Table E.7.1-8. Land Ownership – Talega-Escondido Line

Location	Ownership	Land Use
MP 0-16	Dept of Navy	Camp Pendleton
MP 16-20.4	Private	
MP 20.4-20.7	BLM	
MP 20.7-24.1	Private	
MP 24.1-24.3	SDSU ¹	SMER ²
MP 24.3-25	State of CA	SMER ²
MP 25-25.3	Private	
MP 25.3-25.6	BLM	
MP 25.6-30.8	Private	
MP 30.8-31.2	County of SD	
MP 31.2-34.2	Private	
MP 34.2-35.1	Pala Tribe	Pala Reservation
MP 35.1-49.2	Private	
MP 49.2-49.4	City of Escondido	
MP 49.4-50.4	Private	
MP 50.4-50.7	City of San Marcos	
MP 50.7-51	Private	

¹ San Diego State University

² Santa Margarita Ecological Reserve

Table E.7.1-7. Sensitive Receptors on Lake-Pendleton Line – Residential Buildings within 1,000 Feet

Location	Residences
MP 0-1	5
MP 3-5	209
MP 9-10	5
MP 10-11	14
MP 14-15	7
MP 19-22	8
MP 23-24	3
MP 25-26	3
MP 27-28	3
MP 28-29	5
Location	Sensitive Sites
MP 25-26	Tenaja Guard Station

Table E.7.1-9. Sensitive Receptors on Talega-Escondido Line – Residential Buildings and Schools within 1,000 Feet

Location	Residences
MP 19-20	1
MP 20-23	37
MP 25-26	2
MP 26-27	3
MP 27-28	23
MP 28-29	3
MP 29-30	2
MP 32-33	2
MP 33-34	2
MP 36-37	12
MP 37-38	4
MP 38-39	6
MP 39-40	5
MP 40-42	70
MP 42-43	22
MP 43-45	160
MP 45-48	136
MP 48-51	849 5 apartment complexes ¹ 118 mobile homes
Location	Schools
MP 50-51	1

¹ Number of units unknown.

tial buildings within 1,000 feet of the proposed Lake-Pendleton ROW.

SDG&E's existing Talega Substation facilities are located at 33000 Avenida Pico, on approximately 7.9 acres of land located east of San Clemente near the western edge of Camp Pendleton. The site lies within San Diego County adjacent to the Orange-San Diego County line. The existing Escondido substation facilities are located in the City of Escondido, at 2037 Mission Avenue, on approximately five acres of land located west of Escondido Avenue, and south of Mission Road (Dudek, 2002).

Environmental Impacts and Mitigation Measures

Table E.7.1-10 summarizes the land use impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-10. Impacts Identified – Land Use

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
L-1	Construction would temporarily disturb land uses at or near the alignment	Class II, III
L-2	Presence of a transmission line or substation would divide an established community or disrupt land uses at or near the alignment	No Impact, Class II

Lake-Pendleton 500 kV New Transmission Line

The new 500 kV Lake-Pendleton transmission line would be located in portions of Orange, Riverside, and San Diego Counties primarily within the CNF. The transmission line would be located primarily on undeveloped lands, although a private airstrip along the alignment could become unusable, and a number of residences, one school, and an additional sensitive site would be in close proximity to the transmission line. A CNF Land Management Plan Amendment would be required prior to project approval due to inconsistencies of the project with land use designations.

Impact L-1: Construction would temporarily disturb land uses at or near the alignment (Class II for nearby residences, Class III for other residences)

Along the Lake-Pendleton transmission line, including the Lake and Pendleton Substations, land uses traversed by or adjacent to the proposed route include single- and multi-family residences, Camp Pendleton, public roadways, CNF, and the Tenaja Guard Station. Refer to Section E.7.1.5, Wilderness and Recreation, for a discussion of impacts to wilderness/recreation resources in CNF and the surrounding area, Section E.7.1.9, Transportation and Traffic, for a discussion of impacts to public roadways, Section E.7.1.6 for a discussion of impacts to agriculture, and Sections E.7.1.3, Visual Resources, and E.7.1.7, Cultural and Paleontological Resources, for a discussion of impacts to the Tenaja Guard Station. Sensitive land uses that could be temporarily impacted by construction activities include residences, CNF, and Camp Pendleton.

Sensitive Land Uses

Residential Land Uses. Single- and multi-family residential uses exist along the Lake-Pendleton transmission line route. For those residences greater than 1,000 feet from the proposed route, construction-related impacts would be considered adverse but not significant due to their distance from the project

(Class III). A large number of residences along the route would be impacted by construction of the LEAPS Transmission-Only Alternative:

- **MP 0 (Lake Substation) to MP 12.6.** There are 233 residential structures located within 1,000 feet of the proposed transmission corridor and substation.
- **MP 12.6 to MP 31.8 (Pendleton Substation).** There are 29 residential structures are located within 1,000 feet of the proposed transmission corridor and substation.

Construction of the Lake-Pendleton transmission line would temporarily disturb the surrounding areas as a result of heavy construction equipment, trenching activities associated with the undergrounding of a portion of the proposed transmission line, and the movement of building materials to sites and returning to construction staging areas. Mitigation measures to reduce noise and air quality impacts are presented in Sections E.7.1.8, Noise, and E.7.1.11, Air Quality, respectively, but these measures would not eliminate the impacts. While this disturbance would be short-term and temporary at any one location, it could be significant (Class II) if construction is not carefully managed and residents are not notified of construction activities.

Implementation of Mitigation Measures L-1a, and L-1d through L-1f are required to ensure that impacts would be reduced to less than significant levels.

CNF. New, temporary access roads totaling 9.3 miles would be built for construction and installation of transmission facilities within CNF. Over time, the temporary construction roads associated with transmission line construction could return to use as wildlife habitat and/or grazing lands after the proponents implement their proposed re-contouring and re-vegetation program, however these land uses would be temporarily disturbed. This impact is considered significant (Class II), and would be subject to USFS Conditions 1,3,and 4, requiring Forest Service permitting and approval, and 37, restricting road construction to slopes less than 15%. These measures would reduce impacts to less than significant levels.

Camp Pendleton. Construction of 0.6 miles of the transmission line and the Pendleton Substation on Camp Pendleton could potentially affect military training and other operations, including helicopter flights in and around the area (FERC, 2007). However, the proponents' proposal to demarcate the transmission lines and follow Federal Aviation Administration requirements would minimize the potential for conflicts. Nonetheless, interference with military training and operations is considered a significant impact (Class II), and Mitigation Measure L-1h would be required.

Mitigation Measures for Impact L-1: Construction would temporarily disturb the land uses at or near the alignment

USFS 1 Condition No. 1—Requirement to Obtain a Forest Service Special-Use Authorization. The Licensee shall secure a special-use authorization from the Forest Service for the occupancy and use of National Forest System lands. The licensee shall obtain the executed authorization before beginning ground-disturbing activities on National Forest System lands.

Ground disturbing activities on or affecting National Forest Service Lands may proceed only after the Licensee has filed the required development plans, provided any additional documentation required for the Authorized Officer to complete a site specific environmental analysis, and obtained approval for the activity from the Authorized Officer. In no case shall ground-disturbing activities authorized by the license and special-use authorization begin sooner than 60 days following the date the licensee files the Forest Service special-

use authorization with the Commission, unless the Commission prescribes a different commencement schedule.

In the event there is a conflict between any provision of the license and Forest Service special-use authorization, the special-use authorization shall prevail to the extent that the Forest Service, in consultation with the Commission, deems necessary to protect and utilize National Forest System resources.

USFS 3 Condition No. 3—Forest Service Approval of Final Design. Before any new construction of the project occurs on National Forest System lands, the Licensee shall obtain prior written approval of the Forest Service for all final design plans for Project components, which the Forest Service deems as affecting or potentially affecting National Forest System resources. The Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein and in the Special Use Permit. As part of such written approval, the Forest Service may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the project is either compatible with on-the-ground conditions or approved by the Forest Service based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by the Forest Service, the Commission, or the Licensee to be a substantial change, the Licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.

USFS 4 Condition No. 4—Approval of Changes. Notwithstanding any Commission approval or license provisions to make changes to the project when such changes directly affect National Forest System lands, the Licensee shall obtain written approval from the Forest Service prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the Forest Service for such changes. The Licensee shall file an exact copy of this report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this license, nor shall it affect the Licensee's obligation to comply with Commission requirements.

USFS 37 Condition No. 37—Scenery Conservation Plan.

L-1a Prepare Construction Notification Plan.

L-1d Provide advance notice and appoint public affairs officer. [APM LU-1]

L-1e Notify property owners and provide access. [APM LU-4]

L-1f Flag ROW boundary and environmentally sensitive areas. [APM LU-6]

L-1h Consult with Department of the Navy. During construction and operation of the project transmission line upgrade, the Applicant shall consult with the Department of the Navy to ensure that construction activities do not interfere with military activities at MCB Camp Pendleton.

Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment (No Impact for residential uses; Class II for CNF and Camp Pendleton)

Construction of the Lake-Pendleton transmission line would introduce a permanent utility corridor and developed facilities into areas where they do not currently occur. Once construction had been completed, the transmission line corridor could return to its use as wildlife habitat and/or grazing land; nonetheless, the transmission line would not be consistent with the CNF Land Management Plan land use zones insofar as 2.7 miles of transmission line and 1.1 miles of road would be routed through the Back Country Non-Motorized zone. This would constitute a significant impact (Class II) that could be mitigated through a Land Management Plan amendment, which would be required before construction could occur on the proposed route. Avoiding the BCNM zone would not be feasible because the alignment is along the CNF boundary in those areas, and any re-routing would require either a major increase in the length of the line or shifting the alignment onto private land that has been and continues to be developed for residential uses. Required Forest Service conditions applicable to land use modifications in CNF are listed below.

The 500 kV Lake-Pendleton transmission line would be located within 2 miles of the Skylark Airport, which could interfere with approach and take-off patterns in the area (see Section E.7.1.9, Transportation and Traffic).

The location of 0.6 miles of the transmission line and the Pendleton Substation on Camp Pendleton could potentially affect military training and other operations, including helicopter flights in and around the area (FERC, 2007). However, the proponents' proposal to demarcate the transmission lines and follow Federal Aviation Administration requirements would minimize the potential for conflicts. Nonetheless, interference with military training and operations is considered a significant impact (Class II), and Mitigation Measure L-1h would be required.

Operation of the transmission line could affect future development of nearby lands, although the extent of this potential effect cannot be precisely known. The transmission line would cross or parallel about 15.9 miles of land designated for residential development under the General Plan, including about 13.4 miles in or near the edge of the La Cresta area, about 0.5 miles near the El Cariso Rural Village Overlay area, and 2.0 miles between the planned Sycamore Creek community and the Glen Eden Sun Club community. From an operational perspective, the project would not disrupt actual use of residential properties or structures. Access to all uses would be fully restored once construction of the project was complete. The project would not permanently cause the nature or condition of any use to change. For these reasons, no land use-related operational impacts would occur (No Impact).

Mitigation Measures for Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment

L-1h Consult with Department of the Navy.

USFS 5 Condition No. 5—Consultation. Each year between February 15 and April 15, the Licensee shall consult with the Forest Service with regard to measures needed to ensure protection and utilization of the National Forest resources affected by the project. Within 60 days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service. The Forest Service reserves the right, after notice and opportunity for comment, to require changes in the project and its operation through revision of the 4(e) conditions that require measures necessary to accomplish protection and utilization of National Forest resources.

When Forest Service section 4(e) conditions require the Licensee to file a plan with the Commission that is approved by the Forest Service, the Licensee shall provide the Forest Service a minimum of 60 days to review and approve the plan before filing with the Commission. Upon Commission approval, the Licensee shall implement Forest Service required and approved plans.

USFS 6 Condition No. 6—Surrender of License or Transfer of Ownership. Prior to any surrender of this license, the Licensee shall provide assurance acceptable to the Forest Service that Licensee shall restore any project area directly affecting National Forest System lands to a condition satisfactory to the Forest Service upon or after surrender of the license, as appropriate. The restoration plan shall identify the measures to be taken to restore National Forest System lands and shall include adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the project, the Licensee shall assure, in a manner satisfactory to the Forest Service, that the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by the Forest Service to assist in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by the Forest Service, to estimate the potential costs associated with surrender and restoration of any Project area directly affecting National Forest System lands to Forest Service specifications. In addition, the Forest Service may require the Licensee to pay for an independent audit of the transferee to assist the Forest Service in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

USFS 16 Condition No. 16—Valid Claims and Existing Rights. This license is subject to all valid rights and claims of third parties. The United States is not liable to the Licensee for the exercise of any such right or claim.

USFS 17 Condition No. 17—Compliance with Regulations. The Licensee shall comply with the regulations of the Department of Agriculture for activities on NFS lands, and all applicable federal, state, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting NFS lands, to the extent those laws, ordinances, or regulations are not preempted by federal law.

USFS 18 Condition No. 18—Protection of United States Property. The Licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with the license.

USFS 20 Condition No. 20—Surveys, Land Corners. The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on National Forest System lands are destroyed by an act or omission of the Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of the Forest Service.

Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.

USFS-21 Condition No. 21—Damage to Land, Property, and Interests of the United States. The Licensee has an affirmative duty to protect the land, property and interests of the United

States from damage arising from the Licensee's construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license.

The Licensee is liable for all damages, costs and expenses associated with damage to the land, property and interests of the United States occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license, including but not limited to damages, costs and expenses resulting from fire. Such damages, costs and expenses shall include, but not be limited to:

- Fire suppression costs
- Rehabilitation and restoration costs
- Value of lost resources
- Abatement costs
- Investigative and administrative expenses
- Attorneys' fees

The Licensee's liability under this condition shall not extend to acts or omissions of parties outside of the Licensee's control. Licensee's contractors or employees of contractors are not considered parties outside the Licensee's control. Damages will be determined by the value of the resources lost or impaired, as determined by the Forest Service. The basis for damages will be provided to the Licensee. The licensee shall accept transaction registers certified by the appropriate Forest Service official as evidence of costs and expenses. The Licensee shall have an opportunity to review the basis for the Forest Service's damages, costs and expenses, and to meet and confer with the Forest Service to resolve any questions or disputes regarding such damages, costs and expenses. After the opportunity for review, the Licensee shall promptly pay to the United States such damages, costs and expenses upon written demand by the United States.

Talega-Escondido 230 kV Transmission Upgrade

With the exception of new transition towers, the adjoining towers located adjacent to the proposed Pendleton Substation, and the new 69 kV poles between the Pala and Lilac Substations, this element of the project would not require new structures. The existing transmission line structures and ROW were originally designed and licensed to accommodate the additional 230 kV circuit proposed by the project. No additional ROW would be required, and all work would be anticipated to occur within the existing ROW (SDG&E, 2007). Therefore, no construction-related or operational land use effect would occur to residences, businesses, utilities, or agricultural uses (Dudek, 2002).

No site expansion beyond the current fence line would be required at the existing Escondido and Talega Substations to provide for the new circuit termination. The existing 230 kV Talega Substation would accommodate the second circuit within the existing fence line and no additional site expansion would be required. The Talega-Escondido upgrade would have no construction-related or operational land use effect to residences, business, utilities, and agricultural uses within or surrounding these existing substations (Dudek, 2002). However, impacts to military facilities could occur.

Impact L-1: Construction would temporarily disturb land uses at or near the alignment (Class II)

The existing Talega-Escondido 230 kV transmission line traverses Camp Pendleton for approximately 17 miles. It is anticipated that adding a second circuit on this existing transmission line would be completed per the conditions of the current easement. However, adding a new 230 kV circuit would take

approximately 12 weeks and could impact military activities (Dudek, 2002). Conflict with military operations is considered a significant impact that could likely be mitigated through consultation with the Department of the Navy (Class II).

The SMER (including a portion of the BLM ACEC) is crossed by the existing transmission line. Retrofitting the existing Talega-Escondido transmission line with the proposed 230 kV circuit would not require expanding or modifying the existing easement through these areas. However, construction activities associated with the Talega-Escondido transmission line component could temporarily conflict with the management directives to conserve sensitive species and their habitat within these conservation areas (Dudek, 2002). Conflict with an HCP or Natural Community Conservation Plan is considered a significant impact that could likely be mitigated through consultation with California Fish & Game and BLM (Class II).

L-1h Consult with Department of the Navy.

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E.7.1.5 Wilderness and Recreation

Impacts to wilderness and recreation from the LEAPS Transmission-Only Alternative are presented in the following section. Impacts from the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.5, below.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

The 32-mile Lake-Pendleton transmission line would be located almost entirely within Cleveland National Forest. As shown in Figure E.7.1-2a and E.7.1-2b, the proposed new 500 kV line would be north and east and within 300 feet of the San Mateo Canyon Wilderness. The line would also be in the vicinity of the following recreational facilities in CNF: Morgan Trailhead, Tenaja Trailhead, Horsethief Trail, El Cariso Campground, Wildomar Campground. Table E.7.1-11 summarizes recreational facilities in the vicinity of the transmission line. In addition, two hang glider launch sites, “E” and “Edwards,” are in the vicinity of the underground portion of the transmission line route.

Table E.7.1-11. Recreational Facilities –
Lake-Pendleton 500 kV
Transmission Line

Name	Distance
San Mateo Canyon Wilderness	300 feet
Morgan Trailhead	In corridor
Tenaja Trailhead	707 feet
Horsethief Trail	Across
El Cariso Campground	In corridor
Wildomar Campground and OHV Area	0.39 miles

Management of recreation uses in Cleveland National Forest relies on the Recreation Opportunity Spectrum (ROS) framework incorporated into the final Land Management Plan. The ROS is a framework for defining classes of outdoor recreation environments, activities, and experience opportunities in the forest. The opportunities are arranged along a continuum or spectrum divided into classes that define recreation opportunities in various areas of the forest based on characteristics of those areas. Five ROS classes occur within the northern portion of Cleveland National Forest in the vicinity of the LEAPS alternative, and are described below (FERC, 2007).

Primitive (P): Very high probability of solitude and closeness to nature, challenge and risk; essentially unmodified natural environment; minimal evidence of others; few restrictions evident; non-motorized access and travel on trails or cross county; no vegetation alterations; at least 5,000 acres in size; at least 3 miles from the nearest road or trail with motorized use.

Semi-Primitive Non-Motorized (SPNM): High probability of solitude, closeness to nature, challenge, and risk; natural appearing environment; some evidence of other users; subtle restrictions and controls are evident; non-motorized access and travel on trails; vegetative alterations occur but are widely dispersed and not too evident; at least 2,500 acres in size; at least 0.5 miles from all roads, railroads, or trails with motorized use.

Semi-Primitive Motorized (SPM): Moderate probability of solitude, and closeness to nature; high degree of challenge and risk using motorized equipment; predominantly natural appearing environment; few users but evidence on trails; minimum or subtle on-site controls; vegetative alterations occur but are few; at least 2,500 acres in size; at least 0.5 miles from all roads, railroads, or trail with motorized use, but may contain roads that are usually closed.

Road Natural (RN): Some probability of solitude; little challenge and risk; mostly natural appearing environment; moderate concentration of users at developed and dispersed campsites; some obvious site

restrictions and user controls are present; access is motorized; vegetative alterations completed to maintain desired visual characteristics; no size restrictions.

Rural (R): Areas are characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. Facilities for intensified motorized use and parking are available (USDA Forest Service, 1982).

Talega-Escondido 230 kV Transmission Upgrade

There are no recreational resources located in the immediate vicinity of the Talega-Escondido ROW. The San Mateo Canyon Wilderness is located approximately 300 feet north of the westernmost portion of the Talega-Escondido transmission line at its closest distance.

Environmental Impacts and Mitigation Measures

Table E.7.1-12 summarizes the wilderness and recreation impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-12. Impacts Identified – Wilderness and Recreation		
Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas	Class I
WR-2	Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value	Class I
WR-3	Presence of a transmission line would permanently preclude recreational activities	Class I
Talega-Escondido 23- kV Transmission Upgrades		
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas	Class I

Lake-Pendleton 500 kV New Transmission Line

The 500 kV Lake-Pendleton transmission line would be a linear feature extending approximately 32 miles, mostly over National Forest System lands. Laydown areas would be necessary, and construction activities would take place over three years. As no Wilderness Areas or Wilderness Study Areas would be traversed by the transmission line, Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would require reclassification of the affected land) would not occur and is not discussed.

Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas (Class I)

Transmission line construction could affect developed recreational facilities through vegetation clearing, placement of underground transmission lines, and the creation of temporary traffic, noise, access routes, and laydown areas. Construction activities around Morgan Trailhead, Tenaja Trailhead, Horse-thief Trail, El Cariso Campground, and Wildomar OHV area and Campground could result in limited,

reduced, or restricted use of these areas. Increased traffic and noise associated with ROW clearing, tower construction, and line installation could cause secondary effects, in the form of periodic disturbances, on nearby visitors at these sites during the first two years of construction.

Visitors to the San Mateo Wilderness in the immediate vicinity of the transmission line near MP 20 to MP 22 would be affected by construction noise, however the transmission line would not be visible due to its location on the other side of a ridge from the Wilderness Area. Construction of the underground portion of the line would affect the Morgan Trailhead and parking area as the underground transmission corridor passes through the trailhead. Closure of the parking lot or trail are expected to last for approximately one year (FERC, 2007). Access to the Tenaja Trailhead would not be limited because construction activities would take place at least 707 feet away from the trailhead, but visitors would experience the visual and audible effects of construction at this Wilderness Area entrance. Hikers on Horsethief Trail would be disturbed by construction activities as the transmission line would pass across the trail. Campers at the El Cariso Campground would be affected by construction activities, as the transmission line would pass across this recreation area. Visitors to the Wildomar Campground and OHV area would be unlikely to be significantly affected by construction activities due to the distance of the corridor from this recreation area (0.39 miles) and the high-level of noise produced by OHV recreation.

These temporary effects on wilderness and recreation areas are considered significant impacts to recreation would be unavoidable (Class I). Nonetheless, the USFS Conditions below would be required. Impacts from construction noise and to parking and transportation in CNF are further discussed in Sections E.7.1.8 and E.7.1.9, respectively.

USDA Forest Service Mitigation Measures for Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas

USFS-13 Condition No. 13—Safety during Project Construction. Sixty days prior to ground-disturbing activity related to new project construction on or affecting National Forest System Lands, the Licensee shall file a Safety During Construction Plan with the Commission that is approved by the Forest Service that identifies potential hazard areas and measures necessary to protect public safety. Areas to consider include construction activities near public roads, trails and recreation area and facilities.

The Licensee shall perform daily (or on a schedule otherwise agreed to by the Forest Service in writing) inspections of Licensee's construction operations on or affecting National Forest System while construction is in progress. The Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to the Forest Service on a schedule agreed to by the Forest Service. The inspections must specifically include fire plan compliance, public safety, and environmental protection. The Licensee shall act immediately to correct any items found to need correction to be in compliance with the license.

USFS-23 Condition No. 23—Crossings. Except as otherwise authorized, the Licensee shall maintain existing crossings as required by the Forest Service for all roads and trails that intersect the right-of-way occupied by linear project facilities (power lines, penstock, ditch, and pipeline) on or affecting National Forest System lands.

USFS-37 Condition No. 37—Scenery Conservation Plan.

Impact WR-2: Presence of the transmission line would change the character of a recreation or wilderness area, diminishing its recreational value (Class I)

The Lake and Pendleton Substations are not located in the immediate vicinity of any recreation areas, however the transmission line between these two points would pass through or nearby several recreation areas. Visitors using the Tenaja Trailhead and Trail and Morgan Trailhead and Trail would be able to see the transmission line, which would pass overhead at the Tenaja Trailhead parking lot and the Morgan Trailhead parking area, respectively. This would permanently change the character of the beginning of two trails that are two of four points of access to the San Mateo Canyon Wilderness. In addition, users of Horsethief Trail would see the transmission line as it passes overhead, permanently changing the character of the trail. Users of the El Cariso Campground would be affected by the presence of the line, which would pass through this recreation area. The Wildomar OHV area and Campground would not be permanently affected by the presence of the transmission line due to the distance of the line from the recreation area (0.39 miles).

Increased noise associated with managing vegetation within the ROW may cause secondary effects in the form of periodic disturbances to nearby visitors during project operation. These effects would be of short duration, but would occur periodically over the long term. The Lake-Pendleton 500 kV transmission line would cause a permanent noise increase due to the corona effect (discussed further in Section E.7.1.8).

In addition, the transmission line would cross about eight miles of ROS SPNM-designated lands, over 12 miles of SPM lands, seven miles of RN lands, and about a half mile of Primitive lands. The effects described above would most likely be acceptable for National Forest System lands designated as R and RN; however, these activities are not consistent with P, SPNM, and SPM ROS settings as now established. Therefore, these effects would be considered significant and unmitigable (Class I).

Impact WR-3: Presence of a transmission line would permanently preclude recreational activities (Class I)

Construction of the transmission line would include placing a portion of the underground segment near two hang glider launch sites; and at its closest would daylight about 1,700 feet from the “E” launch site and at about 7,800 feet from the “Edwards” launch site. Given the locations of the launch sites and typical flight paths, this daylighting location should preserve hang gliding launches from the “Edwards,” or the southern of the two USFS permitted sites. Given the relatively closer proximity to the “E” launch site, operations of the transmission line would likely reduce the number of launchings from this site and would potentially preclude use of this site for hang gliding. Project operations could negatively affect house thermals in areas near the transmission line. Two to three thermal origination points (areas where air masses break away from the surface) are expected to be affected by operations in the vicinity of South Main Divide Road, which could permanently impair or preclude hang gliding opportunities associated with these areas. These potentially adverse impacts are considered significant and unmitigable should they occur (Class I).

Talega-Escondido 230 kV Transmission Upgrade

Upgrades to the Talega-Escondido transmission line would occur within an existing ROW and construction activities would be minimal. The ROW passes south of and adjacent to the boundary of the San Mateo Canyon Wilderness of the CNF. Because it is in an existing ROW and would upgrade existing transmission facilities, there would be minimal or no impacts to recreation and wilderness. Impact WR-2 (Presence of the transmission line would change the character of a recreation or wilderness area,

diminishing its recreational value) would not occur due to the lack of recreation areas in the immediate vicinity of the transmission line and because the long-term presence of the new conductor on existing structures adjacent to the San Mateo Canyon Wilderness would not change the character of the Wilderness Area above existing conditions. Impact WR-3 (Presence of a transmission line would permanently preclude recreational activities) would not occur due to the lack of recreation areas in the immediate vicinity of the transmission line. Impact WR-4 (Presence of a transmission line in a designated wilderness or wilderness study area would require reclassification of the affected land) would not occur because the Talega-Escondido transmission line does not traverse designated wilderness.

Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas (Class I)

Installing an additional conductor on the existing structures in the Talega-Escondido corridor would involve the use of heavy equipment and the use of helicopters. The noise created by these activities would potentially temporarily reduce visitation to the nearby San Mateo Canyon Wilderness. These effects would last approximately one month, and would be considered significant. No mitigation measures are available to reduce the severity of this impact. Further noise effects related to the Talega-Escondido transmission upgrades are discussed in Section E.7.1.8.

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E.7.1.6 Agriculture

Impacts to agriculture from the LEAPS Transmission-Only Alternative are presented in this section. Impacts from the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.6, below. See Section D.6.3 for discussion of applicable regulations, plans, and standards.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

Although no delineated agricultural resources were identified within 1,000 feet of the project ROW, portions of transmission line would be on USFS lands within the Cleveland National Forest boundary. The Forest Service currently administers 28 grazing allotments within the CNF. The Lake-Pendleton proposed 500 kV alignment would pass through the Tenaja and Miller Mountain allotments (Figure E.7.1-1). The USFS has the authority to impose permit conditions on the project components on USFS lands. Forest Service management plans include determinations concerning the capability and potential suitability of lands for producing forage for grazing animals (CFR 219.20).

The Lake and Pendleton Substations would not be located within 1,000 feet of any agricultural resource.

Talega-Escondido 230 kV Transmission Upgrade

A portion of the San Mateo Creek and San Notre Creek watershed lies within Camp Pendleton's military training impact zone. Currently, Camp Pendleton leases over 500 acres in the lower watershed for agricultural uses (EVMWD and Nevada Hydro, 2004). In addition, numerous agricultural operations are located within 1,000 feet of the transmission ROW north of the City of Escondido.

Environmental Impacts and Mitigation Measures

Table E.7.1-13 summarizes the agriculture impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-13. Impacts Identified – Agriculture

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
AG-1	Construction activities would temporarily interfere with Active Agricultural Operations	Class II

Lake-Pendleton 500 kV New Transmission Line

No DOC Farmlands or Williamson Act lands were identified within 1,000 feet of the project ROW; thus, no impacts to these resources would occur (No Impact). Impact AG-2 (Operation would permanently convert DOC Farmland to non-agricultural use), Impact AG-3 (Operation would permanently interfere with Active Agricultural Operations), and Impact AG-4 (Operation would permanently convert Williamson Act lands to non-agricultural use) would not occur. No APMs regarding impacts to agriculture were presented by the proponents, no mitigation measures regarding impacts to agriculture are required (or recommended by FERC), and no 4(e) terms and conditions or 10(a) recommendations regarding impacts to agriculture were offered by the Forest Service, Pacific Southwest Region.

Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations (Class II)

The proposed 500 kV Lake-Pendleton transmission line would transect two Forest Service—Trabuco Ranger District grazing allotments, the Tenaja and Miller Mountain allotments, and construction activities would potentially interfere with Active Agricultural Operations (grazing operations). This is considered a significant impact (Class II). Implementation of the following mitigation measures would ensure that impacts to Active Agricultural Operations would be less than significant. Please note, the full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations (Class II)

- L-1a Prepare Construction Notification plan.**
- AG-1a Avoid interference with agricultural operations.**
- AG-1c Coordinate with grazing operators.**

Talega-Escondido 230 kV Transmission Upgrade

With the exception of new transition towers and the adjoining towers located adjacent to the proposed Pendleton Substation and new 69 kV poles between the Pala and Lilac Substations, no new structures are proposed for this portion of the project. New structures would be installed in the existing ROW, and pulling and tensioning stations outside the ROW would not be located in the vicinity of agricultural lands. Once construction is finalized, no operation impacts to Agriculture resources would occur. No DOC Farmlands or Williamson Act lands were identified within 1,000 feet of the project ROW. Impact AG-2 (Operation would permanently convert DOC Farmland to non-agricultural use), Impact AG-3 (Operation would permanently interfere with Active Agricultural Operations), and Impact AG-4 (Operation would permanently convert Williamson Act lands to non-agricultural use) would not occur.

No PMEs regarding impacts to agriculture were presented by the proponents, no Environmental Measures regarding impacts to agriculture are required or recommended by FERC, and no 4(e) terms and conditions or 10(a) recommendations regarding impacts to agriculture were offered by the Forest Service, Pacific Southwest Region.

Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations (Class II)

Numerous agricultural operations are located within 1,000 feet of the transmission ROW within the Camp Pendleton military training impact zone and north of the City of Escondido. While construction activities would occur within and adjacent to the existing ROW, they would potentially be disruptive to adjacent lands and operations by damaging or removing crops or precluding planting; impeding access to certain fields or plots of land and obstructing farm vehicles and equipment; or disrupting drainage and irrigation systems (including self-propelled irrigation rigs), all of which could result in the temporary withdrawal of land from production, thereby reducing agricultural productivity on the affected land. This would be a significant impact. Implementation of the following mitigation measures would ensure that impacts to Active Agricultural Operations would be less than significant (Class II).

Mitigation Measures for Impact AG-1: Construction activities would temporarily interfere with Active Agricultural Operations

- L-1a Prepare Construction Notification plan.**
- AG-1a Avoid interference with agricultural operations.**
- AG-1c Coordinate with grazing operators.**

E.7.1.7 Cultural and Paleontological Resources

Analysis of impacts to cultural and paleontological resources due to the LEAPS Transmission-Only Alternative are described below. Impacts related to the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.7, below.

Environmental Setting

Cultural resources of the LEAPS Transmission-Only Alternative are presented in Appendix 9A.

Lake-Pendleton 500 kV New Transmission Line

Cultural Resources. Cultural resources record searches were conducted for the Lake-Pendleton 500 kV new transmission line and access roads within a 0.5-mile search radius. New surveys by SWCA and AE archaeologists combined with adequate previous surveys have resulted in intensive cultural resource surveys for 31.95 percent of the total corridor being surveyed. Eleven cultural resources have been identified within the 300-foot-wide study corridor for the Lake-Pendleton transmission line (see Table Ap.9B-144).

- Nine of the resources are prehistoric in age, including one rock art site, two lithic scatters, two temporary camps, four bedrock milling sites (one with rock art). The NRHP/CRHR eligibility of the nine prehistoric cultural resources has not been determined. Formal eligibility determinations would be made prior to construction for any resources that would be affected if the LEAPS Transmission-Only Alternative is built.
- One site (CA-RIV-271) is a multi-component site which contains both historic and prehistoric components. The historic component; the Tenaja Guard Station with associated residence, pump house and water tower has been recommended eligible for listing on the NRHP under Criteria A and C. The prehistoric Tenaja Village, which is eligible for listing on the NRHP under Criterion D contains lithic/ceramic scatters, ground stone fragments, unidentified bone fragments, as well as shell fragments.
- One historic road, the Ortega Highway (P-33-7234), is crossed by the Lake-Pendleton transmission line. As currently engineered, this historic road would be spanned by the transmission line, and was therefore only considered for the project's potential to impact the resource visually.
- Nine of the cultural resources were identified during previous cultural resources surveys, two resources were newly recorded by SWCA and AE.

Paleontological Resources. The paleontological sensitivity of the Lake-Pendleton new 500 kV line is provided by milepost in Table E.7.1-14. The following impact analysis is based on a review of published and unpublished literature and geologic maps. A detailed review of museum collections records was performed by the Vertebrate Paleontology section of the Natural History Museum of Los Angeles County for the purposes of determining whether there are any known fossil localities within the project APE. No previously recorded localities were discovered within one half mile of the project centerline.

The Lake-Pendleton transmission line traverses numerous geologic units. Below is a discussion of each unit and its paleontological resource potential.

- **Quaternary alluvium.** Quaternary alluvium consists of partly dissected, mostly unconsolidated, poorly sorted sand, silt, clay, and gravel located at the margins of canyons and within valley floors. "Younger" alluvium is Holocene (10,000 years ago to Recent) in age and "Older alluvium" is Pleistocene (1.8 million years ago to 10,000 years ago) in age. Fossil localities in older alluvium

deposits throughout southern California have yielded terrestrial vertebrates such as mammoths, mastodons, ground sloths, dire wolves, short-faced bears, saber-toothed cats, horses, camels, and bison. Younger alluvium is determined to have a low potential for paleontological resources but is often underlain by older alluvium, which is determined to have a high potential for paleontological resources.

- Quaternary landslides.** The paleontological sensitivity of a landslide deposit is dependent on a number of factors, including the source rock parent material. When the original stratigraphic position of the sediments is disturbed, there are varying degrees of information loss with the severity of changes to the slide mass. Landslides do not necessarily equate to sediments being non-sensitive for paleontological materials but the loss of associated sedimentological and positional data reduces the significance of any fossils found. Additionally, landslides in general are much less likely to contain well-preserved fossils than intact native sediments. Landslide deposits are determined to have a low paleontological sensitivity.
- Santa Rosa Basalt.** Very fine-grained olivine basalt of Miocene age. These rocks are determined to have no paleontological resource potential due to their origin as molten rock.
- Santiago Formation.** The Eocene (52 to 34 Ma) Santiago Formation comprises 820 meters of interbedded concretionary sandstone and siltstone with rare conglomerate. Tan and Edgington (1976) describe the general lithology of the Santiago Formation as consisting of marine and non-marine greenish-gray, yellowish-gray and moderate to pale yellowish-brown, medium- to coarse-grained sandstone with interbedded moderate reddish-brown and grayish-green, fine-grained clayey sandstone. Two informal members are recognized within the Santiago Formation (Sundberg, 1986). The lower

Table E.7.1-14. Paleontological Sensitivity – Lake-Pendleton New 500 kV

Mileposts	Rock Units	Sensitivity
0 to 2.1	Estelle Mountain volcanics	None
2.1 to 2.4	Younger alluvium	Low
2.4 to 2.9	Older alluvium	High
2.9 to 3.4	Granite, undifferentiated	None
3.4 to 3.5	Younger alluvium	Low
3.5 to 3.7	Older alluvium	High
3.7 to 3.8	Older alluvium	High
3.8 to 3.9	Bedford Canyon Formation	Moderate
3.9 to 4.2	Granite, undifferentiated	None
4.2 to 5.3	Granitic rocks, undifferentiated	None
5.3 to 5.6	Older alluvium	High
5.6 to 6.6	Granitic rocks, undifferentiated	None
6.6 to 7.0	Bedford Canyon Formation	Moderate
7.0 to 7.2	Landslide Deposits	Low
7.2 to 7.4	Bedford Canyon Formation	Moderate
7.4 to 7.5	Landslide Deposits	Low
7.5 to 7.7	Younger alluvium	Low
7.7 to 9.0	Bedford Canyon Formation	Moderate
9.0 to 9.2	Granitic rocks, undifferentiated	None
9.2 to 9.4	Bedford Canyon Formation	Moderate
9.4 to 9.5	Granitic rocks, undifferentiated	None
9.5 to 9.6	Bedford Canyon Formation	Moderate
9.6 to 9.7	Granitic rocks, undifferentiated	None
9.7 to 9.9	Landslide Deposits	Low
9.9 to 10.4	Bedford Canyon Formation	Moderate
10.4 to 12.6	Granitic rocks, undifferentiated	None
12.6 to 12.8	Younger Alluvium	Low
12.8 to 15.4	Granitic rocks, undifferentiated	None
15.4 to 15.6	Older alluvium	High
15.6 to 20.3	Granitic rocks, undifferentiated	None
20.3 to 20.6	Younger Alluvium	Low
20.6 to 20.8	Metamorphic rocks	None
20.8 to 20.9	Granitic rocks, undifferentiated	None
20.9 to 21.1	Metamorphic rocks, undifferentiated	None
21.1 to 21.3	Younger Alluvium	Low
21.3 to 21.4	Granitic rocks, undifferentiated	None
21.4 to 22.0	Metamorphic rocks, undifferentiated	None
22.0 to 25.5	Granitic rocks, undifferentiated	None
25.5 to 25.6	Metamorphic rocks, undifferentiated	None
25.6 to 26.0	Santa Rosa Basalt	None
26.0 to 30.2	Granitic rocks, undifferentiated	None
30.2 to 30.5	Metasedimentary rocks	Marginal
30.5 to 31.6	Granitic rocks, undifferentiated	None
31.6 to 31.8	Santiago Peak Volcanics	Marginal

unit reaches a maximum thickness of 68 meters, and is composed of shallow nearshore marine sandstone and conglomerate (Sundberg, 1986). The upper unit contains non-marine sandstone and siltstone (Sundberg, 1986). The Santiago Formation has produced an extensive collection of significant terrestrial vertebrates in southern California and thus has been assigned a high paleontologic resource sensitivity level (Lander, 1989; Copper and Eisentraut, 2000).

- **Williams Formation.** The Williams Formation consists of three members: the Starr, Schulz Ranch, and Pleasants Sandstone. The Schulz Ranch and Pleasants Sandstone members are traversed by the LEAPS Generation and Transmission Alternatives. The Schulz Ranch member of the Williams Formation consists of medium to thick beds of fine to coarse-grained, granular to pebbly sandstone, and seams and lenses of well-rounded pebble to cobble conglomerate that become less common up section. The Pleasants Sandstone member of the Williams Formation was deposited in a shallow-marine, coastal shelf environment during the late Cretaceous, from approximately 80 to 67 Ma. It consists of fine- to medium-grained, brownish to grayish, poorly bedded sandstone with interbeds of mudstone, siltstone and calcareous sandstone with pebble or cobble conglomerate. Abundant and diverse marine mollusk assemblages are known from the Williams Formation, including ammonoids, nautiloids, gastropods, and bivalves. Because of the abundant and diverse fossils recovered from this unit, the Williams Formation is assigned a high paleontological resource sensitivity (Eisentraut and Cooper, 2002).
- **Trabuco Formation.** The Late Cretaceous (95-85 Ma) Trabuco Formation represents ancient alluvial fan deposits, built out along the foot of the Santa Ana Mountains (Cooper and Eisentraut 2000). Gray (1961) describes unit lithology as consisting of poorly consolidated, massive, red, very poorly sorted, sandy boulder conglomerate. Cobble and boulder constituents include quartzite, graywacke, slate, limestone, and andesite as well as coarse-grained plutonic rocks (Gray, 1961). Unit thickness is difficult to determine; maximum thickness has been estimated at 620 feet (Gray, 1961). Very few fossils have been found in the Trabuco Formation because of its non-marine, alluvial fan environment. The Trabuco Formation has been assigned a low paleontologic sensitivity level due to the extremely coarse-grained nature of the Trabuco sediments (Eisentraut and Cooper, 2002).
- **Metasedimentary Rocks.** Metasedimentary rocks in the central part of San Diego County are referred to as Julian Schist, which is composed of quartz-mica schist and quartzite, with minor amounts of marble and amphibolite. These rocks have been intruded and deformed by plutonic rocks associated with the Peninsular Ranges Batholith. The age of these metasedimentary rocks is not well defined; however, microfossils indicate that they are much older than Triassic in age. No fossils have been discovered in this unit within San Diego County; however, correlative units in Riverside and Orange County have yielded marine mollusks. Metasedimentary rocks in San Diego County are determined to have a marginal potential for paleontological resources.
- **Bedford Canyon Formation.** This Jurassic age geologic unit consists of silty argillite and graywacke with minor amounts of pebble conglomerate and limestone (Morton, 2003). Rare occurrences of shallow-marine invertebrates have been documented within the limestone lenses of the Bedford Canyon Formation; therefore, it is determined to have a moderate paleontological sensitivity rating (Eisentraut and Cooper, 2002).
- **Santiago Peak Volcanics.** The Santiago Peak Volcanics include mildly metamorphosed volcanic, volcanoclastic, and sedimentary rocks aging from late Triassic to mid-Cretaceous in age. This rock unit occurs in the subsurface throughout much of the continental margin of southern California and crops out from the southeastern edge of the Los Angeles basin southward to Mexico. Metasedimentary units within this formation have proven to yield important remains of marine macroinverte-

brates and are determined to have a high potential for paleontological resources. The volcanic and meta-volcanics are determined to have a marginal potential for paleontological resources.

- **Granitic Rocks, undifferentiated.** Granitic rocks in the study area are mostly composed of quartz diorite (tonalite), granodiorite, and fine-to coarse-grained massive granite and biotite monzogranite. of Cretaceous age. Since granitic rocks are plutonic in origin, this geologic unit is determined to have no potential for paleontological resources.
- **Estelle Mountain Volcanics.** Estelle Mountain volcanics consist of a heterogeneous mixture of rhyolite flows, shallow intrusive rocks, and volcanoclastic rocks of Cretaceous age. These igneous and metamorphic rocks are determined to have no paleontological resource potential due to their origin as molten rock.

Environmental Setting

Talega-Escondido 230 kV Transmission Upgrades

Cultural Resources. The Talega-Escondido 230 kV Transmission Upgrade extends from the eastern San Clemente area to Escondido, passing through the coastal and inland valley climatic zones as well as the Juaneño and Luiseño ethnographic period cultural regions identified in the complete cultural setting provided in Appendix 9A. The Talega area bears evidence of occupation through the entire range of pre-history and history in southern California and the inland valleys, a transition zone between the mountains and coast with prehistoric sites bearing appropriate transitional evidence such as bedrock milling, lithic artifact scatters, and temporary camps and habitations, while historic sites contain evidence of settlement and ranching throughout the Mexican and American periods.

The Talega-Escondido line including access roads was surveyed prior to construction by Walker and Bull (1979a, b). Previously recorded site types within this alignment include lithic artifact scatters, quarries, ceramic artifact scatters, temporary camps, bedrock milling features and a historical barn. The survey of the Talega Substation, conducted by Wirth Associates in 1978, identified two prehistoric sites. Both lithic artifact scatters were recommended not eligible for listing in the National Register of Historic Places. Since the original 100 percent survey of the transmission line corridor by Walker and Bull, 8.12 percent of the corridor has been resurveyed within the last ten years. However, it should be noted that only 7.7-mile Pala to Lilac segment will require new pole construction.

Sites exhibiting a broad range of past human activity have been identified within the Talega-Escondido 230 kV Transmission Upgrade corridor. These include, but are not limited to, prehistoric artifact scatters, temporary camps, and isolates, as well as a historic barn. A total of 16 cultural resources has been identified within the 300-foot-wide study corridor for the Talega-Escondido 230 kV Transmission Upgrade (see Table Ap.9B-115).

- One (1) of the 16 resources is an isolate, typically defined as three or fewer artifacts not associated with a defined, discrete archaeological site, and therefore not eligible for NRHP or CRHR inclusion.
- Of the 15 resources that are not isolates, 14 are prehistoric in age; while one is a historic era resource.
- One resource, a historic era Quonset is recommended eligible for listing in the NRHP under status code 5N as a property recognized as historically significant by a local government.

Paleontological Resources. The paleontological sensitivity of the Talega Escondido 230 kV Upgrade is provided by milepost in Table E.7.1-15, with data for the Pala to Lilac 69 kV Upgrade provided separately in Table E.7.1-17. Refer to the setting for paleontological resources for the Lake-Pendleton 500 kV

transmission line above for a description of the geologic units referenced in those tables. A detailed review of museum collections records was performed by the San Diego Natural History Museum for the purposes of determining whether there are any known fossil localities within the project APE. No previously recorded localities were discovered within one half mile of the project centerline.

Environmental Impacts and Mitigation Measures

Table E.7.1-16 summarizes the cultural and paleontological resource impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Lake-Pendleton 500 kV New Transmission Line

By letter of February 18, 2005, the proponents filed a revised draft Historic Properties Management Plan (HPMP; February 2005) that specifies a variety of measures for protection and management of historic properties both during construction and during subsequent operations and maintenance over the term of the license. The co-applicants sent copies of this revised draft HPMP to the Tribes, the USFS, BLM, and Camp Pendleton for review and comment. In the HPMP, the proponents propose to:

- Consult with the USFS in advance of any construction or cultural resources monitoring or survey on USFS land.
- Monitor construction and/or conduct pre-construction archaeological surveys to locate

Table E.7.1-15. Paleontological Sensitivity – Talega-Escondido 230 kV Upgrade

Mileposts	Rock Units	Sensitivity
0.0-0.2	Santiago Formation	High
0.2-0.3	Active Alluvium	None
0.3-0.4	Younger Alluvium	Low
0.4-0.5	Santiago Formation	High
0.5-0.6	Older Alluvium	High
0.6-1.0	Santiago Formation	High
1.0-1.1	Landslide deposits	Low
1.1-1.3	Santiago Formation	High
1.3-1.4	Landslide deposits	Low
1.4-1.5	Santiago Formation	High
1.5-1.8	Landslide deposits	Low
1.8-2.0	Williams Formation, Pleasants Sandstone Member	High
2.0-2.1	Landslide deposits	Low
2.1-2.5	Williams Formation, Pleasants Sandstone Member	High
2.5-2.8	Williams Formation, Shultz Ranch Member	High
2.8-3.0	Younger Alluvium	Low
3.0-3.2	Older Alluvium	High
3.2-3.4	Williams Formation, Shultz Ranch Member	High
3.4-3.5	Older Alluvium	High
3.5-4.0	Younger Alluvium	Low
4.0-4.1	Williams Formation, Shultz Ranch Member	High
4.1-6.0	Trabuco Formation	Low
6.0-6.1	Older Alluvium	High
6.1-6.2	Trabuco Formation	Low
6.2-6.5	Older Alluvium	High
6.5-6.7	Active Alluvium	None
6.7-13.0	Metavolcanics and Metasedimentary rocks, undivided	Marginal
13.0-16.4	Granitic rocks, undivided	None
16.4-16.8	Older Alluvium	High
16.8-16.9	Active Alluvium	None
16.9-17.2	Granitic rocks, undivided	None
17.2-17.3	Active Alluvium	None
17.3-21.3	Granitic rocks, undivided	None
21.3-21.4	Active Alluvium	None
21.4-24.2	Granitic rocks, undivided	None
24.2-24.3	Active Alluvium	None
24.3-34.2	Granitic rocks, undivided	None
34.2-34.3	Older Alluvium	High
34.3-34.8	Active Alluvium	None
34.8-39.3	Granitic rocks, undivided	None
39.3-39.5	Younger Alluvium	Low
39.5-47.5	Granitic rocks, undivided	None
47.5-47.6	Older Alluvium	High
47.6-48.3	Granitic rocks, undivided	None
48.3-48.7	Older alluvium	High
48.7-48.9	Metavolcanics and Metasedimentary rocks, undivided	Marginal
48.9-49.0	Older alluvium	High
49.0-49.2	Metavolcanics and Metasedimentary rocks, undivided	Marginal
49.2-49.4	Granitic rocks, undivided	None
49.4-49.5	Older alluvium	High
49.5-50.1	Metavolcanics and Metasedimentary rocks, undivided	Marginal
50.1-50.7	Granitic rocks, undivided	None
50.7-51.1	Older Colluvium	High
51.1-51.2	Granitic rocks, undivided	None

and identify resources in portions of the APE that have not been investigated due to lack of access and/or because locations of project facilities (e.g., transmission lines, flow lines) and access routes have not yet been determined. This would include locations with potential to contain deeply buried archaeological deposits.

- Consult with the USFS, SHPO, and Tribes, as appropriate, concerning the need for intensive survey to evaluate the National Register eligibility of archaeological sites or TCPs that would be adversely affected by construction or operation and determine appropriate treatment for any adversely affected eligible resources.

Table E.7.1-16. Impacts Identified – Cultural Resources

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
C-1	Construction of the project would cause an adverse change to known historic properties	Class II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains	Class I or II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties	Class I or II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties	Class II
C-6	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources	Class II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources	Class II
Talega-Escondido 230 kV Transmission Upgrades		
C-1	Construction of the project would cause an adverse change to known historic properties	Class II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains	Class I or II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties	Class I or II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties	Class II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources	Class II

- Retain a qualified archaeologist to advise construction and maintenance Field Superintendents and the proponents' appointed staff cultural resources coordinator regarding the need for monitoring during construction and for protecting known sites from inadvertent construction damage.
- Appoint a staff Tribal liaison to serve as the proponents' point of contact with the Tribes and consult with the Tribes regarding construction monitoring, archaeological survey, and resource protection measures.
- Arrange for a civil structural or geotechnical engineer to determine whether peak ground acceleration from construction exceeds a peak vertical particle velocity of 72.0 millimeter per second in the vicinity of any historic building and recommend treatment of any building for which this threshold is exceeded.
- Arrange for an architectural historian to monitor construction sites after trenching and blasting to ensure that vegetation and any other significant landscape features associated with historic buildings have been returned to their pre-construction state.

- Develop and implement an archaeological monitoring program, including notification to the USFS of monitoring on USFS land, to identify site degradation or damage to archaeological resources. For the first 5 years, monitoring would be conducted annually during the mid-late autumn prior to the rainy winter season. Site conditions would be recorded with photographs and/or video documentation for comparison with previous years' conditions. The co applicants would send a report on the monitoring to the SHPO and the USFS within 2 months of each annual monitoring effort. At the end of 5 years, sites that have experienced no significant effects would be dropped from the monitoring program.
- Develop a cultural resources public interpretive program in consultation with the Tribes and the USFS within 3 years after project construction.

The draft HPMP also specifies procedures the proponents would follow in the event that currently unknown cultural resources are discovered during project construction or project operation. In the event of a discovery, work would immediately cease in the vicinity of the resource. The proponents would develop a site-specific historic properties treatment plan, in consultation with the SHPO and the USFS, containing procedures and methodologies "to be used in the eligibility evaluation process for the specific site types that may occur in the project area". No work would resume in the vicinity of the resource until the resource had been evaluated in accordance with the Historic Properties Treatment Plan and any adverse effects had been mitigated. Work would then resume in the presence of an archaeological monitor. The proponents would submit a report describing the fieldwork and analysis to the SHPO and the USFS.

Regarding paleontological resources, the proponents propose to:

- Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources.
- Prepare any recovered fossil remains to the point of identification, and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.

As currently proposed, the Lake-Pendleton 500 kV New Transmission Line will directly impact four cultural resources (Table Ap.9B-116). There is also the potential to encounter undiscovered cultural resources during additional surveys or project construction such as additional prehistoric sites with bedrock milling features. An additional 23 resources (including isolates) are likely to be encountered during additional surveys. CA-RIV-271 has been recommended NRHP-eligible. The remaining three resources are potentially eligible for the NRHP and CRHR.

A portion of the Ortega Highway within the vicinity of the Lake-Pendleton 500 kV New Transmission Line and the Tenaja Guard Station were considered by SWCA (2007) for indirect visual impacts (see Table Ap.9B-117). Visual impacts to the Ortega Highway would be adverse for certain portions of the resource. Visual impacts to the guard station would be adverse. Because known cultural resources that are potentially eligible for the NRHP or CRHR exist within the alternative corridor, as well as the potential for encountering undiscovered cultural resources, the following impacts would occur during project construction or operation.

Impact C-1: Construction of the project would cause an adverse change to known historic properties (Class II)

CA-RIV-271 has been recommended eligible for the NRHP and would be impacted by the Lake-Pendleton 500 kV New Transmission Line. Three other known cultural resources are potentially eligible for NRHP or CRHR listing. An additional 24 resources such as bedrock milling features with lithic and

ceramic scatters are likely to be encountered during surveys conducted prior to construction. As discussed in Section D.7.5.1, adverse construction impacts would be mitigated to a level that is less than significant (Class II) by implementing the approved HPMP, along with Mitigation Measures C-1a, C-1b, C-1c, C-1d, C-1e, C-1f, FERC-EM-25, and USFS-28.

Mitigation Measures for Impact C-1: Construction of the project would cause an adverse change to known historic properties

- C-1a** **Inventory and evaluate cultural resources in Final APE.**
- C-1b** **Avoid and protect potentially significant resources.**
- C-1c** **Develop and implement Historic Properties Treatment Plan.**
- C-1d** **Conduct data recovery to reduce adverse effects.**
- C-1e** **Monitor construction.**
- C-1f** **Train construction personnel.**

FERC EM-25 Environmental Measure 25. Revise the draft HPMP in consultation with the SHPO, Tribes, U.S. Bureau of Indian Affairs (BIA), the Lake Elsinore Historical Society, and the USFS and file a final HPMP for Commission approval within 1 year of any license issuance.

USFS-28 Condition No. 28—Heritage Resources Management Plan. The Licensee shall file with the Commission, within one year following license issuance, or prior to any ground disturbing activities, a Heritage Resources Management Plan (HRMP), approved by the Forest Service, for the purpose of protecting and interpreting heritage resources on National Forest System lands. The HRMP is tiered to a Programmatic Agreement, to which the Forest Service will be a signatory, as defined by 36 CFR 800, and implements regulations of the National Historic Preservation Act. The Licensee shall consult with the State Historic Preservation Officer, Native American Tribes, Forest Service, and other applicable agencies and communities during the preparation of the Plan. The HRMP shall accurately define the area of potential effects, including effects of implementing Section 4(e) conditions, Native American traditional cultural values, and Project-induced recreational impacts to archaeological properties on or affecting National Forest System lands. The HRMP shall also provide measures to mitigate the identified impacts, including a monitoring program, a patrolling program, and management protocols for the ongoing protection of archaeological properties.

If, prior to or during ground-disturbing activities or as a result of project operations, items of potential cultural, historical, archaeological, or paleontological value are reported or discovered, or a known deposit of such items is disturbed on National Forest System lands, the Licensee shall immediately cease work in the area affected. The Licensee shall then: (1) consult with the California State Historic Preservation Officer (SHPO) and the Forest Service about the discovery; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places; (3) base the site-specific plan on recommendations of the SHPO, the Forest Service, and Secretary of the Interior's Standards and guidelines for Archaeology and Historic Preservation; (4) file the site specific plan for Commission approval, together with the written comments of the SHPO and the Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by the Commission that the requirements have been fulfilled.

Upon Commission approval, the Licensee shall implement the plan.

Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II)

Types of subsurface features that could be encountered along the Lake-Pendleton 500 kV New Transmission Line include prehistoric resources such as buried living surfaces, refuse deposits, hearths, burials, and cremations. Historical resources that could be unearthed during project construction include refuse pits and privies. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, or excavation associated with tower construction. Impacts to most unknown significant prehistoric and historic archaeological sites would potentially be mitigated to a level that is less than significant (Class II) by implementing the approved HPMP and Mitigation Measures C-1c, C-1d, C-1f, C-2a, C-3a, FERC EM-25, and USFS-28. However, effects related to Native American human remains would be significant (Class I) even with mitigation.

Mitigation Measures for Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains

- C-1c Develop and implement Historic Properties Treatment Plan.**
 - C-1d Conduct data recovery to reduce adverse effects.**
 - C-1f Train construction personnel.**
 - C-2a Properly treat human remains.**
 - C-3a Monitor construction in areas of high sensitivity for buried resources.**
- FERC EM-25 Environmental Measure 25.**
- USFS-28 Condition No. 28—Heritage Resources Management Plan.**

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II)

To date, one TCP has been identified within the vicinity of the Lake-Pendleton 500 kV New Transmission Line. Lake Elsinore (P-33-11009) was recorded in the state inventory in 1982, and USFS considers it eligible for listing on the NRHP. It is viewed by the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. FERC, as the Federal Lead Agency under NEPA and Section 106 of the NHPA has initiated government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. That consultation will determine whether there are other TCPs that could be affected within the Lake-Pendleton 500 kV New Transmission Line Alternative. Though impacts to TCPs are often significant (Class I), mitigation, as defined by NEPA (in King, 2003), can include “minimizing impacts by limiting the degree or magnitude of the action...,” rectifying or reducing the impact, and/or “compensating for the impact by replacing or providing substitute resources or environments,” which when properly coordinated with Native Americans or other traditional groups can potentially reduce the impact to less than significant (Class II), but in some cases, impacts would remain significant (Class I). Implementation of Mitigation Measure C-4a (Complete Consultation with Native Americans and other Traditional Groups), along with FERC EM-25 and USFS-28 could potentially reduce impacts to TCPs to a level that is less than significant (Class II).

Mitigation Measure for Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties

C-4a Complete consultation with Native American and other Traditional Groups.

FERC EM-25 Environmental Measure 25.

USFS-28 Condition No. 28—Heritage Resources Management Plan.

Impact C-5: Operation and long-term presence of the project would cause an adverse change to known historic properties (Class II)

Direct and indirect impacts would occur to historic properties within and in the vicinity of the project area during operation and long-term presence of the project. There are two resources recommended eligible for the NRHP located within the LEAPS Lake-Pendleton 500 kV New Transmission Line that are potentially subject to long-term and operational impacts: the Ortega Highway and the Tenaja Guard Station. Any of the known archaeological sites and yet to be discovered archaeological sites that are determined register-eligible are also potentially subject to long-term and operational impacts. Direct impacts to these resources or other newly identified resources could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. These impacts would be significant, but can be mitigated to a level that is less than significant (Class II) by implementing site protection measures and monitoring procedures, as detailed in the approved HPMP, Mitigation Measure C-5a (Protect and monitor NRHP and/or CRHR-eligible properties), as well as implementation of Mitigation Measures C-2a (Properly treat human remains), C-4a (Complete consultation with Native Americans and other traditional groups), FERC EM-25, and USFS-28. Impacts to human remains would remain significant (Class I).

Mitigation Measures for Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-2a Properly treat human remains.

C-4a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP and/or CRHR-eligible properties.

FERC EM-25 Environmental Measure 25.

USFS-28 Condition No. 28—Heritage Resources Management Plan.

Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources (Class II)

One historic architectural or built environment resource within the Lake-Pendleton 500 kV New Transmission Line APE, the Tenaja Guard Station, was considered by the consultant team's Visual Resource Analyst (see Section E.7.1.3) for indirect visual impacts. Visual impacts to the station as well as the area surrounding Key Viewpoint 7, would be adverse and significant. This impact would be reduced to a level that is less than significant through implementation of Mitigation Measure V-S-8a, which would relocate the transmission line away from the Guard Station. Visual impacts to the Ortega Highway would be reduced to a level that is less than significant (Class II) through implementation of Mitigation Measure C-6a.

Mitigation Measures for Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources

- C-6a Reduce adverse visual intrusions to historic built environment properties.**
- V-S-8a Relocate 500 kV transmission lines away from Tenaja Trailhead and guard station.**

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II)

The potential to discover paleontological resources during construction of the proposed Lake-Pendleton New 500 kV Transmission Line ranges from zero to high, resulting in potentially significant impacts (Class II). Potentially significant impacts could be mitigated through implementation of the measures listed below.

Mitigation Measure for Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources

Implementation of the approved HPMP and following mitigation measures would reduce project effects to a level that is less than significant (Class II).

- PAL-1a Inventory and evaluate paleontological resource in the Final APE.**
- PAL-1b Develop Paleontological Monitoring and Mitigation Plan.**
- PAL-1c Monitor construction for paleontology.**
- PAL-1d Conduct paleontological data recovery.**
- PAL-1e Train construction personnel.**
- USFS-28 Condition No. 28—Heritage Resources Management Plan.**

Talega-Escondido 230 kV Transmission Upgrade

Environmental Impacts and Mitigation Measures

By letter of February 18, 2005, the proponents filed a revised draft HPMP (February 2005) that specifies a variety of measures for protection and management of historic properties both during construction and during subsequent operations and maintenance over the term of the license. These are described above in the impacts section for the Lake-Pendleton transmission line.

There are 16 known cultural resources located within the 300-foot-wide study corridor for the Talega-Escondido 230 kV Transmission Upgrade. Direct impacts have been identified for only four (4) of these resources; however, direct impact areas are only defined for the Pala-Lilac 69 kV segment of this alternative, as this would be the only stretch of new structures(see Table Ap.9B-118). There is also the potential to encounter undiscovered cultural resources during additional surveys or project construction. The NRHP/CRHR eligibilities of the four known cultural resources have not been determined.

Formal eligibility determinations would be made by the lead agency prior to construction for any resources that would be affected if the Talega-Escondido 230 kV Transmission Upgrade is built. Because known cultural resources that are potentially eligible for the NRHP or CRHR exist within the alterna-

Table E.7.1-17. Paleontological Sensitivity – Pala to Lilac 69 kV Upgrade

Mileposts	Rock Units	Sensitivity
0-7.2	Granitic rocks, undivided	None
7.2-7.8	Younger Alluvium	Low
7.8-7.9	Granitic rocks, undivided	None

tive corridor, as well as the potential for encountering undiscovered cultural resources, the following impacts would occur during project construction or operation.

Impact C-1: Construction of the project would cause an adverse change to known historic properties (Class II)

Mitigation Measures for Impact C-1: Construction of the project could cause an adverse change to known historic properties

- C-1a Inventory and evaluate cultural resources in Final APE.**
- C-1b Avoid and protect potentially significant resources.**
- C-1c Develop and implement Historic Properties Treatment Plan.**
- C-1d Conduct data recovery to reduce adverse effects.**
- C-1e Monitor construction at known ESAs.**
- C-1f Train construction personnel.**

Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II)

Types of subsurface features that could be encountered along the Talega-Escondido 230 kV transmission upgrade include prehistoric resources such as buried living surfaces, artifact deposits, hearths, burials, and cremations. Historical resources that could be unearthed during project construction include refuse pits, privies, and structural foundations. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, or excavation associated with tower construction. Impacts to most unknown significant prehistoric and historic archaeological sites would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1c, C-1d, C-1f, C-2a and C-3a. However, effects related to Native American human remains would be significant (Class I) even with mitigation.

Mitigation Measures for Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains

- C-1c Develop and implement Historic Properties Treatment Plan.**
- C-1d Conduct data recovery to reduce adverse effects.**
- C-1f Train construction personnel.**
- C-2a Properly treat human remains.**
- C-3a Monitor construction in areas of high sensitivity for buried resources.**

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II)

To date, no TCPs have been identified that would be directly impacted by the Talega- Escondido 230 kV transmission upgrade. Though impacts to TCPs are often Class I, mitigation, as defined by NEPA (in King, 2003), can include “minimizing impacts by limiting the degree or magnitude of the action...,” rectifying or reducing the impact, and/or “compensating for the impact by replacing or providing substitute resources or environments,” which when properly coordinated with Native Americans or other traditional groups can potentially reduce the impact to Class II, but in some cases, impacts would

remain significant (Class I). Implementation of Mitigation Measure C-4a (Complete Consultation with Native Americans and other Traditional Groups) could potentially reduce impacts to TCPs to a level that is less than significant (Class II).

Mitigation Measure for Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties

C-4a Complete consultation with Native American and other Traditional Groups.

Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties (Class II)

Direct and indirect impacts would occur to historic properties within and in the vicinity of the project area during operation and long-term presence of the project. Direct impacts to known resources or other newly identified resources could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. These impacts would be significant, but can be mitigated to a level that is less than significant (Class II) by implementing site protection measures and monitoring procedures, as detailed in Mitigation Measure C-5a (Protect and monitor NRHP and/or CRHR-eligible properties), as well as implementation of Mitigation Measures C-2a (Properly treat human remains) and C-4a (Complete consultation with Native Americans and other traditional groups). Impacts to human remains would remain significant (Class I).

Mitigation Measures for Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

C-2a Properly treat human remains.

C-4a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP and/or CRHR-eligible properties.

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II)

The potential to discover paleontological resources during construction of the proposed Talega-Escondido 230 kV upgrade ranges from zero to high, resulting in potentially significant impacts (Class II). Potentially significant impacts could be mitigated through implementation of the measures listed below.

Mitigation Measure for Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources

Implementation of the following mitigation measures would reduce project effects to a level that is less than significant (Class II).

PAL-1a Inventory and evaluate paleontological resource in the Final APE.

PAL-1b Develop Paleontological Monitoring and Mitigation Plan.

PAL-1c Monitor construction for paleontology.

PAL-1d Conduct paleontological data recovery.

PAL-1e Train construction personnel.

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E.7.1.8 Noise

The noise impacts of the LEAPS Transmission-Only Alternative are presented in the following section. Impacts related to the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.8.

Environmental Setting

Ambient Noise Levels. The predominant noise sources in the Lake Elsinore area and along the Lake-Pendleton transmission line corridor are mobile sources, particularly motor vehicles. Major highways (Interstate 15, Ortega Highway) and several arterial roadways expose portions of the Lake Elsinore area to high noise levels, especially in areas immediately adjacent to the noise sources. General aviation aircraft operations from Skylark Airport, ultra-light operations over the lake, and frequent power boat operations also contribute to the noise environment. Power boat and jet ski activities on the lake create intermittent spikes of noise at many residences along the lake. Other sources include industrial and commercial facilities. In general, the noise environment in the Lake Elsinore area is typical of a rural setting, under 50 dBA Ldn away from locations affected by transportation, recreational, and industrial sources (FERC, 2007) with noise levels approaching 60 dBA near commercial uses, roads, and minor highways and approaching 80 dBA in the vicinity major highways (I-15).

Along the Talega-Escondido transmission line corridor, ambient noise measurements have been previously conducted at several areas. The noise measurements indicate that the daytime average sound level ranges from approximately 40 to 59 dBA and the nighttime average sound level ranges from 26 to 53 dBA (Dudek, 2002). The major noise sources in the area of the Talega-Escondido corridor are traffic along I-15, State Highway 78, and various major roads.

Noise-Sensitive Receptors. The majority of the proposed Lake-Pendleton 500 kV transmission line project corridor is within undeveloped mountainous areas; however, a few small housing developments and ranch homes are located a minimum of 500 feet away. The noise environment along the corridor is typical of natural areas and rural settings. The east-west portion of the existing Talega-Escondido 230 kV transmission line traverses mostly undeveloped land, and the north-south portion becomes increasingly urban with residential uses near the edge of the existing ROW as it approaches Escondido. The ROW edge within the Cleveland National Forest provides a rural and natural setting but is not noise-sensitive. Recreational areas within the forest that would be sensitive include: the Tenaja trailhead, where the line would cross the parking lot and be within 300 feet of trailhead; the Horsethief trail, where the line would cross the trail; the El Cariso Campground, within about 500 feet of the line; the Wildomar Campground, within about 0.5 miles of the line; and the San Mateo Canyon Wilderness, which would be within 300 feet of the line. Noise impacts related to wildlife are discussed as part of Biological Resources (see Section E.7.1.2, Impacts B-6, B-7, and B-12).

Applicable Regulations, Plans, and Standards

Riverside County. Construction noise standards for Riverside County are documented in Title 15.04.020 of the Riverside County Code. Although the code does not set limits on construction noise, it restricts construction activities within one-quarter mile of an occupied residence (property line) to the hours of 6 a.m. to 6 p.m. during the months of June through September. During the months of October through May, such construction activities are restricted to the hours of 7 a.m. through 6 p.m. Exceptions to these standards are allowed with the written consent of the Riverside County building official (Ordinance No. 725, Chapter 1.16, Riverside County Code).

In terms of operational noise, the Riverside County Department of Industrial Hygiene sets worst case noise levels for stationary sources projected to the property line of an occupied residential property at 45 dBA between 10:00 p.m. and 7:00 a.m. (nighttime standard) and 65 dBA between 7:00 a.m. and 10:00 p.m. (daytime standard).

In the Riverside County General Plan (County of Riverside, 2003), noise-sensitive land uses are defined to include schools, hospitals, rest homes, long-term care facilities, mental care facilities, residential uses, places of worship, libraries, and passive recreation areas. The Noise Element Policy N.1.1 specifies that noise-sensitive land uses should be protected from high levels of noise by restricting or relocating noise sources, and Policy N.1.3 establishes the 65 CNEL level as the appropriate trigger level for mitigation.

City of Lake Elsinore. The City of Lake Elsinore Zoning Code, Chapter 17.78, Noise Control, prohibits construction on weekdays between the hours of 7 p.m. and 7 a.m. or at any time on weekends and holidays. The zoning code also states “where technically and economically feasible,” construction activities shall be conducted in such a manner that the maximum noise levels at affected properties do not exceed those listed in Table E.7.1-18.

Table E.7.1-18. City of Lake Elsinore Construction Noise Standards

Type of Equipment	Maximum Noise Levels at Affected Properties (dBA)			
	Residential Properties (daily, except Sundays and legal holidays, 7am to 7pm)			Business Properties (all days, all hours)
	Single-Family	Multi-Family	Semi-Residential/ Commercial	
Mobile Equipment – Non-scheduled short-term operation (less than 10 days)	75	80	85	85
Stationary Equipment – Repeatedly scheduled and relatively long-term operation (10 days or more)	60	65	70	75

Source: City of Lake Elsinore Zoning Code Chapter 17.78, in FERC 2007.

In the City of Lake Elsinore General Plan (1990), noise sensitive land uses are defined to include residences of all types, hospitals, rest homes, convalescent hospitals, places of worship, and schools. An exterior standard of 60 dBA Ldn is the goal for preserving the rural, natural and desired environment of Lake Elsinore.

San Diego County. The San Diego County Code of Regulatory Ordinances Section 36.410 (Construction Equipment) prohibits construction equipment operation between the hours of 7 p.m. of any day and 7 a.m. of the following day, and limits daytime average construction noise levels to 75 dBA. This section also prohibits construction activities on Sundays and holidays.

Orange County. In Division 6 of the Orange County Codified Ordinance, similar construction noise limitation prohibit activity between 8 p.m. and 7 a.m. on Mondays through Saturdays and any time on Sundays or holidays.

Environmental Impacts and Mitigation Measures

Table E.7.1-19 summarizes the noise impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-19. Impacts Identified – Noise

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
N-1	Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances	Class I
N-2	Construction activity would temporarily cause groundborne vibration	Class II
N-3	Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components	Class I
N-4	Routine inspection and maintenance activities would increase ambient noise levels	Class I

Lake-Pendleton 500 kV New Transmission Line

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class I)

Construction noise would temporarily substantially increase ambient noise levels in the vicinity of the proposed overhead line, along the project route, and along transport access routes. Construction activities would include the installation of concrete footings and cable wires, and the erection of poles using an excavator, dump truck, crane, and a wire stringing unit. There would be short-term noise effects on nearby sensitive land uses. The projected maximum intermittent noise levels would range from 80 to 90 dBA at 50 feet from a work site up to 99 dBA near helicopter operations for installing the line or certain structures. Noise from blasting, with time delays between numerous small micro blasts, would similarly adversely affect receptors with intense peak noise levels (up to 140 dBA at the blast location or over 90 dBA for receptors within 500 feet). Because peaks would be brief, average levels throughout the day would be less than 75 dBA.

Construction noise for the Lake-Pendleton 500 kV transmission line would occur near noise-sensitive recreational uses. This impact would be significant without additional measures. Mitigation Measure L-1a would be appropriate (see Section D.4, Land Use). By establishing best management practices for activities likely to violate local noise standards, Mitigation Measure N-1a, in combination with the notification required by Mitigation Measure L-1a, would reduce this impact to the extent feasible, but the substantial noise increase from transmission line construction would be significant and unavoidable (Class I). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement Best Management Practices for construction noise.

Impact N-2: Construction activity would temporarily cause groundborne vibration (Class II)

Vibration levels from construction equipment and activities including blasting would be perceptible in the immediate vicinity of the construction sites. Perceptible vibration could be experienced by residents or workers inside structures within 50 feet of trucks traveling over uneven surfaces. The activities that

would be most likely to cause groundborne vibration would be rock drilling or blasting. The level of groundborne vibration that would reach sensitive receptors would depend on what equipment is used and the soil conditions surrounding the construction site. This impact would be significant because blasting could result in physical damage of vulnerable structures. With advance notification (Mitigation Measure L-1a) and a measure to avoid blasting where damage could occur and restore structures damaged by blasting, as in Mitigation Measure N-2a, this impact would be reduced to a less than significant level (Class II).

Mitigation Measures for Impact N-2: Construction activity would temporarily cause groundborne vibration

L-1a Prepare Construction Notification Plan.

N-2a Avoid blasting where damage to structures could occur.

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class I)

The Lake-Pendleton 500 kV transmission line would cause a permanent noise increase due to the corona effect. Audible power line noise would be generated from corona discharge, which is usually experienced as a random crackling or hissing sound. At the edge of the ROW for the line, this corona noise would likely be between 50 and 55 dBA CNEL during rain or fog conditions. Levels of 40 dBA or less would occur at most sensitive located at distances of 1,000 feet or more from the Lake-Pendleton transmission line route (FERC, 2007). Recreational users of the Cleveland National Forest would be adversely affected.

In natural areas where existing noise levels could be as low as 35 dBA, audible corona noise would cause a substantial permanent increase of more than 5 dBA. This would substantially elevate the current ambient noise levels within 500 feet of the edge of the 500 kV ROW. This would adversely affect passive enjoyment of the forest and wildlife including listed or sensitive species. For the Noise-Sensitive recreation areas and campgrounds (identified in Section E.7.1.8, Environmental Setting), this would be a significant increase.

There are few options for mitigating this noise source. Audible corona noise is a function of conductor design and configuration, which could be changed but would likely trigger other environmental impacts (e.g., taller towers would impact visual resources). Mitigation Measure N-3a would help to minimize the nuisance experienced by recreational users of the forest to the extent feasible, but the substantial noise increase would remain and create an infrequent but significant and unavoidable impact within the park (Class I).

Mitigation Measure for Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components

N-3a Respond to complaints of corona noise.

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class I)

Helicopter and ground-level inspection and maintenance, including insulator washing, access road repair, and emergency response, would cause occasional noise. During this activity, light-duty helicopters would generate noise levels of under 80 dBA at 200 feet, and crew trucks would cause levels of approximately 75 dBA at 50 feet. Impacts would be identical to those of transmission line construction. Inspection and

maintenance noise would be intermittent over the life of the line. However, helicopters and other equipment within 200 feet of sensitive receptors would periodically cause a substantial increase in noise over conditions occurring without this alternative and a significant impact. Because the need for emergency response cannot be predicted and advance notification or restricting the noise from work to daytime hours would not be practical, this would be a significant and unavoidable impact (Class I).

Talega-Escondido 230 kV Transmission Upgrade

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class I)

Construction noise would temporarily substantially increase ambient noise levels in the vicinity of the proposed overhead line, along the project route, and along transport access routes. Construction noise sources would include blading and clearing existing access roads along the transmission line route, stringing conductor and possibly minor grading at some pulling and tensioning sites. These noise sources would occur for approximately nine months. The equipment would include dozers, cranes, graders, crew trucks, man lifts, pullers, tensioners, wire reel trailers, and potentially helicopters. The projected maximum intermittent noise levels would range from 80 to 90 dBA at 50 feet from a work site up to 99 dBA near helicopter operations for installing the line or certain structures.

Residences and workers of local business parks in San Marcos and Escondido would be adversely affected by noise from transmission line construction. This impact would be significant without additional measures. Mitigation Measure L-1a would be appropriate for notification of residences (see Section D.4, Land Use). By establishing best management practices for activities likely to violate local noise standards, Mitigation Measure N-1a, in combination with the notification required by Mitigation Measure L-1a, would reduce this impact to the extent feasible, but the substantial noise increase from transmission line construction would be significant and unavoidable (Class I).

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement Best Management Practices for construction noise.

Impact N-2: Construction activity would temporarily cause groundborne vibration (Class II)

Vibration levels from construction equipment and activities would be perceptible in the immediate vicinity of the construction sites. Perceptible vibration could be experienced by residents or workers inside structures within 50 feet of trucks traveling over uneven surfaces. Rock drilling or blasting would not be needed for the Talega-Escondido 230 kV transmission upgrade. This impact would be significant because blasting could result in physical damage of vulnerable structures. With advance notification (Mitigation Measure L-1a) and implementation of a blasting plan (Mitigation Measure N-2a), the impacts from construction-related groundborne vibration would be adverse but less than significant (Class II).

Mitigation Measure for Impact N-2: Construction activity would temporarily cause groundborne vibration

L-1a Prepare Construction Notification Plan.

N-2a Avoid blasting where damage to structures could occur.

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class I)

The additional 230 kV circuit would cause a permanent noise increase of up to approximately 49 dBA at the edge of the right-of-way. The increased noise would be substantial (more than 5 dBA) during rain or fog conditions for quiet locations in natural settings at the edge of the ROW. The corona noise levels would exceed the San Diego County standards, and the substantial noise increase could exceed the City of Escondido limits for single family residential zones and the City of San Marcos noise criteria for low density residential zones (Dudek, 2002). Mitigation Measure N-3a would help to minimize the nuisance experienced by residences near the ROW edge to the extent feasible, but the substantial noise increase would remain and create an infrequent but significant and unavoidable impact (Class I).

Mitigation Measure for Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components

N-3a Respond to complaints of corona noise.

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class I)

Helicopter and ground-level inspection and maintenance, including insulator washing, access road repair, and emergency response, would cause occasional noise. During this activity, light-duty helicopters would generate noise levels of under 80 dBA at 200 feet, and crew trucks would cause levels of approximately 75 dBA at 50 feet. Impacts would be identical to those of transmission line construction. Inspection and maintenance noise would be intermittent over the life of the line. However, helicopters and other equipment within 200 feet of sensitive receptors would periodically cause a substantial increase in noise over conditions occurring without this alternative resulting in a significant and unavoidable impact (Class I).

E.7.1.9 Transportation and Traffic

The transportation and traffic impacts of the LEAPS Transmission-Only Alternative are presented in the following section. Impacts related to the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.9, below.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

Primary access to the project vicinity would be via improved and unimproved Forest Service roads, a State highway, and an interstate highway, described below. However, construction of the transmission line would largely require either construction of new access roads located predominantly on USFS lands or helicopter construction.

North Main Divide Road and **Indian Truck Trail**, both unimproved roads, would provide access to much of the northern portion of the Lake-Pendleton line. The Lake Substation would be accessible via **Interstate 15**.

South Main Divide Road, which intersects Ortega Highway at its northern end, would be used for vehicular access to the southern portion of the Lake-Pendleton transmission line. South Main Divide Road is accessible via **Ortega Highway (SR74)**. **El Cariso Truck Trail**, which is an unimproved road within CNF that connects with **Grand Avenue** in Lake Elsinore, provides local access to South Main Divide Road, but its use for construction vehicles would be impractical. South Main Divide Road provides sole access to the community of Rancho Capistrano. **Tenaja Truck Trail** would provide access to the southernmost portion of the Lake-Pendleton transmission line and the Pendleton Substation. According to a traffic study conducted by the co-applicants, the affected roadways are all currently operating at an acceptable level of service (LOS; FERC, 2007).

As indicated in the Camp Pendleton Integrated Natural Resource Management Plan (INRMP), Camp Pendleton is the busiest helicopter airstrip in the United States Marine Corps with eight helicopter squadrons, 180 aircraft, and over 148,000 flight operations annually on a single runway. At peak periods, a military aircraft, usually a helicopter, takes off or lands at Camp Pendleton every two minutes. In addition, a commercial runway located just off the coast from Camp Pendleton is considered the busiest in southern California. At peak periods, a commercial aircraft operates in this airspace every two minutes. Camp Pendleton is designated as a High Midair Potential area by the FAA.

As indicated in the Elsinore Area Plan, development restrictions have been imposed in the area of Skylark Airport, which is located just southeast of the lake. The Skylark Influence Policy Area extends southward to Grand Avenue, northward to Lemon Street, and east of Mission Trail. The policy area encompasses the existing Skylark Substation. As indicated in the County of Riverside General Plan, the area in proximity to Skylark Airport is designated Skylark Airport Influence Area. Prohibited uses include any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation. There are three safety zones associated with the Skylark Airport Influence Area. Properties within these zones are subject to regulations governing such issues as development intensity, density, height of structures, and noise.

Talega-Escondido 230 kV Transmission Upgrade

Existing Roadways. Roadway segments within the Talega-Escondido transmission line study area including the locations of the roadway segments, the general roadway classification, the number of lanes, the daily traffic volumes and speed limit are described below and shown in Table E.7.1-20.

Pala Road (76). Pala Road is designed as a major arterial roadway in the San Diego County General Plan Circulation Element and is a two lane road with a speed limit of 50 mph in the Talega-Escondido study area. Pala Road helps provide major intra-regional travel not included in the freeway system. Pala Road carries an average of 6,257 vehicles daily in the project area. The Talega-Escondido study area crosses Pala Road immediately south of the alternative Pala Substation site near the intersection of Pala Del Norte Road and Pala Road.

Couser Canyon Road. Couser Canyon Road is designated as a rural collector roadway and has two lanes with a speed limit of 35 mph in the project area. Couser Canyon Road carries an average of 687 vehicles daily in the project area. The Talega-Escondido 230 kV transmission line crosses Couser Canyon Road between Lilac Road and Pala Road.

Lilac Road. Lilac Road is designated as a rural collector and has two lanes and a speed limit of 30 mph in the project area. Lilac Road carries an average of 904 vehicles daily in the study area, and the Talega-Escondido 230 kV transmission line would run adjacent to or cross Lilac Road between Couser Canyon Road and Old Castle Road.

Old Castle Road. Old Castle Road is designated as a collector roadway and has two lanes and a speed limit of 35 mph in the project study area. Old Castle Road carries an average of 5,451 vehicles daily in the project study area, and would be crossed by the Talega-Escondido 230 kV transmission line between Lilac Road and I-15.

Table E.7.1-20. Existing Roads

Roadway	Jurisdiction	Class	Lanes	Traffic Count (daily)	Physical Relationship to Proposed Project	Speed Limit (in Project Area)
Pala Rd	SD Co	Major Arterial	2	6,257	Crosses south of Pala Substation	50mph
Couser Canyon Rd	SD Co	Rural Collector	2	687	Crosses between Lilac Rd and Pala Rd	35 mph
Lilac Rd	SD Co	Rural Collector	2	904	Adjacent to and crosses between Couser Canyon Rd and Old Castle Rd	30 mph
Old Castle Rd	SD Co	Collector	2	5,451	Crosses between Lilac Rd and I-15	35 mph
Centre City Parkway	Escondido	Major Arterial	4	18,459	Crosses between El Norte Parkway and Country Club Lane	55 mph
I-15	Caltrans	Freeway	4	46,898	Crosses between Country Club Lane and SR78	65mph
SR78	Caltrans	Highway	3	72,801	Crosses west of I-15 and east of Nordahl Rd	65 mph
Old Castle Rd	Escondido	Major Arterial	5	16,745	Crosses between I-15 and Nordahl Rd	40 mph

Source: FERC, 2007.

Centre City Parkway. Centre City Parkway is a major arterial and carries an average of 18,459 vehicles daily in the project area. This roadway has four lanes with a speed limit of 55 mph in the

vicinity of the Proposed Project. The Talega-Escondido 230 kV transmission line would cross Centre City Parkway between El Norte Parkway and Country Club Lane.

Interstate 15 (I-15). I-15 is a major north-south freeway and transportation corridor in the project study area. the Talega-Escondido 230 kV transmission line would cross I-15 between Country Club Lane and SR78. In the immediate vicinity of the study area, I-15 carries an average of 46,898 vehicles daily on its four lanes.

State Route 78 (SR78). SR78 is a state highway in the vicinity of the project and carries an average of 72,801 vehicles daily on its three lanes. The Talega-Escondido 230 kV transmission line would cross SR78 to the west of I-15 and east of Nordahl Road.

East Mission Road (S-14). East Mission Road is designated as a major arterial in the project study area and carries an average of 16,745 vehicles daily on its five lanes. The speed limit on this roadway in the project vicinity is 40 mph and the Talega-Escondido 230 kV transmission line would cross East Mission Road between I-15 and Nordahl Road.

The San Diego Northern Railway (SDNR) railroad is used for freight transportation in Escondido. The Talega-Escondido line crosses the SDNR railway corridor adjacent to Mission Road, east of I-15 and west of Nordahl Road.

Environmental Impacts and Mitigation Measures

Table E.7.1-21 summarizes the transportation and traffic impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-21. Impacts Identified – Transportation and Traffic		
Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow	Class II
T-2	Construction would temporarily disrupt the operation of emergency service providers	Class II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety	Class II
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area	Class II
T-7	Construction would result in the short-term elimination of parking spaces	Class II
T-9	Construction would generate additional traffic on the regional and local roadways	Class I
T-11	Construction of the transmission lines would penetrate airport influence area	Class III
Talega-Escondido 230 kV Transmission Upgrades		
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow	Class III
T-2	Construction would temporarily disrupt the operation of emergency service providers	Class II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety	Class II
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area	Class II
T-7	Construction would result in the short-term elimination of parking spaces	Class II
T-9	Construction would generate additional traffic on the regional and local roadways	Class II

Lake-Pendleton 500 kV New Transmission Line

Impacts T-3 (Construction would temporarily disrupt bus transit services), T-6 (Construction activities would cause a temporary disruption to rail traffic or operations), and T-8 (Construction would conflict with planned transportation projects) are not expected to occur because there are no known bus transit routes or stops, rail operations, or transportation projects that the projects along the Lake Pendleton transmission route.

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class II)

Construction activities would occur primarily in remote areas of the CNF via temporary access roads and by helicopter when necessary. Nevertheless, the proponents propose to prepare and implement traffic management and control plans to address both construction traffic and access to and from the construction sites. Affected public agencies would approve the plans prior to filing them with FERC. Plans would identify signs, striping, barricades, flagmen, roadway modifications, and other safety measures. At all times, traffic access along South Main Divide Road would be maintained. If limited distance single-lane traffic is required, appropriate one-way traffic control would be implemented.

Nonetheless, construction of the Lake-Pendleton transmission line would cause temporary road and lane closures that would affect traffic flow. This is considered a significant impact (Class II) that could be mitigated to a less than significant level through implementation of Mitigation Measure T-1a, which would ensure that traffic delays are not experienced during peak hours as well as requiring the project owner to coordinate with appropriate jurisdictions (Caltrans, County of San Diego and Camp Pendleton Marine Corps Base) to determine when the least amount of traffic may experience lane/road closures in order to minimize impacts on transportation.

Lane closures on CNF would also potentially occur on South Main Divide Road and Ortega Highway (SR74), and this would be considered a significant impact. The Forest Service has put forth Condition 26, below, for management of traffic impacts within the CNF. This measure would reduce impacts of lane closures on CNF to a less than significant level (Class II). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measures for Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow

USFS-26 Condition No. 26—Road and Traffic Management Plan. Within one year of license issuance or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for management of all Forest Service and unclassified roads required by the licensee to access the project area on National Forest System Lands. The Project Road and Traffic Management Plan shall include:

- Identification of all Forest Service roads and unclassified roads on National Forest System Lands needed for project access, including road numbers.
- A map of all Forest Service roads and unclassified roads on National Forest System land used for project access, including digital spatial data accurate to within 40 feet, identifying each road by Forest Service essential for review road number.
- A description of each Forest Service road segment and unclassified roads on National Forest System land needed for project access including:
 1. Termini

2. Length
 3. Purpose and use
 4. Party responsible for maintenance
 5. Level of maintenance
 6. Structures accessed
 7. Location and status of gates and barricades, if any
 8. Land status of road segment including ownership and right-of-way or easement
 9. Instrument of authorization for road use
 10. Assessment of road condition and licensee reconstruction needs
 11. Rehabilitation of temporary access disturbance
 12. Temporary access locations will be gated to prevent unauthorized public vehicle access
- Provisions for the licensee to consult with the Forest Service in advance of performing any road construction, realignment, maintenance, or closure involving Forest Service roads, or roads authorized by the Forest Service.
 - The Licensee will be required to upgrade Forest Service roads if necessary to accommodate the proposed use.
 - The Licensee shall cooperate with Forest Service on the preparation of a condition survey and a proposed maintenance plan subject to Forest Service approval annually; beginning the first full-year after the Road and Traffic Management Plan has been approved.
 - The Licensee shall use non-Forest Service roads on or affecting National Forest System lands in accordance with applicable state, county, city, and/or local authority standards. The Licensee will furnish documentation and evidence of their coordination with other road management entities. The Licensee is responsible for securing any necessary easements or right-of-way for roads on private land if Forest Service easements are not available or assignable.
 - The Road and Traffic Management Plan shall identify the licensee's responsibility for road maintenance and repair costs commensurate with the licensee's use and project-induced use. The Road and Traffic Management Plan shall specify road maintenance and management standards; that provide for traffic safety, minimize erosion and damage to natural resources, and that are acceptable to the Forest Service.
 - Licensee shall be responsible for any new construction, realignment, closure, or other road management actions proposed by the licensee in the future, subject to Forest Service standards in effect at the time, including related studies, analyses or reviews required by Forest Service.

Upon Commission approval, the Licensee shall implement the plan.

FERC-22 Environmental Measure 22—Traffic Management Plan: Forest. Include in the proposed road and traffic management plan applicable to National Forest System lands provisions addressing road construction, realignment, maintenance, use, and closure and identifying the proponents' responsibility for road maintenance and repair costs.

FERC-23 Environmental Measure 23—Traffic Management Plan: Non-Forest. Include in the proposed road and traffic management plan applicable on non-National Forest System lands provisions addressing road construction, realignment, maintenance, use, and closure, as well as land management policies and practices associated with project-related roads during both construction and operations.

T-1a Restrict lane closures.

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

Transmission line construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Potential roadway segments that would be most impacted would be two-lane roadways, which provide one lane of travel per direction (Ortega Highway and South Main Divide Road). Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked by the construction zone. Temporary disruptions of the operation of emergency service providers is considered significant (Class II). This impact could be mitigated to a level that is less than significant through implementation of Mitigation Measure T-2b, which requires the proponent to coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles.

Mitigation Measure for Impact T-2: Construction would temporarily disrupt the operation of emergency service providers

T-2b Coordinate with Emergency Service Providers.

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II)

Bicycle and pedestrian circulation would be significantly affected by transmission line construction activities within CNF if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked. Significant impacts to bicycle circulation would most likely occur on South Main Divide Road due to construction laydown areas being located directly adjacent to the road, and significant impacts to pedestrian circulation would occur at the Morgan Trailhead, the Tenaja Trailhead, and Horsethief Trail due to the use of heavy equipment in these locations. Potential impacts to pedestrian and bicycle circulation would be reduced to a less than significant level with the implementation of Mitigation Measures T-4a and WR-1b (Class II) because alternative pedestrian and bicycle routes would be established around the construction zone for safe passage, and temporary detours for trail users within CNF would be implemented. Additional impacts to trail users are described in Section E.7.1.5, Wilderness and Recreation.

Mitigation Measures for Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety

T-4a Ensure pedestrian and bicycle circulation and safety.

WR-1b Provide temporary detours for trail users.

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

There is the potential for significant damage to occur to roadways by vehicles and equipment (line trucks, crew trucks, and concrete trucks) that would repeatedly enter and leave roadways within the construction area (Class II). Implementation of Mitigation Measure T-5a would ensure that damaged roadways in the project area are restored to previous conditions and/or improved conditions. Implementation of Mitigation Measure T-5a (Repair damaged roads) will require the project owner to employ physical road improvements such as construction/modification of roadways and repaving roadways. Mitigation Measure T-5a would reduce the impacts that construction vehicles and equipment could have on roads to less than signif-

icant levels by requiring physical roadway improvements to areas that are noticeably damaged. Additionally, physical damage on forest roads through CNF would be less than significant with the implementation of the Road and Traffic Management Plan, as specified by the USFS in the Project Specific Forest Service Conditions (see Appendix 12B, Condition No. 26).

Mitigation Measure for Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area

T-5a Repair damaged roads.

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class II)

Transmission line construction could result in short-term elimination of parking spaces (e.g., Morgan Trailhead, South Main Divide Road, Tenaja Trailhead). This impact is considered significant, as no compensatory parking areas are proposed (Class II). To ensure that parking is not unnecessarily impacted during construction, Mitigation Measures T-7a is required in order to notify the public of temporary elimination of parking spaces and where temporary spaces will be relocated, as applicable.

Mitigation Measure for Impact T-7: Construction activities would cause a temporary disruption to rail traffic or operations

T-7a Notify public of potential short-term elimination of parking spaces.

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class I)

Construction of the Lake-Pendleton transmission line would generate additional traffic on the regional and local roadways. Ortega Highway (SR74) would provide access to North and South Main Divide Roads, which would provide access to the transmission line. Construction-related traffic would decrease the level of service on Ortega Highway and South Main Divide Road. This traffic would consist of personal vehicles for personnel commuting into the area and construction vehicles including large trucks and excavators. Due to the magnitude of construction activities, the impact to traffic on regional and local roadways would be significant and unavoidable (Class I)

Traffic resources at the Grand Avenue/Ortega Highway intersection could be significantly affected due to an increased demand for left turns onto Ortega Highway from Grand Avenue as a result of construction traffic. To mitigate potential effects on the traffic resources at the Grand Avenue/Ortega Highway intersection Mitigation Measure T-9b would be required. This measure requires adding a second left turn lane or through lanes on Grand Avenue.

In addition, Mitigation Measure T-9a would help reduce impacts to levels of service on area roadways would be reduced to a less than significant impact by submitting a Construction Transportation Plan (CTP) to the appropriate jurisdiction. The CTP would require the project owner to coordinate with the affected city and/or county to plan alternative routes and determine acceptable off-peak hours for construction activities, among other measures to keep the LOS on affected roadways from decreasing to unacceptable LOS when possible. Traffic Management Plans for Forest Service and other lands would be required per FERC, as described below.

The mitigation measures listed below would be required, however the overall impacts to traffic would remain significant.

Mitigation Measures for Impact T-9: Construction would generate additional traffic on the regional and local roadways

FERC-22 Environmental Measure 22—Traffic Management Plan: Forest.

FERC-23 Environmental Measure 23—Traffic Management Plan: Non-Forest.

T-9a Prepare Construction Transportation Plan.

T-9b Add traffic lanes on Grand Avenue. The proponent shall do one of the following in coordination with the City of Lake Elsinore: (1) add a second left turn lane to the Ortega Highway intersection approach to address the high number of left turns on to Ortega Highway from Grand Avenue, or (2) add a through lane on Grand Avenue (for a total of two) in both directions, at the Grand/Ortega intersection.

Impact T-11: Construction of the transmission lines would penetrate airport influence area (Class III)

Overhead transmission lines within 1,000 feet of airports or known flight paths can impact the safety and operations of air navigation through collision, radar interference or similar direct and indirect effects. Construction of the transmission lines would be located within two miles of the Skylark Airport and could have potentially adverse effects on airport operations. Additionally, project transmission lines would fall within 3,000 feet of a private air strip and could affect military training and other operations in and around Camp Pendleton. The proponents do not propose any specific measures to address potential project-related effects on the Skylark Airport or the private air strip. However, in its April 28, 2005 letter to FERC, Riverside County indicated that the project would require Airport Land Use Commission review if any part of the project is taller than 200 feet. In response to the letter, the proponents indicate that the transmission towers would be 120 to 170 feet tall and would lie below the ridgeline in the area between Elsinore Peak and the airport. The proponents do not propose any specific measures to address potential project-related effects on the private landing strip located within 3,000 feet of the proposed transmission line. Several stakeholders commented that the proximity of the transmission alignment to the airstrip would make it unusable and that the owner of the airstrip should be compensated for loss of the property's use, and people who currently use the strip for pleasure flying could lose the airstrip as a resource.

With respect to potential effects on Camp Pendleton operations, the proponents propose to demarcate the transmission lines (for example, by installing ball markers) and follow Federal Aviation Administration requirements. The proposed transmission line would include towers approximately 170 feet tall within two miles of the Skylark Airport influence area. The airport influence area establishes height restrictions to 200 feet or less. Thus, although the project would be built within two miles of the Skylark Airport at its nearest point, the southern segment of the transmission line would not obstruct the airport influence area and effects would be less than significant (Class III). Nonetheless, consultation with the airport before and during construction would help ensure that project features would not interfere with flight patterns in the area. Additionally, construction of the transmission line would require approval of an FAA Form 7460-1 as well as military base encroachment permits for construction on Camp Pendleton Marine Corps Base.

Use of a private landing strip would potentially be permanently affected by the transmission line. The proponents have not proposed any specific measures to address potential project-related effects on the private landing strip located within approximately 3,000 feet of the route. Several stakeholders commented that the proximity of the transmission line to the airstrip would make it unusable. However,

since the transmission line would not be within 1,000 feet of an airport or airstrip, this impact is considered less than significant (Class III). No mitigation is required.

Talega-Escondido 230 kV Transmission Upgrade

Overall impacts to transportation and traffic due to changes to the existing Talega-Escondido transmission line as a result of the LEAPS Transmission-Only Alternative are discussed below. The following impacts would not occur with the Talega-Escondido 230 kV Transmission Upgrade: T-3 (Construction would temporarily disrupt bus transit services), T-8 (Construction would conflict with planned transportation projects), and Impact T-10 (Underground construction could restrict access to properties and businesses) because there are no bus transit routes or stops along the route and there are no underground construction activities planned. In addition, construction of the second 230 kV line would occur on existing transmission line structures, and rebuild of the 69 kV line would occur on wood and steel pole structures between 60 to 120 feet in height, adjacent to existing 230 kV structures in the existing 300-foot ROW. No new obstacles would extend 200 feet aboveground level; however, the project owner would be required to submit FAA Form 7460-1 as well as military base encroachment permits for construction on Camp Pendleton Marine Corps Base.

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class III)

The 230 kV transmission line crosses a number of roadways (including I-15 and SR78), and construction activities would require encroachment permits issued by Caltrans and the City of Escondido. Temporary road and lane closures would occur to roadways over a period of 12 weeks during installation of the second circuit on the Talega-Escondido 230 kV transmission line. The two main roadways that would be impacted are I-15 (46,898 average daily trips [ADT]) and SR78 (72,801 ADT), I-15 would be crossed by the 230 kV line between Country Club Lane and SR78 in the City of Escondido, and SR78 would be crossed by the 230 kV line west of I-15 and east of Nordahl Road near the border of Escondido and San Marcos. It is anticipated that each road crossing will delay traffic for no more than 15 minutes in a normal construction sequence. This would not be a continuous stoppage. Temporary lane closures and associated safety consequences, increased traffic levels and constrained circulation are considered significant effects. In order to reduce impacts of lane and road closures, Mitigation Measure T-1a (set forth in full in Section D.9) is recommended. Mitigation Measure T-1a would restrict all necessary lane closures on roadways to off-peak and off-season periods reducing the impacts of temporary road and lane closures.

At the Talega and Escondido Substations, modifications would occur in areas already graded and surfaced. Consequently, it is not anticipated that modifications to the Talega and Escondido Substations would cause any road and lane closures as all construction equipment and activities would be contained within existing substation fences.

Mitigation Measure for Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow

T-1a Restrict lane closures.

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

Construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. This impact is considered significant (Class II), and can be mitigated to a level that

is less than significant through Implementation of Mitigation Measure T-2b, which requires the project owner to notify emergency service providers of the construction location and activities prior to construction so that alternative routes and adjustments to service areas and destinations are developed as necessary to maintain emergency service coverage and response times.

Mitigation Measure for Impact T-2: Construction would temporarily disrupt the operation of emergency service providers

T-2b Coordinate with Emergency Service Providers.

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II)

Pedestrian and bicycle circulation could be affected by transmission line construction activities if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked. In order to avoid significant impacts to pedestrians and bicycle movements alternative pedestrian and bicycle routes would need to be established around the construction zone for safe passage as well as temporary detours for trail users for pedestrian and bicycles within the project route. Implementation of Mitigation Measure T-4a and WR-1b Impacts would reduce these impacts to be less than significant (Class II) because alternative pedestrian and bicycle routes would be established around the construction zone for safe passage as well as temporary detours for trail users for pedestrian and bicycles within the project route

Mitigation Measure for Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety

T-4a Ensure pedestrian and bicycle circulation and safety.

WR-1b Provide temporary detours for trail users.

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

Transmission line construction could damage roadways along the transmission line route by vehicles and equipment entering and leaving roadways. Implementation of Mitigation Measure T-5a would ensure that damaged roadways along the project route are restored to previous conditions and/or improved conditions. Mitigation Measure T-5a (Repair damaged roads) will require the project owner to employ physical road improvements such as construction/modification of roadways and repaving roadways. Mitigation Measure T-5a would reduce the impacts that construction vehicles and equipment could have on roads to less than significant levels (Class II) by requiring physical roadway improvements to areas that are noticeably damaged.

Mitigation Measure for Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area

T-5a Repair damaged roads.

Impact T-6: Construction activities would cause a temporary disruption to rail traffic or operations (Class II)

The installation of the Talega-Escondido 230 kV line and rebuild of the 69 kV could interfere with freight train operations on the SDNR tracks. The 230 kV line and 69 kV line would cross the SDNR railway in Escondido adjacent to Mission Road, east of I-15 and west of Nordahl Road (Dudek, 2002).

This potential disruption with rail operations is considered significant; however, it could be mitigated to a level that is less than significant (Class II) with implementation of Mitigation Measure T-6b, which requires the project owner to obtain permits to enter railroad ROWs. A requirement of the permit would be installation of a temporary protection shield for construction above or adjacent to railroad tracks.

Mitigation Measure for Impact T-6: Construction activities would cause a temporary disruption to rail traffic or operations

T-6b Obtain railroad right-of-way permit.

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class II)

Access to driveways and entrances to agricultural lands could be temporarily blocked by installation of the second 230 kV transmission line and rebuild of the existing 69 kV transmission line, thereby impeding access and parking to local residences and commercial uses. This impact would be significant, but could be mitigated to a less than significant level (Class II) with implementation of Mitigation Measure T-7a, which requires notification of the public of any loss in parking spaces and where alternative spaces can be found prior to any construction work.

Mitigation Measure for Impact T-7: Construction activities would cause a temporary disruption to rail traffic or operations

T-7a Notify public of potential short-term elimination of parking spaces.

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class II)

Installation of the 230 kV and 69 kV transmission lines, and modifications to the Talega and Escondido Substations would generate additional traffic on the regional and local roadways serving the area. Construction worker commute trips, project equipment deliveries and hauling materials used in construction would increase the existing traffic volume in the project area.

The daily project workforce would consist of a maximum of 20 workers daily at each substation, and 15-20 workers for installation of the 230 kV and 69 kV lines, and to the substations, where parking would be provided. Haul truck traffic would include trucks carrying equipment and materials, spoils for disposal, and crushed rock or gravel for insulation at the substation site. During peak construction activities, an estimated 2,500 truck trips per day would occur over a two-month period spaced out over the length of the 51-mile ROW. The amount of trips generated during construction activities meet the threshold for determining when a Traffic Impact Study (TIS) is required by Caltrans (generates over 100 peak hour trips assigned to a State highway facility, or generates between 50 to 100 peak hour trips assigned to a State highway facility and said highway is experiencing noticeable delay, approaching LOS C or LOS D (Caltrans, 2002). The TIS would include analysis of traffic impacts on local facilities, intersections and driveways among other requirements. Mitigation Measure T-9a would ensure that potentially significant impacts to levels of service on area roadways would be reduced to a less than significant impact by submitting a plan to the affected city and/or county to plan alternative routes and determine acceptable off-peak hours for construction activities, among other measures to keep the LOS on affected roadways from decreasing unacceptably (Class II).

Mitigation Measure for Impact T-9: Construction would generate additional traffic on the regional and local roadways

T-9a Prepare Construction Transportation Plan.

E.7.1.10 Public Health and Safety

This section addresses the environmental setting and impacts to public health and safety associated with the LEAPS Transmission-Only Alternative. The LEAPS Generation and Transmission Alternative is addressed in Section E.7.2.10.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

The Lake-Pendleton transmission line would pass through a mixture of rural residential areas and undeveloped forest land with trees and scrub brush. New environmental databases (EDR, 2007j) were obtained and reviewed for the Lake-Pendleton transmission route. Based on review of the EDR environmental databases, there are no known contaminated sites or hazardous material site within 0.25 miles of the proposed LEAPS new 500 kV alignment with potential to impact the project.

Talega-Escondido 230 kV Transmission Upgrade

The western end of the Talega-Escondido 230 kV route starts at the eastern edge of San Clemente moving west into undeveloped open space and forestland consisting of grasses, scrub brush, and trees. As the alignment continues east it approaches and crosses the rural community of De Luz, which consists primarily of scattered rural residential properties and small ranches with agricultural fields and groves. As the Talega-Escondido alignment continues east it crosses the I-15 freeway into the community of Rainbow and turns south, it continues to cross scattered rural residential properties and agricultural land (primarily orchards or groves). As the alignment continues south and enters Escondido, residential properties and developments become denser, with some commercial and light industrial properties along main roads and near the I-15. The southern-most end of the alignment in Escondido traverses an area that includes light industrial and warehouse properties.

New environmental databases (EDR, 2007j) were obtained and reviewed for the Talega-Escondido transmission line. Based on review of the EDR environmental databases, there are numerous known contaminated and hazardous material site within 0.25 miles of the Talega-Escondido 230 kV alignment with potential to impact the project. These sites are summarized in Table E.7.1-22. In the Escondido area between I-15 and Vineyard Avenue (south of the Escondido Substation) there are more than 300 sites are listed in the EDR database within 0.25 miles of the alignment (all listed as EDR ID # 16), ranging from sites that use and store small amounts of hazardous materials to sites with known contamination. Because of the large number of sites in this area, including gas stations and light industrial facilities and warehouses with underground storage tanks (UST), only sites with known contamination are listed in Table E.7.1-22.

Table E.7.1-22. Identified Hazardous Material Sites within 0.25 Miles of the Talega-Escondido Transmission Line

EDR Map ID ¹	Site Name	Site Address	Database Lists ²	Comments
1	TRW Incorporated/Northrop Grumann	33000 Avenida Pico, San Clemente	HIST UST, FINDS, RCRA_LOG, HAZNET	Two gasoline USTs listed on site. Site uses, stores, and disposes of large quantities of chemicals.
2	SDG&E Rainbow Gas Compressor Station	3051 Rainbow Valley Blvd, Fallbrook	FINDS, AST, RCRA_LOG, HAZNET, LUST, SD Co. HMMD	Site disposes of miscellaneous organic and inorganic solid and liquid waste and stores and uses miscellaneous chemicals on site. LUST was lubrication oil and is now case closed.
5	Rainbow Conservation Camp	8215 Rainbow Heights Road, Fallbrook	HIST UST, SWEEPS UST, SD Co. HMMD	Two USTs listed, one gasoline and one diesel. Disposes of miscellaneous solid and liquid wastes.
8	John A Wills Co.	32776 Via Del Venado, Valley Center	HIST UST, FINDS, RCRA-SQG, SD Co. HMMD	Two USTs listed, one gasoline and one diesel. Small quantity generator.
16	Entek Manufacturing/Escondido Roofing	2368 Vineyard Ave, Escondido	LUST, SD Co. HMMD, SD Co SAM, SWEEPS UST	Two gasoline leaks in 1987, now both case closed. One gasoline UST listed on site.
16	Escondido Veterinary Hospital	630 Enterprise Street, Escondido	LUST, SD Co. HMMD, SD Co SAM, SWEEPS UST	Soil only diesel leak in 1990, now case closed. One UST listed on site.
16	TRUEPARCO	655 Enterprise Street, Escondido	LUST, SD Co. HMMD, SD Co SAM, HAZNET	Soil only waste oil leak in 1999, now case closed. Site listed as having one UST.
16	Superior Ready Mix	1508 Mission Road, Escondido	LUST, SD Co. HMMD, HIST UST, HAZNET, SWEEPS UST	Waste oil leak in 1992, case closed. Six USTs listed on site, containing diesel and motor oil.
16	Dion International/Rush Truck Center	1620 Mission Road, Escondido	LUST, CORTESE, RCRA-SQG, SWEEPS UST, HAZNET	Waste oil leak in 1993, now case closed. Three USTs listed on site.
16	Sempra Energy/SDG&E	1623 Mission Road, Escondido	LUST, SD Co. HMMD, SD Co SAM, HAZNET, FINDS, RCRA-SQG	1998 gasoline leak, case closed. 2004 waste oil leak, preliminary site assessment underway. Site listed as having 3 USTs, 2 fuel and one waste oil.
16	SKS Inc./Pacific Pride Fuel Center/Inland Oil Company	1726 -1730 Mission Road, Escondido	LUST, SD Co. HMMD, HIST UST, SWEEPS UST, HAZNET, RCRA-SQG, SD Co. SAM	Gasoline leak sin 1986 and 1990, both case closed. Soil only diesel leak in 2002, case closed. Twenty USTs listed on site containing gasoline, diesel, and kerosene.
16	International Marble and Onyx	1914 West Mission Road, Escondido	LUST, SD Co. HMMD	Soil only gasoline leak in 1997, now case closed.
16	Contractors Equipment Co/ HDS Auto Parts & Machine/North County Rebuilders	1960 West Mission Rd, Escondido	LUST, SD Co. HMMD, HAZNET, UST, HIST UST, SWEEPS UST	1987 gasoline leak, case closed. 1999 gasoline leak listed as undergoing preliminary assessment. Six motor vehicle fuel USTs listed on site.

Table E.7.1-22. Identified Hazardous Material Sites within 0.25 Miles of the Talega-Escondido Transmission Line

EDR Map ID ¹	Site Name	Site Address	Database Lists ²	Comments
16	Shell Gas Station	780 El Norte Parkway, Escondido	LUST, SD Co. HMMMD, SD Co SAM, HAZNET, UST, FINDS, CORTESE, SWEEPS UST	1995 gasoline leak reported as undergoing site assessment. Three motor vehicle fuel USTs listed onsite.

1 EDR Environmental Information Data Site I.D.

2 FEDERAL RECORDS

RCRA-LQG: Resource Conservation and Recovery Act Information. Large Quantity Generator

FINDS: Facility Index System/Facility Registry System, contains both facility information and 'pointers' to other sources that contain more detail.

STATE AND LOCAL DATABASES

UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies

HIST UST: Hazardous Substance Storage Container Database, a historical listing of UST sites.

SWEEPS UST: Statewide Environmental Evaluation and Planning System, listing of USTs from 1980s.

LUST: Leaking Underground Storage Tank Incident Reports, contains an inventory of reported leaking underground storage tank incidents.

HAZNET: Facility and Manifest Data, data is extracted from the copies of hazardous waste manifests received each year by the DTSC.

SD Co. HMMMD: San Diego County Hazardous Materials Management Division Database

SD Co. SAM: Contains listing of all underground tank release cases and projects actively under review by the Site Assessment and Mitigation Program.

UST: Active UST Facilities, Active UST facilities gathered from the local regulatory agencies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List.

Electric and Magnetic Fields. As discussed in Section D.10.11.3, there remains a lack of consensus in the scientific community in regard to public health impacts due to EMF at the levels expected from electric power facilities. Further, there are no federal or State standards limiting human exposure to EMFs from transmission lines or substation facilities in California. For those reasons, EMF is not considered in this EIR/EIS as a CEQA/NEPA issue and no impact significance is presented.

Environmental Impacts and Mitigation Measures

Table E.7.1-23 summarizes the public health and safety impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-23. Impacts Identified – Public Health and Safety (Contamination)

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination	Class II
P-3	Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading	Class III
P-4	Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction	Class II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance	Class II
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers	Class II

Table E.7.1-23. Impacts Identified – Public Health and Safety (Contamination)

Impact No.	Description	Impact Significance
Talega-Escondido 230 kV Transmission Upgrades		
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination	Class II
P-2	Residual pesticides and/or herbicides could be encountered during grading or excavation in agricultural areas	Class II
P-3	Unanticipated preexisting soil and/or groundwater contamination could be encountered during excavation or grading	Class III
P-4	Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction	Class II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance	Class II
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers	Class II
P-7	Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites	Class II

Lake-Pendleton 500 kV New Transmission Line

Impacts P-1, P-3, P-4, P-5, and P-6 are addressed below. Because the Lake-Pendleton transmission line would not traverse agricultural areas (aside from grazing), Impact P-2 (Residual pesticides and herbicides could be encountered during grading or excavation in agricultural areas) would not occur. Because no contaminated sites are located near the transmission line segment, Impact P-7 (Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites) would not occur and is not discussed below.

As discussed in Section E.7.1.5, Wilderness and Recreation, potential hazards near public roads, trails and recreation facilities could exist and are address through Forest Service 4(e) Condition 13. This condition specifies that the proponents provide a safety plan to identify potential hazards near public roads, trails, and recreational facilities, and measures necessary to protect public safety. Under the plan, the proponents would conduct daily inspections, documented in writing, of affected National Forest System lands and the proponents' adjoining fee title property during construction for fire plan compliance, public safety, and environmental protection.

Impact P-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities (Class II)

During construction operations, hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging yards. The proponents would store small quantities of oil and petroleum products necessary to project-related use. A hazardous substance spill would be considered a significant impact, but could be mitigated to a less than significant level (Class II) through development and implementation of a hazardous substances spill prevention and control plan. A list of hazardous materials typically used for transmission line construction that are expected to be used during project construction is presented in Section D.10, Table D.10-7. As specified by Forest Service Condition 7, a hazardous substances spill prevention and control plan would help to minimize the amount of petroleum products that would enter the Proposed Project waters in the unlikely event of a spill.

Mitigation Measures for Impact P-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities

USFS-7 Condition No. 7—Hazardous Substances Plan. Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill clean-up for Project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and clean-up is needed.

At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill clean-up equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill clean-up equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts

P-1a Implement Environmental Monitoring Program.

P-1b Maintain emergency spill supplies and equipment.

P-1c Personnel trained in proper use and safety procedures for the chemicals used. [HS-APM-1]

P-1d Personnel trained in refueling of vehicles. [HS-APM-2]

P-1f Applicant's and/or General Contractor environmental/health and safety personnel. [HS-APM-8]

P-1g Proper storage and disposal of generated waste. [HS-APM-10]

Impact P-3: Previously unknown soil and or groundwater contamination could be encountered during grading or excavation (Class III)

Based on a database search, no known contaminated sites or hazardous material site occur within 0.25 miles of the proposed LEAPS new 500 kV alignment, the Lake Substation, or the Pendleton Substation. However, where the route is adjacent to or crosses Camp Pendleton, there is a small likelihood that unanticipated soil contamination would be encountered. Possible types of contamination include gasoline and diesel fuel residuals, heavy metals, and/or other hazardous materials disposed of by the military. There also exists the potential for unknown contamination to have occurred along and near area roads due to illegal dumping. However, due to the low probability of encountering contamination given the location of the route primarily across National Forest lands, this impact is considered to be less than significant (Class III), and no mitigation measures are required for this impact.

Impact P-4: Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction (Class II)

The potential for unknown and unexploded ordnance cannot be dismissed in many areas of Camp Pendleton where weapons and artillery training may have left these materials. Consequently, Impact P-4 may occur during construction of project facilities on Camp Pendleton, and implementation of miti-

gation is required to ensure that impacts are less than significant. Implementation of Mitigation Measure P-4a is required, which mandates the use of trained experts to investigate unexploded ordnance occurrence as well as site inspections to locate and remove unexploded ordnance in military areas prior to the start of construction. In addition, Mitigation Measure P-4b would require that all personnel involved in grading and excavation be trained to recognize unexploded ordnances. Implementation of these measures would ensure that the impact would be less than significant (Class II).

Mitigation Measures for Impact P-4: Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction

P-4a Unexploded ordnance to be removed by trained personnel.

P-4b Train project personnel to recognize unexploded ordnance.

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II)

Soil or groundwater contamination could result from accidental spill or release of hazardous materials at the substations during facility operations or during maintenance of the transmission line, towers, and other associated transmission components. This could result in exposure of the facility, maintenance workers, and the public to hazardous materials. Implementation of a hazardous substances plan would ensure that these impacts would be less than significant (Class II).

Mitigation Measures for Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance

USFS-7 Condition No. 7—Hazardous Substances Plan

P-1c Personnel trained in proper use and safety procedures for the chemicals used. [HS-APM-1]

P-1g Proper storage and disposal of generated waste. [HS-APM-10]

Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers (Class II)

Herbicides used for vegetation control in the project ROW and around substations have the potential to harm personnel or members of the public if not handled appropriately. This is considered a significant impact (Class II) that can be mitigated through implementation of Mitigation Measures P-6a (Develop list of approved herbicides) and P-6b (Update and follow Sempra's Physical and Climatic Target Area Evaluation Form).

Mitigation Measure for Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers

P-6a Develop list of approved herbicides. The project proponent shall develop a list of herbicides to be used for construction, operation, and maintenance of the project ROW in consultation with USFWS and USFS (on Forest System lands). This list shall be subject to agency approval at least 60 days prior to construction.

P-6b Update and follow Sempra's Physical and Climatic Target Area Evaluation Form. The project proponent shall update Sempra's Physical and Climatic Target Area Evaluation Form to contain current contact information, and all personnel shall follow the steps laid out in the Form during all stages of project construction and operation.

Talega-Escondido 230 kV Transmission Upgrade

Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class II)

During construction operations, hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging yards. The proponents would store small quantities of oil and petroleum products necessary to project-related use. A hazardous substances spill would be considered a significant impact, but could be mitigated to a less than significant level (Class II) through development and implementation of a hazardous substances spill prevention and control plan. A list of hazardous materials typically used for transmission line construction that are expected to be used during project construction is presented in Section D.10, Table D.10-7. As specified by the Forest Service, a hazardous substances spill prevention and control plan would help to minimize the amount of petroleum products that would enter the Proposed Project waters in the unlikely event of a spill.

Mitigation Measures for Impact P-1: Soil or groundwater contamination results due to improper handling and/or storage of hazardous materials during construction activities

- P-1a Implement Environmental Monitoring Program.**
- P-1b Maintain emergency spill supplies and equipment.**
- P-1c Personnel trained in proper use and safety procedures for the chemicals used. [HS-APM-1]**
- P-1d Personnel trained in refueling of vehicles. [HS-APM-2]**
- P-1e Preparation of environmental safety plans including spill prevention and response plan.**
- P-1f Applicant's and/or General Contractor environmental/health and safety personnel. [HS-APM-8]**
- P-1g Proper storage and disposal of generated waste. [HS-APM-10]**

Impact P-2: Residual pesticides and or herbicides could be encountered during grading or excavation in agricultural areas (Class II)

The Talega-Escondido transmission line traverses numerous agricultural areas. The potential presence of residual pesticide and herbicide contamination of the soil and/or groundwater in the agricultural areas along the alignment represents a significant impact due to the health hazards to construction workers and the public stemming from exposure to pesticide or herbicide contaminated soil and/or groundwater. This impact is considered significant as pesticide and herbicide contamination is not always readily apparent by visual or olfactory indicators. The Mitigation Measures below are required to reduce this impact to less than significant levels (Class II).

Mitigation Measures for Impact P-2: Residual pesticides and or herbicides could be encountered during grading or excavation in agricultural areas

- P-2b Stop work if contamination is detected. [HS-APM-15]**
- P-2c Cordon off contaminated areas. [HS-APM-16]**
- P-2d Notification of regulatory agencies. [HS-APM-17]**

Impact P-3: Previously unknown soil and or groundwater contamination could be encountered during grading or excavation (Class III)

Based on an EPA database search, no EPA-regulated facilities exist either on or in close proximity to the Talega-Escondido transmission line route, nor are proposed facilities on Camp Pendleton in the vicinity of known contaminated sites (EVMWD, 2007). However, where the route is adjacent to or crosses Camp Pendleton, there is a small likelihood that unanticipated soil contamination is encountered. Possible types of contamination include gasoline and diesel fuel residuals, heavy metals, and/or other hazardous materials disposed of by the military. There also exists the potential for unknown contamination to have occurred along and near area roads due to illegal dumping. Due to the low probability of encountering contamination, this impact is considered to be less than significant (Class III), and no mitigation is required for this impact.

Impact P-4: Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction (Class II)

The potential for unknown and unexploded ordnance cannot be dismissed in many areas of Camp Pendleton where weapons and artillery training may have left these materials. Consequently, Impact P-4 may occur during construction of project facilities on Camp Pendleton, and implementation of mitigation is required to ensure that impacts are less than significant. Implementation of Mitigation Measure P-4a is required, which mandates the use of trained experts to investigate unexploded ordnance occurrence as well as site inspections to locate and remove unexploded ordnance in military areas prior to the start of construction. In addition, Mitigation Measure P-4b would require that all personnel involved in grading and excavation be trained to recognize unexploded ordnances. Implementation of these measures would ensure that the impact would be less than significant (Class II).

Mitigation Measures for Impact P-4: Areas used by the military may contain unexploded ordnance (UXO) and could explode and injure workers during construction

- P-4a Unexploded ordnance to be removed by trained personnel.**
- P-4b Train project personnel to recognize unexploded ordnance.**

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II)

Soil or groundwater contamination could result from accidental spill or release of hazardous materials at the substations during facility operations or during maintenance of the transmission line, towers, and other associated transmission components. This could result in exposure of the facility, maintenance workers, and the public to hazardous materials. Implementation of training of personnel, environmental safety plans, and proper handling would ensure that these impacts would be less than significant (Class II).

Mitigation Measures for Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance

- P-1c Personnel trained in proper use and safety procedures for the chemicals used. [HS-APM-1]**
- P-1e Preparation of environmental safety plans including spill prevention and response plan.**
- P-1g Proper storage and disposal of generated waste. [HS-APM-10]**

Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers (Class II)

Although Nevada Hydro and EVMWD are proponents of the LEAPS Project, upgrades to the Talega-Escondido transmission line would be carried out by SDG&E, which is the owner of the Talega-Escondido facility. Therefore, it is assumed that SDG&E herbicide application protocols would occur for this portion of the project. While the addition of 51-miles of new conductor to the existing towers in the ROW would not increase herbicidal application above baseline conditions, herbicidal applications would be carried out in association with operation and maintenance of the 7.8-mile Pala-Lilac 69 kV rebuild on new steel and wood poles.

SDG&E applies herbicide, in conjunction with mechanical clearing of vegetation, to prevent or remove vegetation in the right-of-way. The vegetation removal program, known as “pole brushing,” uses eight different herbicides to clear all vegetation to mineral soil within a 10-foot radius around poles and structures as a fire-prevention measure (SDG&E, 2006, Appendix A). SDG&E and its contractors follow an Herbicide Application Protocol (SDG&E, 2006, Appendix A) to prevent environmental and health hazards, which is summarized in Table D-10-8 in Section D.10. The herbicides used by SDG&E and their known toxicity and persistence in soil are summarized in Table D.10-9 in Section D.10. All herbicide is applied by hand sprayer to restrict the chemical to within 10-feet of the structures (SDG&E, 2006).

This herbicide application during operation and maintenance of the 7.8-mile Pala-Lilac 69 kV rebuild could potentially impact the workers applying the chemical, maintenance workers in the ROW, or members of the public that enter the affected ROW; however all of these herbicides are classified as Class III (Low Toxicity) by U.S. EPA. The potential exposure of workers applying the herbicide would be minimized by following the manufacturer’s recommendations for mixing and applying the chemical, and for use of protective clothing and respiratory protection. Maintenance workers in the ROW could be exposed to residual herbicides if the soil application was recent and excessive dust was inhaled. Public accessing the ROW may cause dust to become airborne and inhaled. This is considered a significant impact (Class II) that can be mitigated through implementation of Mitigation Measure P-6a (Update and follow Sempra’s Physical and Climatic Target Area Evaluation Form) is required.

Mitigation Measure for Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers

P-6b Update and follow Sempra’s Physical and Climatic Target Area Evaluation Form.

Impact P-7: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites (Class II)

A number of contaminated sites have been identified within 0.25 miles of the Talega-Escondido transmission line. Most of the sites are listed as “case closed” (EDR, 2006a) with the exception of two. One is a Shell Service Station at 780 El Norte Parkway in Escondido, listed as undergoing site assessment (EDR, 2006a). The other is a Sempra/SDG&E District Operations facility located at 1623 Mission Road in Escondido, which is listed as undergoing preliminary site assessment and is located adjacent to the Escondido Substation. The presence of these known contaminated sites near the transmission line presents a potential for contaminated soil and/or groundwater to have migrated to the project ROW and thus be encountered during construction. This is considered a significant impact (Class II) that can be mitigated to a less than significant level through implementation of the following measures.

Mitigation Measure P-7b requires the applicant to investigate all government code §65962.5 sites that along the project ROW that could potentially impact the project. Mitigation Measure P-1g requires that all hazardous waste be stored and disposed of in accordance with federal, State, and local requirements. Mitigation Measure P-7a is required to reduce potential health hazards related to exposure of construction personnel and/or the public to hazardous materials in the soil, groundwater, or surface water.

Mitigation Measure for Impact P-7: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites

P-1g **Proper storage and disposal of generated waste.** [HS-APM-10]

P-7a **Evaluate contaminated sites.**

P-7b **Investigate contaminated sites.** [HS-APM-5]

E.7.1.11 Air Quality

A discussion of the air quality impacts of the LEAPS Transmission-Only Alternative is presented in the following section. Air quality impacts of the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.11, below.

Environmental Setting

The LEAPS Alternatives are located principally within Riverside County and in the South Coast Air Basin, although the proposed transmission lines would extend into Orange and San Diego Counties. Because of the geography (surrounding mountainous terrain), warm climate, and stagnant air conditions, the South Coast Air Basin is particularly prone to air quality problems. The South Coast Air Basins has been designated as a nonattainment area for ozone, PM10, PM2.5, and carbon monoxide. The area attains the ambient air quality standards for nitrogen dioxide and sulfur dioxide. The South Coast Air Quality Management District (SCAQMD) oversees sources of air pollution in Riverside and Orange Counties.

The portions of the LEAPS Alternatives in San Diego County would occur near populated areas that would be sensitive to dust or other air pollution nuisances. The administering local air district in San Diego County is the SDAPCD.

Attainment Status. The LEAPS Alternatives would be in Riverside and Orange Counties. A summary of the air quality status of the South Coast Air Basin, relative to the National and State Ambient Air Quality Standards is provided in Table E.7.1-24.

Table E.7.1-24. Attainment Status for Riverside and Orange Counties

Air Basin	Ozone		PM10		PM2.5		CO		NO ₂		SO ₂	
	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal
Riverside County	N	N (Extreme)	N	N (Serious)	N	N	A	N	A	A	A	A
Orange County	N	N (Severe)	N	N (Serious)	N	N	A	N	A	A	A	A

Note: A = Attainment of Ambient Air Quality Standards; U/A = Unclassified/Attainment; N = Nonattainment.
Source: CARB, 2006 (<http://www.arb.ca.gov/design/design.htm>) and U.S. EPA, 2006 (<http://www.epa.gov/region09/air/>).

South Coast Air Basin Regulations. The LEAPS Alternatives in Riverside and Orange Counties would be subject to SCAQMD rules and regulations. Applicable regulations for visible emissions, nuisances, and fugitive dust include:

- SCAQMD Rule 401 – Visible Emissions
- SCAQMD Rule 402 – Nuisance
- SCAQMD Rule 403 – Fugitive Dust
- SCAQMD Rule 403.1 – Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources

These rules limit the visible dust emissions from construction sites, prohibit emissions that can cause a public nuisance, and require the prevention and reduction of fugitive dust emissions. Additionally, depending on the location and size of the construction site(s) fugitive dust control plan(s) may be required to be submitted to SCAQMD for approval before initiating construction. The fugitive dust rules include mea-

asures that aim to reduce fugitive dust emissions from specific dust causing activities. These measures may include, adding freeboard to haul vehicles, covering loose material on haul vehicles, watering, using chemical stabilizers and/or ceasing all activities (such as during periods of high winds).

Table E.7.1-26. General Conformity Thresholds for LEAPS

Area	NOx or VOC (ton/year)	PM10 (ton/year)	CO (ton/year)
South Coast Air Basin	25 ton/year	70 ton/year	100 ton/year
San Diego Air Basin	100 ton/year	n/a	n/a

n/a = not applicable.
Source: 40 CFR 93.153.

Local Air District CEQA

Thresholds. The SCAQMD recommends regional and localized significance thresholds be used to characterize air quality impacts in project-level CEQA documents. To characterize the impacts of the LEAPS Project and compare them with those of the Proposed Project, the SCAQMD regional significance thresholds are used here. Any significant impact under the regional thresholds is presumed to also cause a significant localized impact. The significance thresholds for SCAQMD and LEAPS are shown in Table E.7.1-25.

Table E.7.1-25. Air Quality Significance Thresholds for LEAPS

Significance Thresholds	NOx	VOC	PM10	PM2.5	CO	SOx
Construction Significance	100 lb/day	75 lb/day	100 lb/day	55 lb/day	550 lb/day	150 lb/day
Operation Significance	55 lb/day	55 lb/day	150 lb/day	55 lb/day	550 lb/day	150 lb/day

Source: More stringent of SDAPCD, Rule 20.2(d)(2) or SCAQMD CEQA Air Quality Handbook. SDC, 2007 for PM2.5.

Federal General Conformity Rule Thresholds. The Riverside County and Orange County portions of the South Coast Air Basin are federal nonattainment areas, and the federal General Conformity rule provides significance criteria for ozone precursors, PM10, and carbon monoxide. The General Conformity applicability thresholds for the nonattainment areas along the LEAPS Project route are given in Table E.7.1-26.

Environmental Impacts and Mitigation Measures

Table E.7.1-27 summarizes the air quality impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-27. Impacts Identified – Air Quality

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
AQ-1	Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants	Class I
AQ-2	Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants	Class III
AQ-3	Power generated during transmission line operation would cause emissions from power plants.	Class III
AQ-4	Project activities would cause a net increase of greenhouse gas emissions	Class I

Environmental impacts and mitigation measures for the LEAPS Transmission-Only Alternative are discussed below. No agency or other entity proposed any measures to address potential effects on air quality during the LEAPS project public comment and consultation periods. No 4(e) terms and conditions or 10(a) recommendations regarding impacts to air quality were offered by the Forest Service, Pacific Southwest Region.

Lake-Pendleton 500 kV New Transmission Line

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I)

Construction of the new Lake-Pendleton 500 kV transmission line would cause exhaust emissions from heavy-duty diesel and gasoline-powered construction equipment (e.g., ozone precursors, carbon monoxide, and PM10) and fugitive particulate matter (dust) from travel on unpaved surfaces (FERC, 2007). Compliance with regional and state requirements and air quality management plans would minimize the effects of construction on air quality, but emissions of ozone precursors and particulate matter would exceed the thresholds in Section D.11.4.1 and in Table E.7.1-25 and the SCAQMD localized significance thresholds. Depending on the construction schedule, these emissions could also exceed the General Conformity *de minimis* levels. Accidental wildfire could cause adverse air quality impacts that would be avoided by reducing the likelihood of construction triggering a wildfire (described further in Section D.15). Construction emissions would not permanently affect visibility or vegetation in a federal Class I wilderness area, but federal Class I areas or State wilderness areas would temporarily be exposed to construction emissions duration of construction. The potential to deteriorate air quality-related values (AQRVs) would be as described in Section D.11.6. Table E.7.1-28 shows the estimated emissions for construction of the LEAPS Transmission-Only Alternative (including the Lake-Pendleton 500 kV New Transmission Line and the Talega-Escondido 230 kV Transmission Upgrade).

Table E.7.1-28. Emissions from Construction of LEAPS Transmission-Only Alternative

Construction Activity	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO (lb/day)	SOx (lb/day)	CO ₂ (lb/day)
Off-Road Equipment and On-Road Vehicles	4,219.7	568.1	221.1	221.1	1,959.3	89.7	416,663.4
Fugitive Dust	---	---	1,184.9	138.2	---	---	---
Daily Activity Totals	4,219.7	568.1	1,406.0	359.3	1,959.3	89.7	416,663.4
Significance Criteria	100	75	100	55	550	150	0
Exceed Significance Threshold?	Yes	Yes	Yes	Yes	Yes	No	*

Source: EIR/EIS Appendix 10.

* For discussion of impact significance of CO2 emissions and greenhouse gases, see Impact AQ-4.

The construction emissions would exceed the thresholds and result in a significant impact. Available mitigation would include Mitigation Measures AQ-1a and AQ-1b for dust control and controlling equipment exhaust, respectively, and measures incorporating SDG&E's relevant APMs listed in Table D.11-10. However, with mitigation, construction-phase emissions would still exceed the local significance thresholds and could expose sensitive receptors to substantial pollutant concentrations (Class I).

Mitigation Measures for Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants

AQ-1a Suppress dust at all work or staging areas and on public roads.

AQ-1b Use low-emission construction equipment.

- AQ-1d** **Implement dust reduction measures.** [AQ-APM-2]
- AQ-1e** **Prevent transport of mud and dust.** [AQ-APM-3]
- AQ-1f** **Encourage carpooling.** [AQ-APM-4]
- AQ-1g** **Minimize vehicle idling.** [AQ-APM-5]
- AQ-1h** **Obtain NO_x and particulate matter emission offsets.**

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Once construction is complete, operational emissions would result from vehicle use that would be necessary for periodic maintenance, repair, and inspection of the transmission line. Maintenance and inspections activities would be the only notable Direct air quality impact related to the transmission line. Few new permanent employees would be needed to operate the LEAPS transmission. The incremental increase of emissions that would be caused by project vehicular traffic for inspection and maintenance activities would be minor. Wildfire risk and severity would also increase with the operation and the presence of the LEAPS transmission, and the air quality effects of wildfire would be adverse but short term (see discussion in Section D.15). Direct emissions from project vehicular traffic for maintenance activities would be less than the thresholds for operation significance in Table D.11-8 and Table E.7.1-25. The emissions would cause an adverse but less than significant impact, and mitigation measures are not required (Class III).

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class III)

Operation of the LEAPS transmission line in the absence of the LEAPS generation component could result in indirect air quality impacts if increased power plant emissions would occur as a result of operating the line. However, the LEAPS transmission line would not change the demand for power. The change in indirect power plant emissions that would occur as a result of energy imports with the LEAPS transmission line would be similar to what would occur with the Proposed Project; increased operation would occur at power plants (including renewable energy facilities and natural gas-fired power plants) primarily outside of the San Diego region, and operation of power plants inside the region would decrease. Although emissions of criteria pollutants or toxic air contaminants would increase at some power plant locations outside of San Diego County, the LEAPS transmission component would not change the demand for power, and power plant emissions would occur only within previously permitted limits. As in Overall Impacts of Proposed Project (Section D.11.13), the air quality effect of power plant operation would be adverse but less than significant (Class III).

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class I)

Developing the LEAPS transmission line under this alternative would cause greenhouse gas (GHG) emissions during construction that would be offset by the indirect decreases in CO₂ emissions from power plants within the San Diego region, as mentioned in Impact AQ-3. Greenhouse gas emissions that would occur as a result of construction activities would be above the level of GHG emissions that occur in the baseline conditions shown in Table D.11-2, in Section D.11. Operational-phase GHG emissions would also occur with routine maintenance and inspections of the transmission line and with direct fugitive emissions of sulfur hexafluoride (SF₆) as part of the electrical switchgear. The construction-phase GHG emissions and operational-phase emissions including SF₆ fugitives would partially offset by GHG reductions at power plants, but an overall net increase of GHG emissions would occur as described

in Overall Impacts of Proposed Project (Section D.11.13). Mitigation would reduce the GHG impact but not to a less than significant level (Class I).

Mitigation Measure for Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions

- AQ-4a** **Offset construction-phase greenhouse gas emissions with carbon credits.**
- AQ-4b** **Offset operation-phase greenhouse gas emissions with carbon credits.**
- AQ-4c** **Avoid sulfur hexafluoride emissions.**

Talega-Escondido 230 kV Transmission Upgrade

Development of the Talega-Escondido 230 kV transmission upgrades would result in air quality impacts as described above for the Lake-Pendleton 500 kV New Transmission Line.

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E.7.1.12 Water Resources

Analysis of impacts to water resources of the LEAPS Transmission-Only Alternative are described below. Water resource impacts related to the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.7, below.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

The Lake-Pendleton 500 kV transmission line would be located in portions of the San Jacinto River Basin north of Lake Elsinore and would travel southwardly along the eastern side of the Santa Ana Mountains connecting to the existing Talega-Escondido line on Camp Pendleton.

The transmission line and associated access roads would cross area streams 22 times along the 32-mile stretch between the Lake and Pendleton Substations.

Talega-Escondido 230 kV Transmission Upgrade

This transmission corridor is located in the San Diego Basin. The watershed's northern boundary is formed by a hydrologic divide starting near Laguna Beach and extending inland through El Toro and easterly along the ridge of the Elsinore Mountains into the Cleveland National Forest. The eastern boundary is formed by the Laguna Mountains and the mountains located in the Cleveland National Forest. The United States and Mexico border forms the southern boundary. The western 16 miles of the existing Talega-Escondido 230 kV transmission line traverses U.S. Marine Corps Camp Pendleton where a portion of the line is bordered to the north by the Cleveland National Forest. Several intermittent and ephemeral creeks including Moosa Canyon Stream, Govez 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 (Dudek, 2002).

The Pala-Lilac 69 kV corridor is located within the San Luis Rey River watershed, which encompasses about 565 square miles and includes the population centers of Oceanside, Valley Center, and portions of Fallbrook and Camp Pendleton. The San Luis Rey River is interrupted by Lake Henshaw, one of the largest water storage areas in the San Diego region. From Lake Henshaw, the river meanders toward the coast entering the Pacific Ocean near the City of Oceanside. The 69 kV corridor is drained by the San Luis Rey River, Pala Creek and Gomez Creek. These rivers and creeks plus a number of smaller creeks including Maggie Creek, Trujilla Creek, Rice Canyon Creek, and Keys Creek are also located along the transmission corridor (Dudek, 2002).

Average annual precipitation in the corridor study area is approximately 1 to 15 inches per year along the coast but can be as high as 45 inches per year farther inland. The majority of this precipitation generally occurs between November and February and typically, runoff in the region results mainly from this rainfall. The flow of surface and groundwater in the region is generally in an east to west direction toward the Pacific Ocean (Dudek, 2002).

The Talega-Escondido transmission line corridor crosses areas of 100-year floodplain just west of Rainbow Substation and directly south of Pala Substation. No known water supply features occur within the Talega-Escondido transmission ROW. The ROW is not located within an area of potential inundation in the event of a dam failure. Surface water within the study area and vicinity includes perennial flow in a number of larger drainages, intermittent storm runoff, and runoff from agricultural and landscape

irrigation. These types of flow may be subject to wide variations in water quality from factors such as runoff volumes, adjacent land uses and chemical applications. Existing and potential beneficial uses identified for surface waters in the study area include municipal, agricultural, industrial, recreation and wildlife habitat applications. There are known sites with suspected or potential contamination within the study area (Dudek, 2002).

Environmental Impacts and Mitigation Measures

Table E.7.1-29 summarizes the water resource impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-29. Impacts Identified – Water

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-3	Excavation could degrade groundwater quality in areas of shallow groundwater	Class II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
Talega-Escondido 230 kV Transmission Upgrades		
H-1	Construction activity could degrade water quality due to erosion and sedimentation	Class II
H-2	Construction activity could degrade water quality through spills of potentially harmful materials	Class II
H-5	Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream	Class III
H-6	Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion	Class II

Lake-Pendleton 500 kV New Transmission Line

The new 500 kV transmission line would extend for 32 miles linking the proposed 500 MW hydro-electric facility to SCE's and SDG&E's transmission systems. The northern segment of the proposed 500 kV line connects the proposed new Lake Substation to the proposed new Midpoint Substation. The southern segment would interconnect the proposed Midpoint Substation with the proposed new Pendleton substation. In addition, a 4.1-mile segment will be placed underground. Transmission towers would likely be sited to avoid floodplain areas and thus minimize the potential for affecting water-courses (FERC, 2002), therefore Impact H-6 (Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion) is not discussed below. Based on a review of hydrologic maps provided by FERC (2007) and EVMWD (2007), it is evident that the underground segment would cross no known streams, therefore Impact H-7 (Underground portions of the power line could be subject to damage from stream scour at locations where the line crosses stream channels) is not discussed. Construction and operation of the Lake-Pendleton transmission line is not expected to require groundwater dewatering, therefore Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) is not discussed.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Construction of the new transmission alignment may affect the rates of erosion and sedimentation, resulting in degraded water quality. Because of the inherent nature of the design (lines suspended above the ground surface), the construction of the majority of the transmission lines is anticipated to produce relatively little effect on erosion and sedimentation. Trenching the underground segment and construction of maintenance roads, however, is expected to increase erosion and sedimentation, potentially affecting water quality. Trenching the 4.1-mile underground segment of the transmission line would result in 29.9 acres of disturbed soil. Disturbed soils are susceptible to erosive processes and may be transported into project and non-project waters, compromising water quality.

Construction of the anticipated 9.3 miles of temporary access (assuming 1.5 miles for every mile of transmission line in areas with slopes less than 15 percent) and any permanent maintenance roads are expected to cause considerable erosion. Road stream crossings, including culverts, bridges, or low-water crossings are expected to be numerous. The proponents have not delineated any road options for such construction, and because of grade requirements (resulting in switchbacks and contour-hugging alignments), it is conceivable that stream crossings for the roads would far out number those of the linear transmission lines. This is particularly the case because smaller “unmapped” intermittent or ephemeral stream channels are numerous in the Elsinore Mountains. These stream types are typically just as adept at moving sediment as perennial streams, and because they are often steeper and higher in elevation, they can also offer additional potential for debris flows (FERC, 2007).

Twenty-two stream crossings along the proposed 32-mile transmission alignment would be affected during construction. Effects may include temporary diversion during access road construction and in some instances relocation. Open streams may also be channeled through culverts over the course of construction. Some of these may be permanent. Transmission towers would likely be sited to avoid floodplain areas and thus minimize the potential for affecting watercourses. Access roads would likely affect watercourses where alternative routes avoiding streams could not be established (FERC, 2007).

These impacts are considered significant, but can be mitigated to a level that is less than significant (Class II) with implementation of the measures listed below. All of these measures would be expected to control and minimize the amount of surface runoff during construction.

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

- FERC-1 Environmental Measure 1—Erosion Control Plan.** Include specific provisions in the proposed erosion control plan that applies erosion control measures and BMPs to all construction locations, including the upper reservoir, drainage and flood control locations, penstock tunnels, powerhouse, tailrace, inlet/outlet structure, transmission lines, and all associated construction laydown areas and temporary on-site borrow areas for all subsequent ground disturbing activities over the term of any license issued for the project.
- FERC-3 Environmental Measure 3—Surface Water Resources Management Plan.** Develop and implement a surface water resources management plan to control and monitor project-related effects on water resources that support riparian vegetation on National Forest System lands.
- USFS-35 Condition No. 35—Surface Water Resources Management Plan.** The Licensee shall within 6 months after license issuance file with the Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring

the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater-related surface water and other groundwater-dependent resources. At a minimum the plan shall:

- Develop in consultation with and approved by Forest Service technical specialists and their consultants an inventory of springs and other water courses within 1 mile of Morrell and Decker Canyons and their related riparian areas. The inventory shall include water chemistry and physical analysis in addition to monthly and annual hydrographs. Riparian areas shall be delineated and inventoried. Inventories shall include flora and fauna specific to each water source and shall also include special indicator species (i.e., spring snails), as required by the Forest Service technical specialists, which describe the overall health of the system.
- Develop and implement in consultation with and approved by Forest Service technical specialists and their consultants a riparian vegetation and surface water monitoring plan addressing springs and other surface water courses in the canyon selected for the storage portion of the Pumped Storage Project and their associated riparian areas. Baseline data prior to initiation of the project shall be obtained for both water quantity and quality because project activities could alter groundwater levels and quality, with subsequent alteration of surface water dynamics. The surface water monitoring should include intermittent as well as any perennial systems, and should be done no less frequently than monthly. Surface water monitoring stations shall be established at locations (e.g., at bedrock outcroppings) that would be unlikely to become unusable due to sedimentation or erosion. Riparian vegetation monitoring shall include quantifying extent of riparian vegetation associated with springs, streams, and other riparian areas. The monitoring plan shall be in effect upon approval for pre-construction so that baseline data can be established and shall continue for the entire duration of the project while in construction, and for the post construction period as long as project related impacts to groundwater and/or surface waters are anticipated by the Forest Service technical specialists and their consultants.

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Construction of the proposed transmission line would require the use of a variety of motorized heavy equipment including: 4x4 pickups, fuel trucks, cranes, dozers, forklifts, concrete trucks, backhoes, air compressors, graders, conductor pullers, shield tensioners and drill rigs. This equipment requires job site replenishment of hazardous chemicals in the form of fuels, oils, grease, coolants, and other fluids. The accidental spill of these, or other construction-related materials could lead to the discharge of contaminants into existing surface waters crossed by the transmission line. Conveyance of contaminants could take place directly at the time of the spill. Alternatively, the contaminants could be held in place until a runoff event delivered them to a watercourse later or they could infiltrate into the soil and groundwater below. A chemical spill affecting a stream channel, wetland area, or groundwater reserve is considered a significant impact, but can be mitigated to a level that is less than significant (Class II) with implementation of the measures listed below. Implementation of the hazardous substances spill prevention and control plan would help to minimize the amount of petroleum products that would enter the Proposed Project waters in the unlikely event of a spill thereby protecting water quality during construction of project facilities.

Mitigation Measures for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

FERC-1 Environmental Measure 1—Erosion Control Plan.

FERC-3 Environmental Measure 3—Surface Water Resources Management Plan.

Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater (Class II)

Construction of the proposed transmission alignment for placement of the towers has minimal potential to affect groundwater. However, construction of temporary and permanent maintenance roads can daylight and destabilize shallow groundwater. The exact extent and location of effects for the proposed transmission alignment would be determined by final design and routing of access and maintenance roads. The main effect of daylighting a slope is the draining of the groundwater (if any) that had been held in place by removed soil. In topographic draws and creek valleys, such interception of groundwater can substantially dry up the area down slope, cutting off the supply of shallow groundwater while the roadway captures surface runoff. Areas upslope realize a decline in groundwater levels as the road cut “drains” the hillslope. In arid environments, such effects could be profound for vegetation and the species that depend upon it. These impacts are considered significant, but can be mitigated to a level that is less than significant (Class II) with implementation of the measures listed below.

Mitigation Measure for Impact H-3: Excavation could degrade groundwater quality in areas of shallow groundwater

USFS-36 Condition No. 36—Groundwater Management Plan. Within one year of license issuance the Licensee shall file with the Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources. At a minimum, the Groundwater Management Plan shall:

- Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater exploration and aquifer characterization plan which includes the use of existing data as well as installation of additional exploration boreholes and monitoring wells, aquifer testing (which includes water quality) and geophysics as deemed necessary to determine baseline data, construction monitoring data and post construction monitoring data for the area potentially impacted by the project.
- Groundwater inflow criteria for tunneling will be established by the Forest Service in consultation with the proponents. Inflow criteria will be approved by the forest service prior to construction.
- Develop and implement, in consultation with and approved by the Forest Service, a plan to monitor and control groundwater levels and tunnel inflows for the duration of the construction of the penstocks and tunnels and for a minimum of 10 years post construction unless it can be determined that construction-related impacts no longer exist. This plan may include, but is not limited to, the development and use of a groundwater model as well as the installation and use of in-tunnel piezometers, monitoring wells, and seepage collars (or other means to control longitudinal flows along the tunnel).

- Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater testing and monitoring program for the lined reservoir which will detect seepage from the reservoir into the groundwater and riparian areas. This monitoring program will remain in place for the life of the permit project.
- Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater testing and monitoring program for the tunnel (unless a final impervious liner is installed prior to commissioning) which will detect seepage from the tunnel liner into the groundwater and riparian areas.

This monitoring program will remain in place for the life of the permit project.

H-3b Minimize impacts from road construction. To the extent possible, BMPs and sound road design practices that are cognizant of road construction effects shall be carried out to mitigate partly for the inherent effects of road construction on groundwater. In certain situations, there is no cost-effective alternative or mitigation for the adverse effects of hillslope road cuts on local groundwater. Transmission towers shall be installed via helicopter in areas with slopes greater than 15 percent to minimize the potential effects of road cuts on groundwater.

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of this portion of the project would result in an increase in runoff due to construction vehicles compacting pervious area, and from installation of concrete pads required for the addition of 120 new transmission towers to support 32 miles of new 500 kV line (FERC, 2007). It is assumed that the area of permanent disturbance for each structure foundation is approximately 79 square feet. As such, the 32-mile Lake-Pendleton 500 kV transmission line would create a total of approximately 0.3 acres of new impervious surfaces from the concrete transmission tower foundations. This area is negligible in terms of overall watershed area, resulting in negligible runoff increase (Class III).

Talega-Escondido 230 kV Transmission Upgrade

With the exception of new transition towers and the adjoining towers located adjacent to the proposed Pendleton Substation, this element of the TE/VS project would entail installing a second 230 kV circuit on the vacant position of SDG&E's Talega-Escondido transmission line and making upgrades to the Talega and Escondido Substations. In order to accommodate an additional conductor, it will be necessary to rebuild a 7.7-mile section (interconnecting SDG&E's existing Pala and Lilac Substations) of the existing 69 kV transmission circuit on new 69 kV wood and steel pole structures adjacent to the existing 230 kV line within the existing 300-foot-wide Talega-Escondido ROW. Minimal effects to hydrology or water resources would occur due to TE/VS-related changes to the existing Talega-Escondido transmission line as no new structures are proposed. Potential impacts in the area are therefore related primarily to the new structures associated with the rebuild of the 7.7-mile Pala-Lilac 69 kV transmission line. Upgrades to and operation of the Talega-Escondido transmission line is not expected to require groundwater dewatering, therefore Impact H-4 (Groundwater dewatering for project construction could deplete local water supplies) is not discussed.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class II)

Installation of a second 230 kV circuit on existing transmission structures and construction associated with the rebuild of 7.7 miles of 69 kV transmission structures would require clearing and grading activities that could cause erosion and sediment loading to surface water as described for the proposed 500 kV transmission line. The generally east-west trending transmission corridor crosses several intermittent and ephemeral streams which flow southward and could be impacted by sediment loading. The potential for construction-related sediment and excavated spoils to enter the surface water drainage network represents a significant water quality impact (Dudek, 2002). This impact would be mitigated to a level that is less than significant by implementing the measures outlined below (Class II).

Mitigation Measures for Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation

- H-1c Minimize construction and maintenance disturbance to riparian areas.**
- H-1d Avoid watercourses to the maximum extent possible.**
- H-1e Identify and mark sensitive areas for avoidance.**
- H-1f Develop and implement construction Best Management Practices.**
- H-1g Stream crossings at low flow periods.**
- H-1h Compliance with NPDES regulations.**
- H-1i Construction routes to avoid and minimize disturbance to stream channels.**
- H-4a Avoid using source water and provide alternative sources where avoidance is not possible.**
- H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials (Class II)

Construction of the proposed new 7.7-mile segment would require the use of a variety of motorized heavy equipment including: 4 x 4 pickups, fuel trucks, cranes, dozers, forklifts, concrete trucks, backhoes, air compressors, graders, conductor pullers, shield tensioners and drill rigs. This equipment requires job site replenishment of hazardous chemicals in the form of fuels, oils, grease, coolants, and other fluids. The accidental spill of these, or other construction-related materials could lead to the discharge of contaminants into existing surface waters crossed by the transmission line. Conveyance of contaminants could take place directly at the time of the spill. Alternatively, the contaminants could be held in place until a runoff event delivered them to a watercourse later or they could infiltrate into the soil and groundwater below. A chemical spill affecting a stream channel, wetland area, or groundwater reserve is considered a significant impact (Dudek, 2002). This impact could be mitigated to a level that is less than significant (Class II) by implementing the measures outlined below.

Mitigation Measure for Impact H-2: Construction activity could degrade water quality through spills of potentially harmful materials

- H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.**

Impact H-5: Creation of new impervious areas could cause increased runoff resulting in flooding or increased erosion downstream (Class III)

Construction of this segment would result in an increase in runoff due to construction vehicles compacting pervious area, and from installation of concrete pads required for the addition of 7.7 miles

of new 69 kV transmission line. Project construction and access road building activities will cross stream valleys and may alter the existing surface runoff patterns such that more flow will be concentrated at particular crossings. In comparison to the overall watershed area, this comprises a small increase in impervious cover, resulting in very small increase in runoff (Class III).

Impact H-6: Transmission towers or other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion (Class II)

Flooding impacts could occur if the normal flow path of water is obstructed or diverted. Project construction impacts could result if flow is obstructed by materials used for stream or riverbed crossing. Flooding or inundation of the construction area by active low flows could interfere with construction activities and affect the quality of surface flow and groundwater (Dudek, 2002).

The 69 kV line crosses a 100- and 500-year floodplain directly south of the Pala Substation, and a few minor flooding areas north of the Lilac Substation. Flooding impacts where structures are located in designated 100-year floodplains are considered significant because floods could erode structure support. Where structures can be spaced far enough to span a FEMA-designated floodplain, no impact would result. However, a number of structures associated with the relocation of the 69 kV transmission line would have to be placed in the floodplain or adjacent to watercourses, and the potential impact would be potentially significant (Dudek, 2002).

At locations where the project would cross below or pass adjacent to streams with erodible bed or banks, the burial depth would be extended below the estimated 100-year depth of scour for that stream, or located at a sufficient distance from the bank as to avoid erosion that can reasonably be expected to occur during the life of the project. Mitigation Measure H-6a (set forth in full in Section D.12) will ensure this impact is less than significant (Class II).

Mitigation Measure for Impact H-6: Transmission towers other aboveground project features located in a floodplain or watercourse could result in flooding, flood diversions, or erosion

H-6a Scour protection to include bank erosion and effects to adjacent property.

E.7.1.13 Geology, Mineral Resources, and Soils

Impacts of the LEAPS Transmission-Only Alternative to geology, mineral resources, and soils are presented in the following section. Impacts of the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.13, below.

Environmental Setting

Lake-Pendleton 500 kV New Transmission Line

The 30-mile-long 500 kV transmission line and two associated substations would be located in portions of the San Jacinto River Basin north of Lake Elsinore and would travel southwardly along the eastern side of the Santa Ana Mountains connecting to existing transmission lines near Camp Pendleton Marine Corp Base. Topography along this route is characterized by rolling hills to very steep slopes.

The San Jacinto River Basin is located in southern California, about 20 miles inland from the Pacific Ocean and covers more than 780 square miles of widely varying terrain. The river basin is bounded by north-south mountains: the Santa Ana Mountains (including the Elsinore Mountains, Santa Margarita, and the Santa Rosa Plateau) to the west and the more distant San Jacinto Mountains to the east (FERC, 2007). The LEAPS Transmission-Only Alternative area spans the boundary between two geologic environments—an actively subsiding fault-bounded basin containing Lake Elsinore and a more stable mountain block underlain by minor metamorphic rocks and undivided granitic rocks of the Peninsular Ranges Batholith. Both geologic environments are a part of the Peninsular Ranges Geomorphic Province of Southern California (FERC, 2007).

The new transmission line would pass through the Santa Ana Mountains. The Santa Ana Mountain Range forms the northernmost range of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges Province is characterized by a northwest-striking structural fabric (faulting and folding) influenced by the San Andreas fault system. The northern Peninsular Ranges Province is divided (in terms of physiography) into three major fault-bounded blocks: the Santa Ana, Perris, and San Jacinto. The westernmost of the three, the Santa Ana block, extends eastward from the coast to the Elsinore fault zone. Tertiary sedimentary rocks (Paleocene through Pliocene in age) lie under the western foothills portion of the Santa Ana block, and further east the highly faulted Santa Ana Mountains are comprised of a basement assemblage of Mesozoic metasedimentary and Cretaceous volcanic and batholithic rocks, which is overlain by a thick section of primarily upper Cretaceous marine rocks and Paleocene marine and non-marine rocks. The southern part of the Santa Ana Mountains opens into an expansive, nearly horizontal erosion surface that is partly covered with Miocene basalt flows (FERC, 2007).

Talega-Escondido 230 kV Transmission Upgrade

The Talega-Escondido 230 kV transmission upgrade involves installation of a 47-mile second (double-circuit) 230 kV transmission line (Talega-Escondido No. 2) along existing support structures (already containing one 230 kV circuit) connecting SDG&E's Talega and Escondido Substations. In addition, upgrades will be made to the existing Talega-Escondido transmission line, and a 7.7-mile section of an existing 69 kV line between the Pala and Lilac Substations will be rebuilt (EVMWD, 2007).

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 the alignment. The western end of the Talega-Escondido transmission line is underlain by Eocene and Miocene marine

sedimentary bedrock. The line crosses a region of locally steep terrain and deeply incised canyons (EVMWD, 2007).

Because of 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 (EVMWD, 2007).

The Talega-Escondido transmission line study area 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 (moment magnitude 6.9) would occur during its service life. The nearest active faults include the offshore segment of the Newport-Inglewood Fault and the Whittier-Elsinore Fault. The transmission line does not cross any known active faults as defined by the CDMG. The transmission line does cross several potentially active faults including the Harris, Tenaja, Aliso and Cristianitos Faults (Dudek, 2002).

Environmental Impacts and Mitigation Measures

Table E.7.1-30 summarizes the geology, mineral resources, and soils impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-30. Impacts Identified – Geology, Mineral Resources and Soils

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
G-1	Erosion would be triggered or accelerated due to construction activities.	Class II
G-2	Unique geologic features would be damaged due to construction activities	Class II
G-3	Project would expose people or structures to potential substantial adverse effects as a result of problematic soils.	Class II
G-4	Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure.	Class II, III
G-5	Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults.	Class II
G-6	Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading.	Class II
G-7	Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall.	Class II

Lake-Pendleton 500 kV New Transmission Line

Construction of a new 500 kV transmission line along the proposed Lake-Pendleton alignment would potentially accelerate erosion, excavation and grading activities could cause slope instability, and project structures would potentially be damaged by landslides, earthflows, debris flows, or rockfalls.

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II)

Construction of two new substations, underground segments, and approximately 9.3 miles of new temporary access roads (resulting in 13.5 acres of disturbance) would potentially accelerate erosion. Road stream crossings (culverts, bridges, or low-water crossings) and trenching for underground segments

have the potential to cause considerable erosion and sedimentation. It is conceivable that stream crossings for access roads would far outnumber those of the linear transmission lines themselves. This is particularly the case because smaller, unmapped intermittent or ephemeral stream channels are numerous in the Elsinore Mountains. These stream types are typically just as adept at moving sediment as perennial streams, and because they are often steeper and higher in elevation, they can also offer additional potential for debris flows. The southern segment of the proposed Lake-Pendleton transmission line and any related access roads would cross San Mateo Creek and its tributaries at a number of locations. The Lake Substation would be located on a disturbed site near the Temescal wash, and construction activities would potentially result in sedimentation during the rainy season. The Pendleton Substation would be located at the northern boundary of Camp Pendleton on an undisturbed oak woodland, and construction at this site could result in erosion and sedimentation in nearby waterways. Impacts of erosion and sedimentation are considered significant, but mitigable (Class II). Although the mitigation measures presented below are specific to water quality, these would also serve to minimize erosion from project construction activities, thereby reducing impacts from erosion to less than significant levels by requiring erosion control measures and minimizing the source of erosion. The full text of all mitigation measures is presented in Appendix 12.

Mitigation Measures for Impact G-1: Erosion would be triggered or accelerated due to construction activities

FERC-1 Environmental Measure 1—Erosion Control Plan.

H-1f Develop and implement construction Best Management Practices.

G-1e Minimize road construction. Any temporary roads developed for the project would be removed, recontoured, and revegetated following construction except where the USFS authorizes continued use of the roads for transmission line maintenance, eliminating long-term impacts from temporary roads.

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II)

In addition, potentially corrosive soils in the project area would potentially impact the chemical stability of concrete and uncoated steel used in support structures. These effects would have adverse consequences to structures or people in the vicinity of the transmission line if structures were to become weakened and fail. A geotechnical study for soils to assess characteristics has not been conducted. Unidentified expansive and corrosive soils would potentially damage project structures and facilities potentially resulting in collapse. Collapse of project structures would potentially result in power outages, damage to nearby roads or structures, and injury or death to nearby people. Therefore there would be a significant impact. Damage to project structures from problematic soils would be a significant without mitigation (Class II). This impact may be reduced to less than significant levels with mitigation; however, no agency or other entity proposed any measures to address potential effects to project structures from problematic soils. Accordingly, implementation of Mitigation Measure G-3a (Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design) is required to ensure that impacts associated with problematic soils are reduced to less than significant levels (Class II).

Mitigation Measures for Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils

G-3a Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design.

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class II and III)

Moderate to strong groundshaking should be expected in the event of an earthquake on the active Glen Ivy fault. It is likely that the project facilities would be subjected to at least one moderate or larger earthquake occurring close enough to produce strong groundshaking. Portions of the transmission line would be subject to local strong groundshaking with vertical and horizontal ground accelerations that could exceed lateral wind loads, resulting in damage or collapse of project structures. Collapse of project structures could result in power outages, damage to nearby roads or structures, and injury or death to nearby people, a significant impact. Therefore, to ensure that project structures are not damaged by strong to severe groundshaking, implementation of Mitigation Measure G-4a (Reduce effects of groundshaking) would be applied to reduce impacts to less than significant (Class II).

Strong groundshaking could potentially result in seismically induced ground failures, including liquefaction and slope failures. Portions of the transmission lines that cross active river washes, streams, and floodplains where lenses and pockets of loose sand may be present and may become saturated seasonally, resulting in liquefaction damage to project structures should a large earthquake occur while these soils are saturated, is a potentially significant impact. Slope failures such as landslides and rockfalls could occur in the event of a large earthquake along portions of the transmission line routes.

Collapse of project structures could result in power outages, damage to nearby roads or structures, and injury or death to nearby people, a significant impact. However, to ensure that impacts associated with strong groundshaking and seismically induced ground failures would be mitigated to less than significant levels (Class II), implementation of Mitigation Measures G-4b (Conduct geotechnical investigations for liquefaction) and G-6a through G-6c (Conduct geotechnical surveys for landslides and protect against slope instability, Place structures in stable areas, and Avoid or remove unstable slope elements) would be applied.

Mitigation Measure for Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure

- G-4a Reduce effects of groundshaking.**
- G-4b Conduct geotechnical investigations for liquefaction.**
- G-6a Conduct geotechnical surveys for landslides and protect against slope instability.**
- G-6b Place structures in stable areas. [GEO-APM-4]**
- G-6c Avoid or remove unstable slope elements. [GEO-APM-8]**

Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults (Class II)

The potential new 500 kV transmission line would cross the active Glen Ivy Fault Zone; therefore project facilities would be subject to hazards of surface fault rupture at the crossings of the active Glen Ivy Fault. Collapse of project structures could result in power outages, damage to nearby roads or structures, and injury or death to people, a significant impact. Therefore, Mitigation Measure G-5a (Minimize project structures within active fault zones) and Mitigation Measure G-6b (Place structures in stable areas) would be applied for fault crossings to minimize the length of transmission line within fault zones and prevent placement of tower structures on active fault traces and reduce the impact to less than significant levels (Class II). Impacts associated with overhead active fault crossings would be reduced to less than significant levels (Class II) with implementation of Mitigation Measures G-5a and G-6b because proper

placement of conductors would allow distribution of fault displacements over a comparatively long span and towers would be less likely to collapse in the event of an earthquake if not placed directly on an active fault trace.

Mitigation Measure for Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults

G-5a Minimize project structures within active fault zones.

G-6b Place structures in stable areas. [GEO-APM-4]

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (Class II)

Since the 500 kV line does not follow existing corridors, new access roads would have to be constructed to access the line. Construction of 9.3 miles of access roads would temporarily disturb 13.5 acres of land. Road grading and excavation for transmission tower footings on the steep terrain that characterizes the transmission line route has the potential to create unstable slope conditions.

USGS has developed a generalized debris flow hazard map that includes the project area. Areas with slopes of 26 degrees or greater are highlighted on the map and correspond with slopes capable of producing debris flows given critical rainfall conditions. The areas in this alternative indicated to have potential for debris flows in the area include a contiguous band along the steep eastern slopes of the Elsinore Mountains above the southwestern shores of Lake Elsinore. The mapping is general, but indicates the potential for debris flow to affect the proposed sites for the powerhouse and the proposed powerhouse laydown areas. Surficial instability in the form of slopewash and the accumulation of colluvium was observed during geologic reconnaissance. However, evidence of deep-seated landsliding was not observed during review of aerial photographs and geologic reconnaissance.

This potentially damaging impact is considered significant, but could be mitigated to a less than significant level through implementation of Mitigation Measure G-6a, which requires geotechnical studies, and, as appropriate, support and protection measures to be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access roads, work areas, and project structures during and after construction.

Mitigation Measures for Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II)

Transmission line towers located in steep terrain would potentially be subjected to landslides or debris flows depending on their placement. Steep slopes loaded with sufficient quantities of colluvium and/or loose or weathered rock are susceptible to landslides and debris flows given sufficient initiation. This initiation could come from a seismic event, addition of water from a reservoir or penstock breach, the concentration of hillslope runoff by a project road or drainage structure onto a slope, or from a period of heavy or frequent precipitation. Unidentified unstable slopes or areas of unstable slopes would potentially fail during the lifetime of the Alternative. Slope failures would potentially cause collapse of project structures resulting in power outages, damage to nearby roads or structures, and injury or death to

people. Therefore there is a significant impact. Available mitigation includes SDG&E APMs for the Proposed Project, including avoiding placing structures in unstable areas, and removing or stabilizing boulders upslope of structures thus reducing the threat of possible slope failures or rock falls. Mitigation Measure G-6a for the Proposed Project is also recommended. The potential for excavation or grading to cause slope instability is generally considered to be mitigable to less than significant levels (Class II) through implementation of Mitigation Measure G-6a, which requires geotechnical studies, and, as appropriate, support and protection measures to be designed and implemented to maintain the stability of slopes adjacent to newly graded or re-graded access roads, work areas, and project structures during and after construction.

Mitigation Measure for Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Talega-Escondido 230 kV Transmission Upgrade

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class II)

Excavation and grading for tower foundations, work areas, access roads, and spur roads for the 69 kV Pala-Lilac transmission line rebuild would potentially loosen soil and trigger or accelerate erosion. This impact is considered significant but mitigable to a level that is less than significant. Although the mitigation measures presented below are specific to water quality, these would also serve to minimize erosion from project construction activities, thereby reducing impacts from erosion to less than significant levels (Class II) through implementation of Mitigation Measure H-1f that requires erosion control measures and Mitigation Measure G-1e that minimizes the source of erosion and sedimentation.

Mitigation Measures for Impact G-1: Erosion would be triggered or accelerated due to construction activities

H-1f Develop and implement construction Best Management Practices.

G-1e Minimize road construction.

Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils (Class II)

A geotechnical study for soils to assess characteristics has not been conducted. However, potentially corrosive soils in the 69 kV line rebuild project area could impact the chemical stability of concrete and uncoated steel used in support structures potentially resulting in collapse. Collapse of project structures would potentially result in power outages, damage to nearby roads or structures, and injury or death to nearby people. This would be a significant impact (Class II). This impact may be reduced to less than significant levels with mitigation; however, no agency or other entity proposed any measures to address potential effects to project structures from problematic soils. Accordingly, implementation of Mitigation Measure G-3a (Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design) is required to ensure that impacts associated with problematic soils are reduced to less than significant levels (Class II).

Mitigation Measures for Impact G-3: Project would expose people or structures to potential substantial adverse effects as a result of problematic soils

- G-3a Conduct geotechnical studies for soils to assess characteristics and aid in appropriate foundation design.**

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class II)

New structures associated with the 69 kV line rebuild would potentially be damaged by groundshaking and/or ground failure as the path of the line is generally located within three to ten miles of the active Elsinore fault. Strong seismic ground shaking can result in significant damage to aboveground structures; however, transmission lines and support structures are designed to withstand strong ground shaking and moderate ground deformations.

Since no new structures are proposed for the 230 kV line upgrade, there are no impacts associated with the existing portion of the 230 kV Talega-Escondido line. However, the existing Talega-Escondido transmission line crosses a region of locally steep terrain and deeply incised canyons (EVMWD, 2007). Due to the steep terrain along the existing Talega-Escondido line, there is a moderate potential for rock slides and falls along the transmission line during a seismic event. The Talega-Escondido transmission line does not cross any known active faults. The line does, however, cross several potentially active faults, including the Harris, Tenaja, Aliso, and Cristianitos faults. The marine sedimentary bedrock within the western portion of the Talega-Escondido transmission line is susceptible to landslides. It is likely that periodic minor to moderate earthquakes and potentially a major earthquake (moment magnitude 6.9) would occur during its service life (Dudek, 2002; EVMWD, 2007).

The potential impact from seismic ground shaking to the Talega-Escondido upgrades would be moderate (Dudek, 2002) and is considered to be significant. This impact can be mitigated to a level that is less than significant through implementation of the mitigation measures listed below (Class II).

Mitigation Measures for Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure

- G-4a Reduce effects of groundshaking.**
G-4b Conduct geotechnical investigations for liquefaction.
G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults (Class II)

Damage resulting from fault rupture occurs only where structures are located astride fault traces that move. The nearest active faults include the Newport-Inglewood Fault and the Whittier-Elsinore Fault (Dudek, 2002). As described above, the line does cross several potentially active faults. Because the 69 kV line upgrade would involve construction of a new 69 kV pole line, there is the potential for placement of poles along fault traces. Project structures would potentially be damaged or collapse in the event of fault rupture beneath or adjacent to a tower due to inaccurate fault location during project design. Collapse of project structures could result in power outages, damage to nearby roads or structures, and injury or death to people, a significant impact. Therefore, Mitigation Measure G-5a (Minimize project structures within active fault zones) is required for fault crossings to minimize the length of transmission line within fault zones and prevent placement of tower structures on active fault traces, to reduce

the impact to less than significant levels (Class II). Impacts associated with overhead active fault crossings would be reduced to less than significant levels (Class II) with implementation of Mitigation G-5a because conductor would be able to distribute fault displacements over a comparatively long span and towers would be less likely to collapse in the event of an earthquake if not placed directly on an active fault trace.

Impact G-5: Project would expose people or structures to potential substantial adverse effects as a result of surface fault rupture at crossings of active faults (Class II)

G-5a Minimize project structures within active fault zones.

Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading (Class II for 69 kV rebuild, Class III for 230 kV upgrade)

Since no new structures are proposed for the 230 kV line upgrade, there are no impacts associated with the existing portion of the 230 kV Talega-Escondido line. However, the existing 230 kV Talega-Escondido transmission line crosses a region of locally steep terrain and deeply incised canyons. Due to the steep terrain along the existing line, there is a moderate potential for excavation or grading to create unstable slope conditions (Class III).

The terrain along the 69 kV segment rebuild is steep, and there is a moderate potential for excavation or grading to create unstable slope conditions. Slope failures would potentially cause damage to the environment, to project or other nearby structures, and would potentially cause injury or death to workers and/or the public. To ensure that slope instability impacts would be reduced to less than significant (Class II), implementation of Mitigation Measure G-6a (Conduct geotechnical surveys for landslides and protect against slope instability) is required.

Mitigation Measures for Impact G-6: Project would expose people or structures to potential substantial adverse effects as a result of slope instability created during excavation and/or grading

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class II)

Since no new structures are proposed for the 230 kV line upgrade, there are no significant impacts associated with the existing portion of the 230 kV Talega-Escondido line. However, the marine sedimentary bedrock within the western portion of the Talega-Escondido transmission line is susceptible to landslides, and due to the steep terrain, there is a moderate potential for rock slides and falls along the existing 230 kV transmission line.

Due to the steep terrain, there is a moderate potential for rock slides and falls along 69 kV line rebuild during a seismic event or following heavy rainfall. Damage to project structures from a landslide, earthflow, debris flow, and/or rockflow would be significant without mitigation. Slope failures would cause collapse of project structures resulting in power outages, damage to nearby roads or structures, and injury or death to nearby people, a significant impact. To ensure that landslide impacts to project structures would be reduced to less than significant levels (Class II), implementation of Mitigation Measure G-6a (Conduct geotechnical surveys for landslides and protect against slope instability) is required.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

E.7.1.14 Socioeconomics, Public Services, and Utilities

Impacts to socioeconomic, public services, and utilities from the LEAPS Transmission-Only Alternative are presented in this section. Impacts from the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.14, below.

Environmental Setting

Population and Population Trends. Riverside County measures almost 200 miles from east to west, encompassing more than 7,300 square miles (4,612,740 acres) of land. The 2000 U.S. Census reported the county's population at 1.5 million residents, or approximately 4.6 percent of all State residents (U.S. Census Bureau, 2000d). Riverside is one of the fastest growing counties in California, with most of the growth and associated development occurring in the western portion of the county that includes the City of Lake Elsinore, the Lakeland Village Census Designated Place (CDP), and the LEAPS Project area. Table E.7.1-31 compares the pace of growth for California, Riverside County, San Diego County, and the City of Lake Elsinore, indicating that Riverside County is growing faster than the State, and the city is growing faster than the county (FERC, 2007).

Table E.7.1-31. Project Area Population (1990, 2000, and 2003 [estimate])

Year	State of California	Riverside County	City of Lake Elsinore	Lakeland Village CDP	San Diego County	Orange County
Population 1990	29,760,021	1,170,413	18,285	NA	2,498,016	2,410,556
Population 2000	33,871,648	1,545,387	28,928	5,626	2,813,833	2,846,289
Population 2003 (est.)	35,484,453	1,782,650	34,914	NA	2,930,886	2,914,252
Percent change, 1990-2000	13.6	32.0	58.2	NA	12.6	18
Percent change, 2000-2003	4.8	15.4	20.7	NA	4.2	2.4

Source: U.S. Census Bureau, 2000, accessed 2007

Note: CDP = census designated place; NA = not available

Employment. Employment information for Year 2000 indicates that the City of Lake Elsinore was comparable at that time to the State of California in terms of the percent of persons 16 and older who were in the labor force (62.3 and 62.4 percent, respectively) and whether they were employed (62.0 and 61.8 percent, respectively). In Riverside County as a whole, a smaller percentage of the population was in the labor force (58.2 percent), and a smaller percentage was employed (53.6 percent). Later data indicate a changing job market at the state, county, and local levels, with unemployment rates down slightly in 2001 compared to 2000, then peaking in 2002 or 2003 and falling thereafter. California Employment Development Department data indicate that March 2005 unemployment rates in the state (5.7 percent), Riverside County (5.0 percent), Lake Elsinore (4.7 percent), and Lakeland Village (8.0 percent) were all slightly lower than they were in March 2000 (CEDD, 2005). In terms of occupation, the state average for management, professional, and related occupations (36 percent) is much higher than in the county (27.8 percent) or the City of Lake Elsinore (21.9 percent; Table E.7.1-32). Lake Elsinore has a substantially higher percentage of jobs in the construction, extraction and maintenance occupations (5.0 percent) and the transportation and moving occupations (17.6 percent) than either the state or the county (FERC, 2007).

Table E.7.1-32. Total Employment by Sector (1990 and 2000)

	State of California		Riverside County		City of Lake Elsinore	
	Number	Percent	Number	Percent	Number	Percent
Employment Status						
Population 16 years and older	25,598,144	100.00	1,124,807	100.00	19,701	100.0
In labor force	15,977,879	62.4	654,387	58.2	12,268	62.3
Civilian labor force	15,829,202	61.8	651,952	58.0	12,218	62.0
Employed	14,718,928	57.5	602,856	53.6	11,352	57.6
Unemployed	1,110,274	4.3	49,096	4.4	866	4.4
Armed forces	148,677	0.6	2,435	0.2	50	0.3
Occupation						
Management, professional, and related occupations	5,295,069	36.0	167,739	27.8	2,488	21.9
Service	2,173,874	14.8	105,466	17.5	1,806	15.9
Sales and office	3,939,383	26.8	163,095	27.1	3,300	29.1
Farming, fishing, and forestry	196,695	1.3	9,499	1.6	67	0.6
Construction, extraction, and maintenance	1,239,160	8.4	70,974	11.8	1,698	15.0
Production, transportation, and moving	1,874,747	12.7	86,103	14.3	1,993	17.6
Industry						
Agriculture, forestry, fishing and hunting, mining	282,717	1.9	13,063	2.2	101	0.9
Construction	915,023	6.2	55,751	9.2	1,415	12.5
Manufacturing	1,930,141	13.1	72,837	12.1	1,899	16.7
Wholesale trade	596,309	4.1	21,400	3.5	493	4.3
Retail trade	1,641,243	11.2	76,466	12.7	1,657	14.6
Transportation, warehousing, and utilities	689,387	4.7	31,683	5.3	636	5.6
Information	577,463	3.9	13,956	2.3	244	2.1
Finance, insurance, real estate, and rental and leasing	1,016,916	6.9	34,348	5.7	469	4.1
Professional, scientific, management, administration, and waste management services	1,711,625	11.6	51,577	8.6	836	7.4
Educational, health and social services	2,723,928	18.5	113,407	18.8	1,574	13.9
Arts, entertainment, recreation, accommodations, and food services	1,204,211	8.2	59,131	9.8	981	8.6
Other services, except public administration	761,154	5.2	30,166	5.0	721	6.4
Public administration	668,811	4.5	29,071	4.8	326	2.9

Source: U.S. Census Bureau, 2000b.

Differences in local versus county- and state-level jobs are evident as well in the distribution of jobs among industries (Table E.7.1-32), where the average percentage of workers employed statewide is higher in professional industries than in the City of Lake Elsinore. By contrast, workers in Lake Elsinore are more likely than the statewide average to be found in the construction, manufacturing, and

retail trade sectors. Due to the rapid growth that is occurring in Lake Elsinore and much of Riverside County, the countywide average of 9.2 percent of workers employed in the construction industry is almost 50 percent higher than the statewide average of 6.2 percent, and the Lake Elsinore value of 12.4 percent is double the statewide average (FERC, 2007).

Public Services and Utilities. No utilities are located in the vicinity of the underground segment of the proposed transmission line.

Environmental Impacts and Mitigation Measures

Table E.7.1-33 summarizes the socioeconomic impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-33. Impacts Identified – Socioeconomics		
Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades		
S-1	Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments	Class I,II,IV
S-3	Project construction and operation would increase the need for public services and facilities	Class III
S-4	Property tax revenues from project presence would substantially benefit public agencies	Class IV
S-5	Presence of the project would decrease property values	Class III

The Transmission-Only alternative consists of two components: the Lake-Pendleton new 500 kV line, a new 30-mile 500 kV circuit between the Lake and Pendleton Substations, interconnecting with the LEAPS generation facility at the midpoint; and the Talega-Escondido 230 kV transmission upgrade consisting of a 47-mile 230 kV line upgrade between the Talega and Escondido Substations, and a 7.7-mile 69 kV line rebuild between the Pala and Lilac Substations.

Lake-Pendleton 500 kV New Transmission Line

The Lake-Pendleton 500 kV line would be located in portions of Riverside, San Diego, and Orange Counties. Socioeconomic characteristics of Riverside County are discussed in detail above. San Diego County encompasses more than 4,500 square miles (2,081,739 acres) and had a 2000 population of 2.8 million, or approximately 8.3 percent of all state residents (U.S. Census Bureau, 2000e). Orange County encompasses almost 800 square miles (505,216 acres) and had a 2000 population of 2.8 million, or approximately 8.3 percent of all state residents (U.S. Census Bureau, 2007). In contrast to Riverside County and Lake Elsinore, San Diego and Orange Counties’ growth rates have been slightly below that of the State.

Talega-Escondido 230 kV Transmission Upgrade

The Talega-Escondido 230 kV line is located entirely in San Diego County. Socioeconomic characteristics of San Diego County are discussed above. Few socioeconomic impacts would result from upgrades to the Talega-Escondido transmission line because construction, maintenance, and operations activities associated with the upgrades will be minor.

Construction Impacts

Impacts to the transmission only component would be similar to that described in Section E.7.2.14 except without the pumped storage hydroelectric facilities construction. Due to the substantially smaller workforce required for transmission construction and operation compared to the LEAPS project with the generation component as well, Impact S-1CA (Labor force requirements would create a substantial demand for labor or a change in local employment) would not occur.

The scope of construction of the LEAPS transmission line only would be substantially less and a shorter timeframe than the LEAPS transmission and generation project, resulting in fewer impacts to businesses and associated revenues. Impacts on local businesses would potentially result from degradation of views, views of construction equipment and activity, vehicular or pedestrian access restrictions, land use, air quality, and noise effects, or health and safety concerns (such as EMF). These issues are analyzed in this document in Sections E.7.1.3 (Visual Resources), E.7.1.4 (Land Use), E.7.1.8 (Noise), E.7.1.9 (Traffic/Transportation), and E.7.1.10 (Public Health and Safety) and include associated mitigation measures. The proponents have stated in the EIS that they would purchase any properties directly affected, which would eliminate impacts to business revenues on directly impacted businesses. Coupled with implementation of the Forest Service 4(e) conditions described above, impacts to business revenues would be less than significant (Class III).

Construction of only the transmission line and upgrades would reduce the chance of accidental utility disruptions; however, there would still be construction adjacent to existing utilities and an underground segment of construction and some temporary outages would potentially be necessary. Compliance with the California Government Code 4216-4216.9 and implementation of Mitigation Measures S-2a (Notification of utility service interruption) and S-2b (Protection of underground utilities) would reduce this impact to less than significant (Class II).

Construction of the transmission only component of the LEAPS project would have a much shorter construction schedule and would require substantially less earthmoving work, construction personal, equipment and materials. Therefore, as discussed above, Impact S-3 (Project construction and operation would increase the need for public services and facilities) would be less than significant.

Operational Impacts

During operation and maintenance of the transmission lines only, there would not be an impact to the district's flood control facilities. Insulator washing would periodically occur and would require water (SRPL has an estimated use of 300 gallons of water per structure). It is assumed that the proponents would provide their own water and it would be trucked to the individual structures; however, compared to water usage during project construction, water for washing would be minor. Impacts on existing resources and suppliers (Impact S-3) would be less than significant (Class III). No mitigation would be required.

Operation of the transmission line corridor would still cause an increase in property tax revenue and result in a beneficial impact to local jurisdictions (Impact S-4, Class IV). Property value impacts along the new and upgraded transmission corridors are discussed under Impact S-5 above and would remain a Class III, less than significant impact.

Impact S-1: Project construction would cause a change in revenue for businesses (Class I, II, and IV)

Loss of Business Revenue. There is a potential for some residential and/or business displacement due to the transmission line, and the proponents propose to purchase certain properties to help offset this effect. The proponents have identified potentially affected properties and property owners, but at the time of writing have not yet identified which specific properties might need to be acquired (FERC, 2007). Although there are few, if any, businesses along the route, these unknown effects that would potentially result in a total loss of businesses and revenues are conservatively estimated to be significant and unmitigable (Class I).

Loss of revenue to other local businesses not directly affected would potentially result from degradation of views, presence of construction equipment and activity, vehicular or pedestrian access restrictions, land use and noise effects, or health and safety concerns (such as EMF). These issues are analyzed in this document in Sections E.7.3 (Visual Resources), E.7.4 (Land Use), E.7.8 (Noise), E.7.9 (Traffic/Transportation), and E.7.10 (Public Health and Safety) and include associated mitigation measures. Coupled with implementation of the Forest Service 4(e) Conditions 37, impacts to business revenues would be reduced to a less than significant level (Class II).

Economic Benefit. Employment of construction personnel would benefit local businesses and the regional economy through increased expenditure of wages for goods and services (Class IV). Personnel for construction, operation and maintenance would be drawn from local populations in western Riverside and San Diego Counties, creating new temporary and permanent employment in these counties. A limited number of construction personnel may require temporary housing, likely in local hotels, and would be expected to purchase food, beverages, and other commodities, fueling the local economy (FERC, 2007).

Mitigation Measure for Impact S-1: Project construction would cause a change in revenue for businesses

USFS-37 Condition No. 37—Scenery Conservation Plan. (Full text presented in Section E.7.1.3, Visual Resources)

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (No Impact)

No utilities are located in the vicinity of the underground portion of the transmission line; consequently no impacts to utility systems would occur.

Mitigation Measures for Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident

S-2a Notification of utility service interruption.

S-2b Protection of underground utilities.

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III)

Water and Sewer. Water use during construction is a short-term use, and the proponents would purchase the water needed for dust control and other activities. The water used for an average lattice tangent structure is 1,340 gallons. The proponents have identified in their DEIR a number of water

districts (ex. Elsinore Valley Municipal Water District and the Eastern Water Municipal District) with whom they would have a water purchase agreement. Therefore, impacts to water services and facilities would be less than significant (Class III). No mitigation is required; however, implementation of Mitigation Measure S-3b (Use reclaimed water), would further reduce impacts on local and regional water supplies by encouraging use of reclaimed water where possible.

Solid Waste. Transmission line construction and upgrades would generate waste largely in the form of soil, concrete from existing foundations, utility line cable, and scrap metal/wood from the replacement of existing poles.

Riverside County has seven permitted and active solid waste landfills including: Badlands Sanitary Landfill, Lamb Canyon Sanitary Landfill, Oasis Sanitary Landfill, Desert Center Landfill, Blythe Sanitary Landfill, Mecca Landfill and El Sobrante Landfill (CIWMB, 2007). The following seven landfills accommodate San Diego's waste disposal needs: Ramona Landfill, Borrego Springs Landfill, Otay Landfill, West Miramar Sanitary Landfill, Sycamore Sanitary Landfill, San Onofre Landfill, and Las Pulgas Landfill. Due to the number and capacity of landfills serving the project area, capacity for materials generated from construction of the LEAPS Alternative would be available. Because the exact amount of material recycling is unknown, the total amount of waste requiring landfill disposal is unknown. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills. Therefore, construction waste would not substantially affect the remaining capacities of local landfills to serve local demands. Although impacts to solid waste facilities would not be significant (Class III) and no mitigation is required, to further reduce adverse effects of the cumulative volume of waste from all of the individual links, Mitigation Measure S-3a (Recycle construction waste) would be recommended for implementation to ensure that maximum recycling activities would occur.

Public Services

Construction Labor. Because of the large available labor pool in San Diego and Riverside Counties and nearby areas, few construction workers are expected to temporarily relocate to the area (see Impact S-1CA, presented below). Therefore, they would not generate additional population that would potentially exceed the capacity of local public service providers. Nor would the LEAPS Project result in any long-term requirements that would place a permanent increased demand on emergency service providers that would result in new or expanded facilities. Therefore, the temporary addition of construction personnel would not substantially increase any demands on schools or hospitals or lower the level of service for fire protection or police protection in the long term and it would not require the construction or expansion of facilities or services (Class III).

Fire Hazards. Section D.15 and E.7.1.15 (Fuels and Fire Management) discusses how temporary construction activities would result in an increase for potential fire hazards and would potentially increase temporary demands for fire protection services.

Emergency Services. Construction of the project and equipment would potentially impede emergency access through the area. Impacts to emergency access are discussed under Section E.7.1.9 (Transportation and Traffic), and would be reduced to less than significant levels by coordinating construction efforts with emergency providers, thus not causing an adverse impact to response times. Therefore, impacts to emergency access and/or public services and facilities would be less than significant as well (Class III).

Mitigation Measure for Impact S-3: Project construction and operation would increase the need for public services and facilities

S-3a Recycle construction waste.

S-3b Use reclaimed water.

Impact S-1CA: Labor force requirements would create a substantial demand for labor or a change in local employment (No Impact)

Lake-Pendleton 500 kV New Transmission Line. About 28 full-time equivalent work-years would be required to construct 32 miles of 500 kV transmission line in the type of terrain located along the proposed route, with an estimated payroll of \$1.4 million.³ Relative to the size of the local economy, this beneficial impact is small. Because of the small size of the operations work force compared to the size of the local economy, there would be no substantial in-migration of people and little or no increased demand for rental housing, permanent housing, or government facilities or services associated with the operations workforce.

Talega-Escondido 230 kV Transmission Upgrade. During construction of the Talega-Escondido transmission line upgrades, approximately 60 jobs would be created for the nine months required to complete upgrades. Workers involved with system upgrades are expected to be filled by labor force participants in San Diego and Riverside Counties. Therefore, there would be no identifiable effect to population growth, employment or housing demand or availability as a result of implementing proposed Talega-Escondido transmission line upgrades.

Operational Impacts

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III)

During operation and maintenance of the transmission lines, insulator washing, which would periodically occur, would require water (SRPL has an estimated use of 300 gallons of water per structure). It is assumed that the proponents would provide their own water and have identified in their DEIR a number of water districts (ex. Elsinore Valley Municipal Water District and the Eastern Water Municipal District) with whom they would have a water purchase agreement. The water would be trucked to the individual structures; however, compared to water usage during project construction, water for washing would be minor and impacts on existing resources and suppliers would be less than significant (Class III). No mitigation would be required.

Impact S-4: Property tax revenues from project presence would substantially benefit public agencies (Class IV)

Local property tax revenues are a function of tax rates levied within the affected jurisdictions. The proponents' property taxes are expected to increase as a result of the proposed 500 kV transmission line. The State of California Board of Equalization (BOE) assesses infrastructure facilities annually. Dispersion of property tax revenue is determined based upon the location of the taxable property. Any

³ The proponents' payroll estimate is based on 2003 data from the California Economic Development Department and the 2002 data from the Riverside County Economic Development Department. The proponents used the "high" wage rates by trade from those sources and assumed a 40-hour work week and 50-week work year, with no overtime rates included (California Department of Health Services, 2003, as cited in Elsinore Valley MWD and Nevada Hydro, 2004a)]

increase in property tax revenue as a result of the new transmission line would represent a beneficial impact to the local economy (Class IV).

For the Talega-Escondido portion of the transmission line, substation upgrades would be contained within existing developed areas of Talega and Escondido Substations, installing the second 230 kV circuit would occur at the vacant side of existing 230 kV structures, and the 69 kV line would be installed within existing ROWs adjacent to the existing 230 kV line. As no new land or ROW would be acquired for development, and systems upgrades would not be substantial when compared to the existing substations and 230 kV transmission line, the proposed Talega-Escondido transmission line upgrades are anticipated to have no identifiable effects to economic output and property values, therefore Impact S-4 (Property tax revenues from project presence would substantially benefit public agencies) would not occur.

Impact S-5: Presence of the project would decrease property values (Class III)

The northern segment of the new, 500 kV Lake-Pendleton transmission line would potentially adversely affect residential property values for a distance of about 2.5 miles where the line would cross private property designated for residential development at densities ranging from 5- to 20-acre minimum lot size. The southern segment of the Lake-Pendleton line would potentially adversely affect residential property values for a distance of about 10.9 miles in Riverside County where it would cross private property designated for residential development at the same densities (including the La Cresta area), as well as an undetermined number of properties in San Diego County (FERC, 2007). Impact S-5 under the Imperial Valley Link of the Proposed Project (see Section D.14.5.1) addresses in detail the issues associated with the potential for impacts on property values and industrial facilities such as transmission lines in an effort to provide the reader with detailed background information based on extensive literature review and the property value issues of past similar projects. As also discussed in Section D.14.5.1, it is concluded that any changes in property values would not be a substantial decrease and this impact is considered to be less than significant (Class III).

The Talega-Escondido 230 kV Transmission Upgrades would occur within an existing corridor and no new land or ROW would be acquired for development. Incremental effects on property values that may result from the changes within the corridor resulting from this project would be very small, would diminish over time, and would be very difficult to quantify. Based on the studies discussed under Impact S-5 in Section D.14.5.1, it is concluded that the Talega-Escondido 230 kV Transmission Upgrade would not generate effects that would significantly impact property values (Class III). It should be noted that implementation of mitigation measures in the Visual Resources section (Sections D.3 and E.7.3), such as Mitigation Measures V-3a (Reduce visual contrast of towers and conductors), although not required, would help to reduce the visual impacts of the project. It should also be noted that land-owners of any private parcels that would be crossed by the route would be compensated by the proponents for use of an easement across the property.

E.7.1.15 Fuels and Fire Management

Wildfire impacts created by the LEAPS Transmission-Only Alternative are presented in the following section. Wildfire impacts related to the LEAPS Generation and Transmission Alternative are presented in Section E.7.2.15, below.

A fireshed approach to analysis is taken in this section. Firesheds are regional landscapes that are delineated based on fire history, fire regime, vegetation, topography, and potential wildfire behavior. Firesheds are useful assessment tools for identifying high fire risk areas and predicting future fire behavior with the objective of reducing fire risk and protecting communities. Fire and fuels impacts are analyzed using supporting information and fire behavior model results for each fireshed as defined in Section D.15.2. Section D.15.4.3 provides an explanation of how fireshed boundaries were delineated and presents a detailed description of the computer models and data inputs, and Appendices 3A and 3B present detailed information on field data collection techniques and data coding protocols.

Environmental Setting – Lake-Pendleton New 500 kV Transmission Line

Lake Elsinore Fireshed

Total Assessment Area: 98,122 acres

The Lake Elsinore Fireshed would encompass 17.8 miles of overhead and 2.1 miles of underground transmission line for the LEAPS Transmission-Only Alternative. The fireshed includes private lands to the north of Interstate 15 and the Temescal Wash, and it extends south of Lake Elsinore. The fireshed area encompasses 42,766 acres of Cleveland National Forest (CNF) with Santiago Peak in the northwest and a portion of the San Mateo Canyon Wilderness in the south. The Ortega Highway (SR 74) is the main transportation route through the CNF. The western fireshed boundary includes the National Audubon Society Starr Ranch Sanctuary and part of the Trabuco Highlands residential area. Extensive urban development on the east and west slopes of the Santa Ana Mountains has increased the human influence on the remaining wildlands over the past 30 years. Figure E.7.1.15-1 depicts the Lake Elsinore Fireshed boundary, public land ownership boundaries, and the LEAPS Transmission-Only Alternative route.

The southwest side of the Lake Elsinore Fireshed receives an average of 22 inches of rainfall annually. This moderate amount of precipitation and the close proximity to the coast is sufficient to support dense chaparral plant communities on the hillsides with live oak and sycamore in the seasonal creek drainages. The northeast side of the fireshed is in the rain shadow of the Santa Ana Mountains receive an average of 14 inches of rainfall annually. The Santa Ana winds create severe to extreme fire weather in this fireshed from early fall through spring.

The Lake Elsinore Fireshed contains a continuously expanding Wildland-Urban Interface (WUI) composed of private land surrounding and interspersed within the chaparral wildlands of the Cleveland National Forest. The average private parcel size is 2 acres indicating a potential for future development through subdivision of parcels within the

Table E.7.1-34. Land Ownership Summary of the Lake Elsinore Fireshed

Ownership	Acres	Portion of Fireshed
City of San Diego	0	0%
County of San Diego	0	0%
BLM	920	1%
USFS	42766	44%
Military	0	0%
Native American Reservation	0	0%
State of California	0	0%
SDG&E	0	0%
Other (private, city, county, etc.)	54,436	55%
Total	98,122	100%

Source: Forester's Co-Op Fire Atlas Data

fireshed. The population density within the private lands is 704 people per square mile. Future population growth within the fireshed will be concentrated to the east and west of the CNF wildlands. Table E.7.1-34 summarizes land ownership in the Lake Elsinore Fireshed.

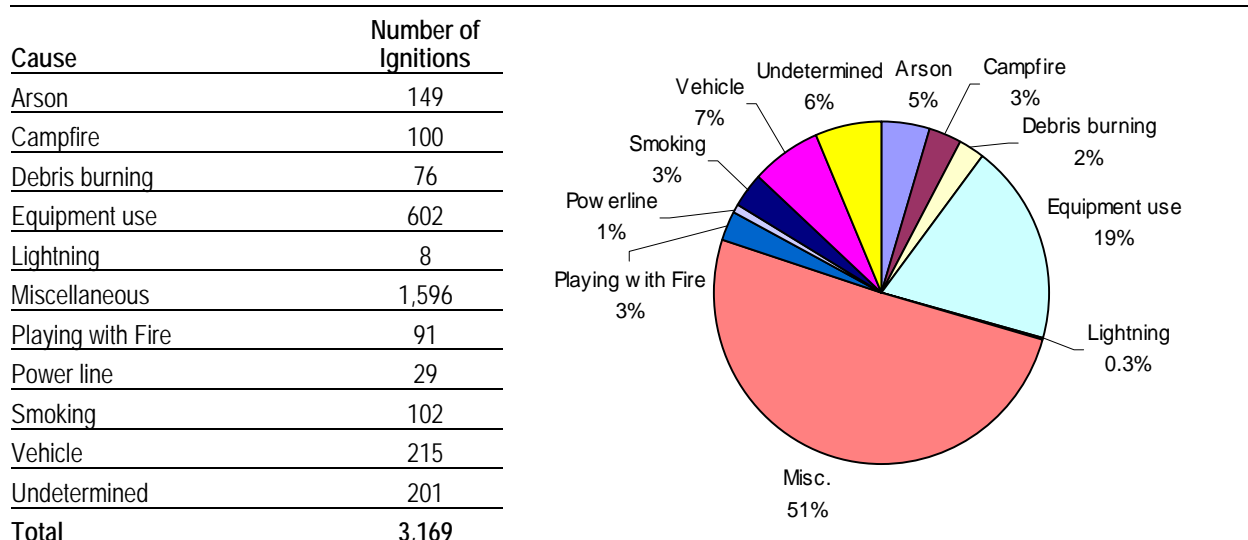
Fire History

- **Fire Frequency: 57 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 7 fires/50 years**
- **Major Events (over 1,000 acres): 18 fires/50 years**
- **Total Acres Burned: 109,400 acres/50 years**

The 1980 Indian Fire was the largest fire (26,367 acres) to burn through the Lake Elsinore Fireshed in the past 50 years. Previous to this, the Steward Fire in 1958 burned 13,817 acres within this fireshed and 13,420 acres within the Margarita Fireshed to the south. More recently, the 2004 Cerrito Fire burned 12,317 acres within the fireshed. The southern California fires of 2007 did not burn within this fireshed, however the Santiago Fire burned nearby to the northwest. The relatively high number of major wildfire events (over 1,000 acres burned) recorded in the Lake Elsinore Fireshed can be attributed to the flammable fuel composition of the chaparral vegetation that covers a majority of the area.

The Lake Elsinore Fireshed experienced 3,169 wildfire ignitions between 1993 and 2006. The predominant, identified cause of ignitions in this fireshed is equipment use (19%; Table E.7.1-35). The high number of equipment-caused ignitions reflects the elevated level of development within the Wildland-Urban Interface (WUI). The use of equipment in these WUI areas has proven to be a recurring ignition hazard. Ignitions within CNF are a result of the high human impact on the chaparral wildlands through recreation and along Ortega Highway (Route 74) which is a main commute route. In addition, a very high concentration of ignitions has occurred along Interstate 15, which is a highly impacted transportation route through the area. The extremely high frequency of ignitions, coupled with a history of large fires, indicates this fireshed is at an elevated risk of recurring wildfires.

Table E.7.1-35. Reported 13-Year Wildfire Ignition History in the Lake Elsinore Fireshed



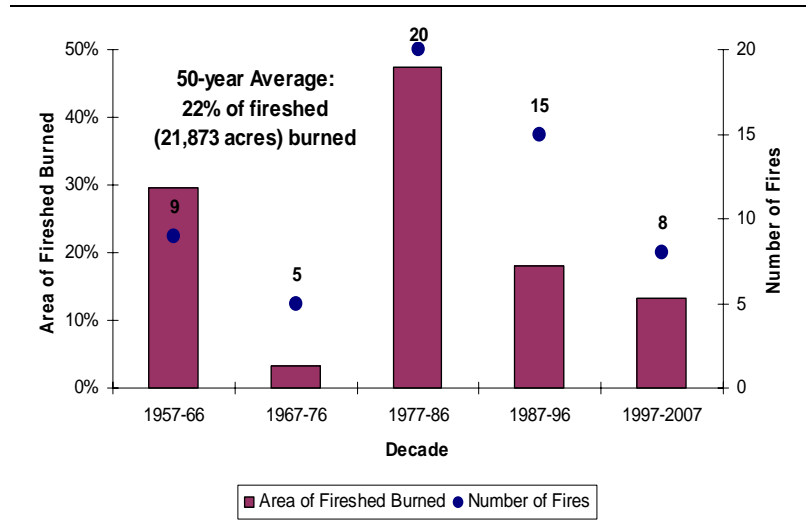
Source: Forester's Co-Op Fire Atlas Data.

Figure E.7.1.15-1. LEAPS Fireshed Overview Map
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An average of 22% or 21,873 acres burned per decade in the Lake Elsinore Fireshed based on the 50-year fire history records (Figure E.7.1.15-2; for methods see Section D.15.1.2). The largest area burned and highest number of wildfires occurred during the 1977-1986 decade. The 1980 Indian Fire alone burned 26% of the fireshed area. The number of fires and the area burned has decreased in recent decades. This decline in wildfire activity is a possible result of fire prevention programs to educate the public and the building of more fire stations to serve the growing population in the WUI communities.

Figure E.7.1.15-2. Lake Elsinore Fireshed Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

Although the number and size of wildfires has decreased in the past 20 years, the fuel load continues to accumulate and the WUI continues to expand. These factors would be expected to increase ignitions and the number of assets at risk in the future. The Lake Elsinore Fireshed has the highest number of cumulative acres burned and has experienced the highest number of major events in 50 years than any other fireshed along the Proposed Project or alternative routes.

The level of human influence within this fireshed is a key indicator of future wildfire ignitions. Humans are responsible for 93% of the wildfire ignitions over the past 13 years as compared to less than 1% of the ignitions naturally occurring from lightning strikes. The random occurrence of lightning ignitions is expected to remain constant, contributing a minimal source of ignitions throughout the landscape. Any ignitions that occur during extreme Santa Ana weather conditions will spread quickly, causing initial attack escapes and an increased potential for major wildfire events. Over the 50-year wildfire history, human activities were identified as starting 27 of the 57 wildfires that burned within the fireshed, there were no lightning started fires, and the causes of the remaining 30 fires were undetermined. The high number of historically undetermined wildfire sources may be attributed to imprecise reporting and source identification practices, which have become more accurate in recent times. The level of human wildfire influence is expected to increase in the future within the WUI areas of this fireshed.

The spatial arrangement of the urban developments within the Lake Elsinore Fireshed private lands indicates that there is an Interface WUI adjacent to the remaining public wildlands (CNF). Interface WUI⁴ regions are documented to have an elevated wildfire risk due to the large scale of current and future urban sprawl that will increase the population density around the wildlands, increasing ignitions and placing more homes at risk (Syphard et al., 2007).

⁴ Interface WUI: there is a clear delineation between development and wildland fuels (population density of 250 or more people per square mile). (Federal Register (USDA/USDI 2001))

Vegetation

The rain shadow effect from the Santa Ana Mountains is the primary influence in determining the vegetation types within this fireshed. The dominant vegetation type is chaparral, covering 60% of the landscape. Chaparral plant communities composed of chamise, scrub oak, and sage brush grows on the hillsides in dense stands throughout the fireshed. Broadleaf trees, such as live oak and sycamore, grow along the many seasonal creek drainages. Due to the limited rainfall to the east of Highway 15, the chaparral is sparse and intermixed with cactus and yucca. Pockets of Coulter pine and Big-cone Douglas fir are located in the higher elevations near Santiago Peak. Table E.7.1-36 summarizes vegetation communities within the Lake Elsinore Fireshed.

Table E.7.1-36 Lake Elsinore Vegetation Composition

Vegetation Type	Acres	Cover
Chaparral	3,621	60%
Live Oak	247	4%
Scrub	978	16%
Out Area	208	3%
Total	6,039	100%

Source: Forester's Co-Op Fire Atlas Data.

Fire Prevention Practices & Resources

Fire suppression in the Cleveland National Forest is the immediate responsibility of the USDA Forest Service, which manages the El Cariso Fire Station on SR 74 and the Holy Jim Volunteer Fire Station in Trabuco Canyon. As a fire prevention measure during severe Santa Ana weather conditions, the secondary roads in the CNF are closed to motorized vehicles due to the extreme fire risk. CAL FIRE Station #74 is located on South Main Divide Road, providing fire suppression resources for State Responsibility Areas (SRA). There are several county operated fire stations in and around the fireshed. The Riverside County Station #11 is located near Lake Elsinore and the Orange County Stations #40 and #45 are in the Trabuco Heights and Rancho Santa Margarita communities. The City of Lake Elsinore is a federally designated community at risk of wildfire. Significant water resources are readily available for fire suppression at Lake Elsinore.

Margarita Fireshed

Total Assessment Area: 70,671 acres

The Margarita Fireshed would include 14.5 miles of overhead transmission line for the LEAPS Transmission-Only Alternative. The fireshed contains extensive wildlands surrounded by expanding residential developments. The San Mateo Canyon Wilderness in CNF composes a large portion of the fireshed area. Private lands border the CNF to the east and are interspersed throughout these public wildlands. The southern boundary of the fireshed extends into the wildlands of Camp Pendleton. Figure E.7.1.15-1 illustrates the Margarita Fireshed boundary, public land ownership boundaries and the LEAPS Transmission-Only Alternative route.

The fireshed receives an annual average rainfall of 22 inches in the north and 18 inches in the south through the Santa Margarita Mountains. This moderate amount of precipitation and the close proximity to the coast is sufficient to support dense chaparral plant communities on the hillsides, oak woodlands and conifer stands in the higher elevations. The Santa Ana winds create severe to extreme fire weather in this fireshed from early fall through spring.

The Margarita Fireshed is primarily composed of wildlands in CNF and Camp Pendleton. Private ownership is restricted to the east side of CNF which consists of agricultural land and homes at the WUI adjacent to dense, chaparral wildlands. The mean average private parcel size is 52 acres indicating a high potential for future development through subdivision of parcels within the fireshed. The population density within the private lands is 436 people per square mile. Future population growth within the fireshed will be concentrated to the east of CNF in the private lands. Table E.7.1-37 summarizes land ownership in the Margarita Fireshed.

Table E.7.1-37. Land Ownership Summary of the Margarita Fireshed

Ownership	Acres	Portion of Fireshed
BLM	983	1%
USFS	32,087	45%
Military	17,716	25%
Native American Reservation	0	0%
State of California	0	0%
SDG&E	0	0%
Other (private, city, county, etc.)	19,885	28%
Total	70,671	100%

Source: Forester's Co-Op Fire Atlas Data

Fire History

- **Fire Frequency: 46 recorded fires/50 years**
- **Extended Attack between 500 and 1,000 acres: 3 fires/50years**
- **Major Events (over 1,000 acres): 13 fires/50 years**
- **Total Acres Burned: 102,700 acres/50 years**

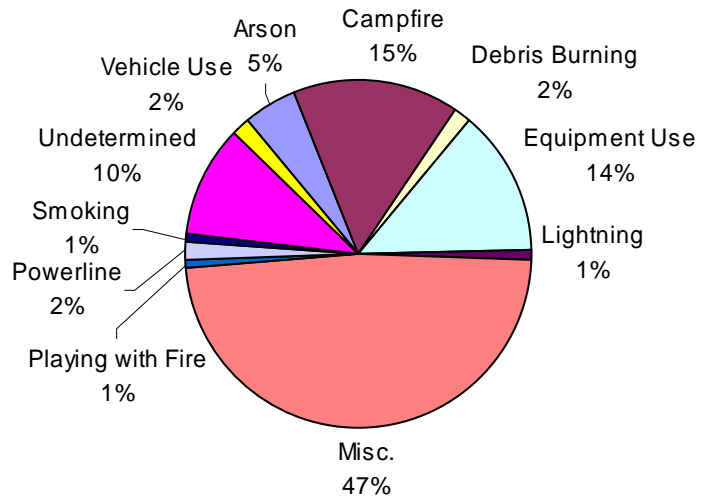
The 1980 Turner Fire was the largest fire (25,146 acres) to burn through the Margarita Fireshed in the past 50 years. The Turner Fire also burned 2,777 acres in the Lake Elsinore Fireshed to the north. The largest fire previous to this was the Steward Fire in 1958 which burned 13,420 acres within the Margarita Fireshed and 13,871 acres in the Lake Elsinore Fireshed. The largest fire in the area since 1980 was the 2003 Roblar 2 Fire which burned 5,091 acres within the fireshed. The southern California fires of 2007 did not burn within the Margarita Fireshed, however the Ammo Fire burned nearby to the southwest, and the Rice Fire burned nearby to the southeast. The relatively high number of major wildfire events (over 1,000 acres burned) recorded in the Margarita Fireshed can be attributed to the flammable fuel composition of the chaparral vegetation that covers a majority of the area.

The predominant, identified causes of ignitions in this fireshed are campfires (15%) and equipment use (14%; Table E.7.1-38). The elevated occurrence of ignitions such as these indicates there is a high level of human influence on the surrounding wildlands through recreation and development at the WUI.

An average of 29% or 20,547 acres burned per decade in the Margarita Fireshed based on the 50-year fire history records (Figure E.7.1.15-3; for methods see Section D.15.1.2). The highest number of fires and the largest area burned occurred during the 1967-1976 and 1977-1986 decades. Subsequently, the number of fires and the area burned has decreased dramatically in recent decades. This decline in wildfire activity is a possible result of fire prevention programs to educate the public and the building of more fire stations to serve the growing population in the WUI communities. Although the number and size of wildfires has decreased in the past 20 years, the fuel load continues to accumulate and the WUI continues to expand. These factors would be expected to increase ignitions and place more assets at risk in the future. The Margarita Fireshed has the second highest number of cumulative acres burned and has experienced the second highest number of major events in 50 years of all firesheds along the Proposed Project or alternative routes. Only the Lake Elsinore Fireshed has higher numbers.

Table E.7.1-38. Reported 13-Year Wildfire Ignition History in the Margarita Fireshed

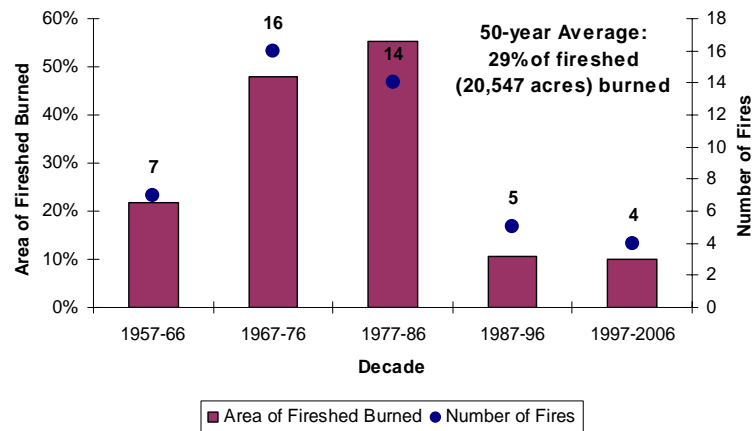
Cause	Number of Ignitions
Arson	6
Campfire	18
Debris Burning	2
Equipment Use	16
Lightning	1
Misc.	56
Playing with Fire	1
Power line	2
Smoking	1
Undetermined	12
Vehicle Use	2
Total	117



Source: Forester's Co-Op Fire Atlas Data.

The level of human influence within this fireshed is a key indicator of future wildfire ignitions. Humans are responsible for 89% of the wildfire ignitions over the past 13 years as compared to 1% of the ignitions naturally occurring from lightning strikes. The random occurrence of lightning ignitions is expected to remain constant, contributing a minimal source of ignitions throughout the landscape. Any ignitions that occur during extreme Santa Ana weather conditions will spread quickly, causing initial attack escapes and an increased potential for major wildfire events. Over the 50-year wildfire history, humans started 34 of the 46 wildfires that burned within the fireshed, there were no lightning started fires, and the remaining causes were undetermined. The high number of historically undetermined wildfire sources may be attributed to imprecise reporting and source identification practices, which have become more accurate in recent times. The level of human wildfire influence is expected to increase in the future within the WUI areas of this urban sprawl fireshed.

Figure E.7.1.15-3. Margarita Fireshed Wildfire History



Source: Forester's Co-Op Fire Atlas Data.

The spatial arrangement of the urban developments within the Margarita Fireshed private lands indicates that there is an Interface WUI adjacent to the wildlands of CNF and Camp Pendleton. Interface WUI⁵

⁵ Interface WUI: there is a clear delineation between development and wildland fuels (population density of 250 or more people per square mile). (Federal Register (USDA/USDI 2001))

regions are documented to have an elevated wildfire risk due to the large scale of current and future urban sprawl that will increase the population density around the wildlands, increasing ignitions and placing more homes at risk (Syphard et al., 2007).

Vegetation

The Margarita Fireshed contains primarily sage scrub on south facing slopes and the east side of San Mateo Canyon. The chaparral grows in dense stands within the mountain valleys and north facing slopes. Live oak and sycamore trees grow in the seasonal creek drainages. Table E.7.1-39 summarizes vegetation communities within the Margarita Fireshed.

**Table E.7.1-39. Margarita Fireshed
Vegetation Composition**

Vegetation Type	Acres	Cover
Chaparral	440	9%
Live Oak	313	7%
Scrub	3,400	73%
Out Area	58	1%
Total	4,665	100%

Source: Forester's Co-Op Fire Atlas Data.

Fire Prevention Practices & Resources

Fire suppression in CNF is the immediate responsibility of the USDA Forest Service, which manages the El Cariso Fire Station on SR 74 (Lake Elsinore Fireshed). During severe Santa Ana weather conditions, the secondary roads in the CNF are closed to motorized vehicles due to the extreme fire risk. Fire suppression at Camp Pendleton is the responsibility of the Marine Corps Case Springs Fire Station. SRAs are under the protection of the De Luz CAL FIRE Station, located south of the community of De Luz. The Bear Creek Fire Station/Riverside County Station #75 is located in Murrieta to the east of the fireshed. Significant water resources are readily available for fire suppression at Lake Elsinore.

Environmental Impacts and Mitigation Measures – Lake-Pendleton New 500 kV Transmission Line

Table E.7.1-40 summarizes the fire and fuels management impacts of the Lake-Pendleton 500 kV New Transmission Line and Talega-Escondido 230 kV Transmission Upgrades.

Table E.7.1-40. Impacts Identified – Fire and Fuels Management

Impact No.	Description	Impact Significance
Lake-Pendleton 500 kV New Transmission Line		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-2	Presence of the overhead transmission line would significantly increase the probability of a wildfire.	Class I
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II
Talega-Escondido 230 kV Transmission Upgrades		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-2	Presence of the overhead transmission line would significantly increase the probability of a wildfire.	Class II
F-3	Presence of the overhead transmission line would reduce the effectiveness of firefighting.	Class III
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

Wildfire Model Results

The fire behavior modeling results for the Lake-Pendleton corridor through the Lake Elsinore and Margarita Firesheds are presented below. The following model results in combination with additional supporting information are the basis of the fire and fuels impacts analyzed for the LEAPS Transmission-Only Alternative.

Burn Probability Model Results. Construction-related ignitions within the Lake-Pendleton corridor have the potential to escape initial attack containment and become catastrophic fires. Areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds will have a higher burn probability and a higher potential for an ignition to escape. The burn probability along the Lake-Pendleton route within the Lake Elsinore and Margarita Firesheds is modeled to illustrate regions within the border zone that have a high potential for wildfire escapes and recurring wildfire events.

High fire probability areas within the border zone were identified using the Flam Map Burn Probability Model. See Section D.15.4.3 for a description of the modeling analysis. The relative burn probabilities of the route through the Lake Elsinore and Margarita Firesheds are shown in Figures E.7.1.15-4 and E.7.1.15-5. The majority of high to very high burn probability areas occur where the corridor borders or crosses the fuel-laden wildlands of CNF. Table E.7.1-41 summarizes the burn probability model results for the LEAPS Transmission-Only Alternative.

Table E.7.1-41. LEAPS Transmission-Only Alternative
Route Burn Probability

Fireshed	Low	Moderate	High	Very High
Lake Elsinore	53%	27%	13%	7%
Margarita	25%	33%	20%	22%
Route Summary	40%	30%	16%	14%

Source: Forester's Co-Op Model Output

Fire Behavior Trend Model Results. In the event of a wildfire within the Lake Elsinore and Margarita Firesheds, damaging impacts are likely to occur due to the seasonal Santa Ana wind conditions that can rapidly propel a wildfire through the landscape. During these extreme weather conditions, the trend of a fire started within the corridor would be driven to the southwest by the prevailing Santa Ana winds, with the potential of burning extensive areas in and around the transmission corridor and into communities within the fire path. Damaging impacts will result if a fire burned through the Lake Elsinore and Margarita Firesheds, but the magnitude of the impacts is dramatically increased during severe fire weather conditions and within regions of dense vegetation.

During normal weather conditions, ignitions along the transmission line would burn towards the northeast within the border zone and up to a mile further in areas of dense vegetation. The communities of Wildomar, Lakeland Village, Margarita, La Cresta, La Cresta Highlands, and De Luz would be threatened if a fire started within the nearby transmission corridor, putting as many as 719 homes and 19,074 acres at risk in two burn periods. Fire started in the transmission corridor near the proposed Lake Substation and north of Highway 15 would burn only within the border zone due to the lack of fuels in the area. Figure E.7.1.15-6 shows the fire behavior trend during normal weather conditions (Map A) compared to the fire behavior trend during extreme fire weather conditions (Map B) for the Lake-Pendleton route through the Lake Elsinore Fireshed. Figure E.7.1.15-7 compares the normal (Map A) and extreme (Map B) fire weather conditions for the Margarita Fireshed.

Under extreme weather conditions, ignitions along the transmission line would burn to the southeast spreading rapidly through CNF. The communities of Trabuco Heights, Mission Viejo, and Margarita would be threatened if a fire started within the transmission corridor and spread through CNF. The potential area at risk of being consumed in a wildfire ignited along the transmission corridor in the Lake Elsinore Fireshed would be more than eight times greater during extreme Santa Ana weather conditions compared to normal conditions. The potential area at risk of being consumed in a wildfire ignited along the transmission corridor in the Margarita Fireshed would be seven times greater during extreme Santa Ana weather conditions compared to normal conditions, putting 812 homes and 147,644 acres at risk in two burn periods.

Wildfire Containment Conflict Model Results. Tactical firefighting management decisions made during wildfires are based on assessment of fire behavior and the ability of ground and aerial firefighters to safely attack a fire. The Wildfire Containment Conflict Model is used to identify areas along the transmission line where significant conflicts with wildfire suppression efforts would be created by the introduction of the proposed overhead transmission line, defined as segments with at least 1.5 consecutive miles of very high conflict ranking (see Section D.15.4.3 for methods). The model indicates that for the length of the LEAPS Transmission-Only Alternative through the Lake Elsinore and Margarita Firesheds 10% would present a very high conflict, 33% a high conflict, 43% a moderate conflict, and 9% a low conflict (Table E.7.1-42 and Figures E.7.1.15-8 and E.7.1.15-9). One significant conflict area is identified by the model, located in the Lake Elsinore Fireshed at MP 2 through MP 4, which includes the site of the proposed Lake Substation.

Table E.7.1-42. LEAPS Transmission-Only Alternative
Wildfire Containment Conflict Summary

Fireshed	Low	Moderate	High	Very High
Lake Elsinore	7%	35%	28%	19%
Margarita	11%	51%	38%	0
Route Summary	9%	43%	33%	10%

Wildfire impacts created by the LEAPS Transmission-Only Alternative are presented below along with measures to mitigate these impacts to a level that is less than significant, when applicable. The fire and fuels impacts are analyzed using the fire behavior model results for each fireshed and additional supporting information (as defined in Section D.15.2). Impact conclusions summarize the main results. Due to the large scale of the LEAPS Transmission-Only Alternative and the very high fire risk in Riverside, Orange, and San Diego Counties, several of these impacts are not mitigable to a level that is less than significant. Even with implementation of the Applicant Proposed Protection, Mitigation, and Enhancement Measures listed in Table E.7.1-2, none of the potential wildfire impacts are reduced to a less than significant level. The reason for this is that the measures are either not specific enough, do not contain enough information, or are not up to date. Therefore, other measures are provided below to reduce the level of significance where applicable.

Construction Impacts

Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)

Construction activities associated with the LEAPS Transmission-Only Alternative would include, but not be limited to, use of heavy equipment for vegetation removal and grading, the construction of transmission tower pads and towers, and the installation of conductors. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas and many miles of new roads. The use of construction equipment such as earth movers, generators, vehicles, or chainsaws along with

the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the LEAPS Transmission-Only Alternative corridor in the Lake Elsinore and Ramona Firesheds have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

Transmission line maintenance activities would include the periodic use of vehicles and presence of personnel for line inspections, and could also include the use of heavy equipment for conductor repairs or replacement. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Lake Elsinore Fireshed would encompass 17.8 miles of overhead and 2.1 miles of underground transmission line, and the Margarita Fireshed would include 14.5 miles of overhead transmission line. These two firesheds are Interface WUI firesheds, with high-density development adjacent to and within wildlands with dense, chaparral fuels. Due to the small parcel size (and high population density) in Interface WUI firesheds, wildfires have an extremely high potential to have devastating effects on adjacent developments, placing more assets at risk. These two firesheds are extremely high-risk firesheds based on wildfire history, fuels present, and assets at risk.

The Burn Probability Model for the Lake Elsinore and Margarita Firesheds (Figures E.7.1.15-4 and E.7.1.15-5) indicates that along the length of the transmission line, a total of 30% of the border zone area has a high to very high probability of fire escapes and wildfire recurrence. The Fire Behavior Trend Model (Figures E.7.1.15-6 and E.7.1.15-7) indicates that a random fire ignition during normal weather conditions within the corridor would burn towards the northeast within the border zone and up to a mile further through communities in areas of dense vegetation, putting 719 homes and 19,074 acres at risk during two burn periods. The potential area burned would be seven times greater during extreme fire weather conditions, putting at least 812 homes and 147,644 acres at risk. The Lake Elsinore and Margarita Firesheds are extremely high-risk firesheds based on wildfire history, the presence heavy fuels, and the occurrence of periodic severe fire weather. The risk of a project construction- or maintenance-related ignition in these firesheds is therefore extremely high. Even a very small increase in wildfire ignitions during normal and extreme weather can have enormously damaging consequences in these firesheds. The impact of project construction and maintenance activities on the potential for a wildfire to have damaging consequences to the community, firefighter health and safety, and natural resources is considered significant in the Lake Elsinore and Margarita Firesheds, and it cannot be mitigated to a level that is less than significant (Class I).

This risk of ignition during normal and extreme weather and the risk of damage to structures can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Figure E.7.1.15-4. Lake Elsinore Fireshed Burn Probability Model
[CLICK HERE TO VIEW](#)

Figure E.7.1.15-5. Margarita Fireshed Burn Probability Model
[CLICK HERE TO VIEW](#)

Figure E.7.1.15-6. Lake Elsinore Fireshed Fire Behavior Trend Model
[CLICK HERE TO VIEW](#)

Figure E.7.1.15-7. Margarita Fireshed Fire Behavior Trend Model
[CLICK HERE TO VIEW](#)

Figure E.7.1.15-8. Lake Elsinore Fireshed Firefighter Threat Assessment Model
[CLICK HERE TO VIEW](#)

Figure E.7.1.15-9. Lake Elsinore Fireshed Firefighter Threat Assessment Model
[CLICK HERE TO VIEW](#)

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of substantially reducing the potential acres burned (from more than 147,644 acres to approximately 19,074 acres) and slightly reducing the number of homes at risk (from more than 812 to approximately 719) in these firesheds. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a level that is less than significant.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event in the Lake Elsinore and Margarita Firesheds is still unacceptably high, and Impact F-1 would remain significant.

Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire

F-1a **Develop and implement a Construction Fire Prevention Plan.**

F-1b(LE) **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice**
(or similar document if SDG&E does not construct this project).

F-1c **Ensure coordination for emergency fire suppression.**

F-1d **Remove hazards from the work area.**

F-1e **Contribute to defensible space grants fund.**

Operational Impacts

Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class I)

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be

unavoidable. The Lake Elsinore and Margarita Firesheds are extremely high-risk firesheds based on wildfire history, fuels present, and assets at risk (see Fireshed Summary and Model Results, above), and any line faults that create sparks or ignite nearby vegetation could result in a large and catastrophic wildfire, putting 812 or more households and 147,644 or more acres (see Fire Behavior Trend Model results, above) at risk if transmission line ignitions were to occur during extreme weather conditions.

Impact F-2 is considered a significant impact because certain ignition sources are unavoidable. Due to the potential for unavoidable ignitions related to the presence of the overhead transmission line to occur during extreme fire weather, the presence of the project would significantly increase the likelihood of a catastrophic wildfire (Class I). The risk of ignitions and the risk of damage from a project-related ignition can be reduced, though not to a level that is less than significant, through implementation of adequate line clearances and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire

F-2a Establish and maintain adequate line clearances.

F-1e Contribute to defensible space grants fund.

Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class I)

Aerial and ground-based firefighting efforts would be compromised by the introduction of an overhead transmission line due to the introduction of various hazards as identified in the Containment Conflict Model results, including increasing the risk of transmission line contact by aircraft or water buckets, creating indefensible landscapes, and obstructing historical fire containment boundaries.

The Wildfire Containment Conflict Model (Figures E.7.1.15-8 and E.7.1.15-9) identifies one specific area where the LEAPS Transmission-Only Alternative would restrict wildfire containment to a very high degree. The conflict area is located at MP LEAPS-2 to MP LEAPS-4. The conflict area is located in a high fire risk area with heavy fuels and homes at risk. The nearby roads and moderate topography indicate that the conflicts exist in defensible landscapes where firefighting resources would be able to access and suppress a fire if there were no obstacles present. However, effective wildfire containment in these areas would be obstructed by the presence of the overhead transmission line.

The outcome of not fighting a wildfire in an otherwise defensible landscape under favorable weather conditions is that it is able to build in size and intensity unchecked by firefighters who are forced to wait until the fire passes through the area. Delays in containment allow for rapid fire perimeter growth. With the increase in the fire perimeter comes the potential for wind-blown embers to ignite spot fires ahead of the fire front, which further complicates fire suppression activities. The creation of wildfire containment conflict areas by the LEAPS Transmission-Only Alternative in the Lake Elsinore and Margarita Firesheds is considered a significant impact (Class I). This impact can be partially mitigated by creating fuelbreaks in the very high

conflict areas to reduce wildfire intensity and rate of spread through these critical areas, which serves to increase the chance of success in containment efforts. Mitigation Measure F-3a, Construct and maintain fuelbreaks, is therefore required. Further benefits to firefighting efforts would be achieved, although not to the point of insignificance, through implementation of Mitigation Measure F-3b, Prepare and implement a multi-agency Fire Prevention MOU, which requires coordination of firefighting efforts with fire agencies. However, even with mitigation, the impact remains significant (Class I).

Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting

F-3a Construct and maintain fuelbreaks.

F-3b Prepare and implement a Multi-agency Fire Prevention MOU.

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)

LEAPS Transmission-Only Alternative activities create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the LEAPS Transmission-Only Alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a 'spotting' effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the LEAPS Transmission-Only Alternative ROW will adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the LEAPS Transmission-Only Alternative.

Mitigation Measure for Impact F-4 Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread

B-3a Prepare and implement a Weed Control Plan.

Environmental Setting – Talega-Escondido 230 kV Transmission Upgrade

A firehedges assessment is not carried out for the Talega-Escondido 230 kV transmission upgrade. Upgrades would be constructed within the existing corridor and within the existing substation fence line, conductors would be primarily strung on existing structures, and where new structures would be introduced, these would be in the existing corridor and of lesser height than existing structures.

The existing Talega-Escondido transmission line runs from the Talega Substation at the northwestern edge of Camp Pendleton west for 30 miles to Rainbow, and then south for 21 miles to Escondido. This section of Camp Pendleton has steep terrain, chaparral vegetation, and exposure to Santa Ana winds. Due to military training operations that involve explosive equipment, the base experiences frequent wildfires. The recent Ammo and Rice Fires of October 2007 occurred on Camp Pendleton; however, they did not burn through the Talega-Escondido corridor. The 2007 Witch Fire burned within approximately five miles of the southernmost portion of the Talega-Escondido corridor to the south and east of the corridor. The Talega-Escondido line traverses areas of very high CALFIRE hazard severity zones through wildlands from approximately MP 0 to MP 30, a mix of moderate, high, and very high hazard areas through a rural landscape between MP 30 and MP 48, and low hazard areas through an urban environment from MP 48 to MP 51.

Environmental Impacts and Mitigation Measures – Talega-Escondido 230 kV Transmission Upgrade

Construction Impacts

Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)

Construction activities associated with the Talega-Escondido upgrades would include, but not be limited to, use of vehicles and heavy equipment for the installation of conductors. The use of construction equipment along with the personnel required to upgrade the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. Construction-related ignitions within the Talega-Escondido corridor have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape. Transmission line maintenance activities would not increase above baseline conditions.

Due to the presence heavy fuels and the occurrence of periodic severe fire weather, the Talega-Escondido corridor occurs in a high-risk fire area with numerous homes at risk. A fire ignited in the corridor during extreme weather would most likely burn to the southwest through the southern part of Camp Pendleton and to the edge of the City of Fallbrook, and between the transmission line and Interstate 15 into the communities of Hidden Meadows and Jesmond Dene. The risk of a project construction- or maintenance-related ignition in the area surrounding this corridor is therefore high. Even a very small increase in wildfire ignitions during extreme weather can have enormously damaging consequences due to the high population density and abundance of wildland fuels in and around the corridor. The impact of project construction activities on the potential for a wildfire to have damaging consequences to the community, firefighter health and safety, and natural resources is considered significant, and it cannot be mitigated to a level that is less than significant (Class I).

This risk of ignition during normal and extreme weather and the risk of damage to structures can be reduced, although not to a level that is less than significant, through the implementation of Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, F-1c, Ensure coordination for emergency fire suppression, F-1d, Remove hazards from the work area, and F-1e, Contribute to defensible space grants fund.

Mitigation Measures F-1a, Develop and implement a Construction Fire Plan, and F-1b, Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice, would reduce the number of project-related ignitions in this fireshed by requiring personnel training, fire risk management oversight, and open communications with fire agencies. These measures would also reduce the potential impact to communities and natural resources by prohibiting project construction and maintenance activities during Red Flag Warning events, as issued by the National Weather Service, which would eliminate work during extreme fire weather and have the effect of reducing the potential acres burned and the number of homes at risk in these two firesheds. Combined with Mitigation Measure F-1e, described below, this measure would reduce the risk of homes sustaining damage in a project construction- or maintenance-related fire, although not to a level that is less than significant.

Mitigation Measure F-1c, Ensure coordination for emergency fire suppression, ensures open communication channels and unobstructed emergency access roads. This measure would reduce firefighting response time in the event of an ignition, which would have the effect of reducing the potential impact to communities and natural resources.

Mitigation Measure F-1d, Remove hazards from the work area, would reduce the severity of construction- and maintenance-related ignitions that escape initial containment efforts by minimizing fuel loads within the corridor. This would reduce the potential impact to communities and natural resources in the event of a project construction- or maintenance-related ignition.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would facilitate firefighting efforts and reduce structure damage at the WUI by making financial contributions toward compliance with defensible space requirements for homeowners most at risk of sustaining structure damage as a result of a project-related wildfire. The full text of all mitigation measures can be found in Appendix 12.

Despite implementation of these measures, the risk of an ignition erupting into a catastrophic event is still unacceptably high, and Impact F-1 would remain significant in this fireshed.

Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire

- F-1a** **Develop and implement a Construction Fire Prevention Plan.**
- F-1b(LE)** **Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice**
(or similar document if SDG&E does not construct this project).
- F-1c** **Ensure coordination for emergency fire suppression.**
- F-1d** **Remove hazards from the work area.**
- F-1e** **Contribute to defensible space grants fund.**

Operational Impacts

Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (Class II)

The presence of the overhead transmission line would create an ongoing source of potential wildfire ignitions for the life of the project. Line faults can be caused by such unpredictable events as conductor contact by floating debris, gun shots, and helicopter collisions; these events are rare but would be unavoidable. These line faults would not increase above baseline conditions, however, because existing conductors would be either replaced or relocated nearby.

Where the existing 69 kV transmission line would be relocated, horizontal conductor construction on wood poles would pose a wildfire hazard. Horizontal conductor construction poses a risk of mid-line slap, which can cause sparks and ignite nearby fuels. With exposure to Santa Ana winds and the presence of dense wildland fuels, this type of line fault would significantly increase the probability that a catastrophic wildfire would result. Construction on wood poles would also pose a wildfire ignition hazard. Wood poles can withstand a lower wind load compared with steel poles or steel lattice towers, and they would potentially come into contact with the adjacent 230 kV conductors or to the ground during extreme Santa Ana wind events, igniting nearby fuels. Vegetation can come into contact with conductors during extreme Santa Ana wind events as tree limbs and conductors sway violently. Vegetation contact with conductors can cause line faults and ignite nearby vegetation, potentially resulting in a catastrophic wildfire.

The wildfire hazard created by relocating the 69 kV transmission line are considered a significant impact because wood pole construction, horizontal conductor construction, and vegetation contact with conductors would create a rare, but significant hazard of igniting a wildfire during extreme weather conditions (Class II). The risk of ignitions and the risk of damage from a project-related ignition can be reduced to a level that is less than significant through implementation of adequate line clearances, elimination of wood poles and horizontal conductor construction, and by aiding in the creation of defensible space around homes at the WUI.

Mitigation Measure F-2a, Establish and maintain adequate line clearances, would reduce the risk of vegetation contact with conductors. This measure requires a higher performance standard than the CPUC's GO 95 (See Section D.15.3.2) justified by the regular occurrence in this area of extreme Santa Ana winds that have enough force to blow trees into conductors.

The hazard created by the relocation of the existing 69 kV conductor on wood poles is considered a significant impact that can be mitigated through implementation of Mitigation Measure F-2c, Install existing conductors on steel poles. This measure would increase wind loading capacity on the 69 kV line and thereby reduce the hazard potential for pole failure and wildfire ignition. The unavoidable sources of ignition from the presence of the overhead transmission line would remain, however, and therefore the potential for the project to ignite a catastrophic wildfire during severe fire weather would remain significant overall.

Mitigation Measure F-1e, Contribute to defensible space grants fund, would reduce the potential damage to homes from project-related wildfires; however, the creation of defensible space would not guarantee structure protection during severe fire weather, and the potential for the project to ignite a catastrophic wildfire would remain significant overall.

Mitigation Measures for Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire

- F-2a** **Establish and maintain adequate line clearances.**
- F-2b** **Install existing conductors on steel poles.**
- F-1e** **Contribute to defensible space grants fund.**

Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (Class III)

Along 43 miles of the Talega-Escondido line, there would be no structures added to the landscape that would impact firefighting because upgrades would involve installing an additional conductor on existing towers. For 7.8 miles of the line, new wood and steel poles would be installed adjacent to the 230 kV line, slightly increasing (from at least 500 feet to at least 630 feet) the safe approach distance for ground-based firefighters. However, since the new structures would be of shorter height than existing adjacent structures, the wildfire containment conflict created would be adverse, but less than significant. No mitigation is required.

Mitigation Measures for Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting

- F-3a** **Construct and maintain fuelbreaks.**
- F-3b** **Prepare and implement a Multi-agency Fire Prevention MOU.**

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)

The construction and maintenance activities associated with the Talega-Escondido upgrades create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the Talega-Escondido upgrades will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a 'spotting' effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the Talega-Escondido upgrade project area will adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of

control methods that require consultation and approval of the County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the Talega-Escondido upgrades.

Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread

B-3a Prepare and implement a Weed Control Plan.

E.7.2 LEAPS Generation and Transmission Alternative

E.7.2.1 LEAPS Generation and Transmission Alternative Description

The Lake Elsinore Advanced Pumped Storage (LEAPS) Project, described in SDG&E's PEA Section 3.3.3.10 and in the LEAPS Project Final EIS (published by the Federal Energy Regulatory Commission as Lead Agency, with U.S. Forest Service as a cooperating agency, FERC Project No. 11858, FERC/FEIS-0191F, January 2007), proposes to re-generate⁶ power at a new pumped-storage facility located in the City of Lake Elsinore and in the Cleveland National Forest. The Alternative also proposes to transmit electric power along a proposed 32-mile 500 kV new transmission line between proposed Lake and Pendleton Substations (the proposed Lake-Pendleton transmission line) and an additional 48-mile 230 kV circuit on existing 230 kV transmission towers between the existing Talega and Escondido Substations (the existing Talega-Escondido transmission line). The LEAPS Project generation and transmission components are considered as a system alternative to the SRPL in this EIR/EIS, and are known henceforth as the LEAPS Generation and Transmission Alternative. The LEAPS Project is co-sponsored by the Elsinore Valley Municipal Water District, a public non-profit agency, and the Nevada Hydro Company, Inc. (proponents). The LEAPS Transmission-Only Alternative would traverse parts of Riverside, Orange, and San Diego Counties and Cleveland National Forest (Trabuco Ranger District) and Marine Corps Base Camp Pendleton (MCBCP).

Figures E.7.1-1 and E.7.2-1 illustrate the LEAPS Generation and Transmission Alternative. This alternative would fully implement the "preferred alternative" or "staff alternative" identified in the January 2007 LEAPS Project Final EIS. Note that the transmission components of the LEAPS Project are considered as a separate alternative, the LEAPS Transmission-Only Alternative, discussed in Section E.7.1, above.

The LEAPS Generation and Transmission Alternative would include:

- A lined upper reservoir (Decker Canyon reservoir) with a usable storage volume of 5,500 acre-feet, a 240-foot-high main dam, and a perimeter dike up to 50 feet high, with a surface area of about 80 acres at a normal maximum water surface elevation of 2,830 feet mean sea level (msl). The Decker Canyon reservoir dam and dike would have a crest elevation of 2,860 feet msl and a combined fill volume of about 3 million cubic yards.
- Two parallel high-pressure water conduits each consisting of a 9,190-foot-long concrete-lined channel and tunnel transitioning to a 250-foot-long, 12-foot-diameter steel penstock.
- An underground powerhouse (Santa Rosa Powerhouse) with two reversible pump-turbine units capable of generating 500 MW. When pumping water from Lake Elsinore to the new upper reservoir, the facility would consume approximately 600 MW.
- Use of the existing Lake Elsinore as a lower reservoir, with a surface area of 3,319 acres and a storage capacity of 54,504 acre-feet at a normal pool elevation of 1,245 feet msl.
- Two 1,950-foot-long, 20-foot-wide and 20-foot-high concrete-lined tailrace tunnels.
- A new 40-acre surface switchyard/substation (Midpoint Substation) above the proposed Santa Rosa Powerhouse for the LEAPS generators interconnecting with the Lake-Pendleton line via a 1.2-mile underground 500 kV line (Midpoint Interconnection).

⁶ The pumped storage component of this project would not strictly generate power. It would use power to pump water uphill, store the water in a reservoir, and then hydroelectrically re-generate power at a later time.

- A 1.2-mile underground transmission line to interconnect the Santa Rosa Powerhouse/Midpoint Substation with the LEAPS Transmission-Only Alternative, described in Section E.7.1.1, above.
- Project facilities identical to the LEAPS Transmission-Only Project, described in Section E.7.1.1, above.

Description of LEAPS Generation and Transmission Alternative Components

The proposed Decker Canyon reservoir would be within the Cleveland National Forest, Trabuco Ranger District. Materials for the proposed dam and dike would be obtained from the upper reservoir, powerhouse, and tunnel excavations. Final embankment design could call for a zoned earth and rockfill dam having a central impervious core or a concrete-faced earth and rockfill dam.

The dam would include a concrete-lined emergency spillway and a low-level outlet. A 20-foot-wide crushed stone roadway would be provided around the crest of the embankment to allow access for maintenance and inspection. An 8-foot-high chain-link fence would be located on the outer side of the crest roadway. The total footprint of the Decker Canyon reservoir would be about 120 acres.

The water conduit connecting the Decker Canyon reservoir to the Santa Rosa powerhouse would consist of the following: (1) a gated inlet structure located in the upper reservoir with an inlet at elevation 2,720 feet msl; (2) two 9,190-foot-long parallel high-pressure water conduits each consisting of (a) a 3,270-foot concrete-lined horizontal tunnel; (b) a 3,420-foot inclined tunnel with a slope of about 25 degrees; and (c) a 2,500-foot horizontal tunnel with a slope of about two percent; and (3) a 250-foot-long, 12-foot-diameter steel penstock. The tunnel segments would have a finished inside diameter of 15 to 18 feet. The inclined tunnel and the horizontal tunnel segments of each water conduit would be lined or unlined, depending on actual rock and cover conditions.

The underground Santa Rosa Powerhouse and aboveground Midpoint Substation would use the same 40-acre site within unincorporated Riverside County, southwest of Lake Elsinore and Grand Avenue at Santa Rosa Drive. The underground powerhouse cavern would be 375 feet long, 85 feet wide, and 175 feet deep. The powerhouse would include a 250-foot-long, 85-foot-diameter, concrete-lined vertical access shaft and a 250-foot-long, 8-foot-diameter vent and emergency egress shaft. The powerhouse would contain an overhead bridge crane, galleries for electrical and mechanical services, a transformer gallery, a surge shaft, and two 250 MW (generating)/300 MW (pumping) reversible Francis-type pump turbines operating at 450 revolutions per minute at an average net head (generating) of 1,588 feet.

The inlet/outlet structure for the lower reservoir would be on the southwest shore of Lake Elsinore. The structure would extend from the portal of the tailrace tunnel to a set of trashracks at the lake shore.

In the underground powerhouse transformer gallery, the 16 kV generator voltage would be stepped up to 500 kV, and oil-filled 500 kV cables would run to the surface switchyard/substation. The switchyard/substation would include the following: (1) a switchyard control building; (2) circuit breakers and disconnect switches; (3) switchyard busses and structures; and (4) microwave and telecommunication facilities.

The Midpoint Substation would interconnect hydropower generated during pumped-storage operations to the LEAPS transmission facilities via a 1.2-mile underground transmission line that would be collocated with the water conduits. Additional transmission facilities include all of the components of the LEAPS Transmission-Only Alternative components, described in Section E.7.1.1, above.

Figure E.7.2-1. LEAPS Generation and Transmission Alternative
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Construction Sequence for LEAPS Generation and Transmission Alternative Components

Construction of the LEAPS Generation and Transmission Alternative would span about 4.5 years. Construction would begin with the development of a temporary access road from South Main Divide Road to the upper reservoir site and access roads from Ortega Highway (SR74) and Grand Avenue to the powerhouse access portal and the intake/outlet structure in Lake Elsinore. Upper reservoir embankment locations would be cleared to receive excavation spoil, and excavation would then begin on the underground features. Also, transmission line corridor clearing, development of temporary access roads, and transmission line and switchyard installation would begin, as would construction of the cofferdam at the Lake Elsinore inlet/outlet structure. In steeply sloped areas, helicopters would be used to place equipment and install transmission towers.

During the second year of construction, excavation would continue on the tailrace tunnels, power tunnel, and powerhouse. Placement of materials for the upper reservoir embankment would continue. Installation of the transmission line and switchyards would be completed, and installation of the powerhouse crane and pump-turbine embedded parts would commence.

Construction of the intake/outlet structure at Lake Elsinore, excavation of the upper reservoir, construction of the upper reservoir inlet structure, and placement of the upper reservoir liner system would all occur during the third year of the construction period, as would installation of powerhouse equipment and development of recreational areas. The initial powerhouse unit would be commissioned near the end of the third year of construction.

During the final year of the construction period, powerhouse equipment installation would be completed, the second unit would be commissioned, and landscaping and clean-up would occur.

Laydown areas would be required during construction for the placement, storage, and staging of construction equipment, trailers, materials, and worker vehicles. At the upper reservoir, there would be a 20- to 40-acre construction laydown area immediately adjacent to (northeast of) the reservoir. At the powerhouse, the construction laydown area would be located on a privately owned 20-acre site immediately northeast of the powerhouse location.

The spoil materials from the excavations would be brought to the surface and stockpiled for use in the upper reservoir embankment or, if unsuitable, for disposal. The total quantity of material produced from excavations, exclusive of the upper reservoir, would be about 776,000 cubic yards (cy), including 173,000 cy from the high-head water conduit tunnels including construction shafts/adits and power shaft intake; 4,500 cy from the penstock excavation; 207,000 cy from the powerhouse cavern; 35,000 cy from the transformer gallery; 32,000 cy from the surge shaft; 53,000 cy from the powerhouse access shaft; 500 cy from the vent shaft; 6,000 cy from the draft tube tunnel excavation; 65,000 cy from the tailrace tunnel; and 200,000 cy from the lower reservoir intake excavation.

The proponents indicate that the fill quantities would total about 2,839,000 cubic yards, including 2,653,000 cy for the upper reservoir embankment and 186,000 cy for intake backfill at the lower reservoir. To achieve the proposed balance between excavation and fill, approximately 2,063,000 cubic yards of excavated material would be needed from the upper reservoir footprint to complete the embankment. To the extent that excavated materials are unsuitable for backfill or embankment construction, the amount required from the upper reservoir excavation would increase. For reference, the 2,063,000 cubic yards of embankment material needed from the upper reservoir equates to an excavation about 11 feet deep over a 120-acre reservoir footprint.

Project construction would be accompanied by drilling and blasting. All construction activities would be limited to daylight hours.

Proposed Boundary of LEAPS Generation and Transmission Alternative Components

The boundary for the LEAPS Project (or the LEAPS Generation and Transmission Alternative) defined by its FERC license would include sufficient lands for the construction and operation of an upper reservoir in Cleveland National Forest, a powerhouse on private lands within the Congressional boundary of the Cleveland National Forest, Lake Elsinore, which would serve as the lower reservoir, and linear corridors for the water conduits and transmission lines. The proponents propose a shoreline buffer zone around Lake Elsinore between elevations 1,240 and 1,263.3 feet msl and indicate that they would cooperate with Riverside County and the City of Lake Elsinore to identify any changes in existing land use regulations that may be appropriate to establish and maintain a shoreline buffer zone. No shoreline buffer zone is proposed for the upper reservoir, which would be located on National Forest System lands and would be fenced to prevent public access.

Description of LEAPS Generation and Transmission Alternative Operations

The LEAPS Generation and Transmission Alternative would operate primarily as an energy storage facility by pumping water out of Lake Elsinore (the lower reservoir) in the storage mode and allowing the water to flow back into Lake Elsinore in the generating mode.

The LEAPS Generation and Transmission Alternative also would be capable of operating in various secondary modes to benefit the regional electrical system. The LEAPS Generation and Transmission Alternative would be operated from a control room in the powerhouse, and load dispatching would be coordinated with participating utilities and the California Independent System Operator.

In its primary energy storage operating mode, the LEAPS Generation and Transmission Alternative would pump water from Lake Elsinore to the upper reservoir during nights and weekends using off-peak, less valuable energy and would generate high-value energy to meet peak system demands during weekdays. This cycling operation would be accompanied by typical upper reservoir water-level fluctuations of about 40 feet on a daily basis and by water-level fluctuations of 75 feet during the course of a full-week cycle. In Lake Elsinore, the typical daily water-level fluctuation would be one foot, with the lake level fluctuating about 1.7 feet during the course of the full-week cycle.

The precise operating scenario would depend on market conditions, contract requirements, and owner preferences. The proponents have identified two normal operating scenarios. Both are based on a weekly generation cycle, as described above, and would result in similar daily and weekly water-level fluctuations. One scenario (Time of Use Operation Scenario) would involve 16 hours of on-peak generation each weekday using one unit, supplemented by the second unit during a two-hour super-peak period. Both units would pump for eight hours at night to refill. This scenario would result in generation of about 22,500 megawatt-hours (MWH) per week. The second operating scenario (Maximum Generation Scenario) would involve using both units for 12 hours each weekday, with both units pumping to refill. This scenario would result in weekly generation of about 30,000 MWH.

The maximum pumping load to refill the upper reservoir would be about 600 MW with typical operation closer to 500 MW, generally consumed during off-peak periods at night and on weekends. Pumping energy requirements would exceed generation, resulting in a projected average annual net generation deficit of about 312,000 MWH. In the Maximum Generation Scenario, the LEAPS project would be used to provide regional electrical system benefits, including reactive compensation, rapid

load change capability, system load and frequency control, and emergency startup capability during blackout conditions.

LEAPS Generation and Transmission Alternative Objectives, Purpose and Need

The LEAPS Generation and Transmission Alternative would provide a new second extra-high voltage (EHV) interconnection into the SDG&E system. This would substantially satisfy two of the major project objectives: to maintain reliability in the delivery of power and reduce the cost of energy in region. It also avoids the “common corridor” concern expressed by SDG&E for alternatives that would follow the path of the existing 500 kV Southwest Power Link (SWPL) between the Imperial Valley and Miguel Substations.

The LEAPS Generation and Transmission Alternative would only partially achieve the objective to accommodate delivery of renewable energy from the Imperial Valley because it would be principally dependent upon the completion of other transmission upgrades between the Imperial County and SCE system, namely the proposed Green Path Coordinated Projects (addressed in Section 4.9.27). The Green Path Coordinated Projects would eventually include 500 kV connection between the IID transmission system and the Devers Substation. Green Path as proposed in conjunction with SCE’s second Devers-Valley 500 kV line (approved by CPUC in January 2007) would provide a path for importing renewable power from the Imperial Valley and other locations, such as Tehachapi and San Geronio wind resource areas, into SDG&E territory. SDG&E has raised concerns about the ability of the LEAPS Generation and Transmission Alternative to provide economical access to renewable generation, such as that previously contracted by SDG&E in the Imperial Valley.⁷ These concerns could be mitigated in light of the access to low cost generation that would be provided by the second Devers-Palo Verde and Devers-Valley 500 kV lines. The combination of these two recently approved 500 kV lines in SCE territory, with the LEAPS Generation and Transmission Alternative, could allow for the importation of low cost conventional generation from the Palo Verde hub in Arizona, thereby freeing capacity on the existing SWPL to import renewable power from the Imperial Valley.

By providing a second 500 kV interconnection to San Diego, along with 500 MW of pumped storage generation, the LEAPS Generation and Transmission Alternative would help address SDG&E’s concerns regarding the potential for in-basin generation to exercise market power, improving the regional transmission system, and obtaining electricity from diverse fuel sources. When addressing this alternative’s ability to diversify fuel sources, SDG&E raises the concern that the pumped storage facility could actually increase the total use of natural gas. However, it should also be noted that the pumped storage facility could also increase the utilization of renewable resources. Since much of the proposed renewable generation is non-dispatchable the LEAPS pumped storage facility could utilize renewable power to pump during off-peak periods.

Significance Criteria and Approach to Impacts Assessment

Significance criteria for the LEAPS Generation and Transmission Alternative are the same as for the Proposed Project.

⁷ See CPUC Resolution E-3965, December 15, 2005 and Resolution E-4073, March 15, 2007 where procurement of renewable power is made contingent on SDG&E being able to license and construct a new 500 kV line from the Imperial Valley area to San Diego by 2010.

Impacts and mitigation measures presented below are limited to the generation facilities for the LEAPS Generation and Transmission Alternative. Impacts and mitigation measures for the transmission components of this alternative are discussed in Section E.7.1, above.

The USFS mitigation Conditions outlined for each significant environmental impact were developed by the Forest Service for its Final 4(e) Terms and Conditions (Conditions) for the Lake Elsinore Advanced Pumped Storage Hydroelectric Project (FERC Project No. 11585) in accordance with 18 CFR 4.34(b)(1)(i), and these would be required upon FERC project approval and subsequent to approval of a Forest Special Use Permit, if granted. The FERC Environmental Measures were developed by FERC as mitigation measures that would be required upon approval of the LEAPS Project as modified by staff. The USFS Conditions and the FERC Environmental Measures would apply only to the Lake-Pendleton transmission line, Lake and Pendleton Substations, and pumped-storage generation facilities, and the Mitigation Measures would apply to both the 500 kV and 230 kV project facilities and pumped-storage generation facilities across all jurisdictions.

Applicant Proposed Measures

Table E.7.1-1 identifies the proponent’s Protection, Mitigation, and Enhancement Measures (PME; similar to APMs for the Proposed Project) that would be followed during all project-related construction activity. The proponent proposes to implement these measures, as illustrated in Section 2 and Appendix A of the Proponent’s Environmental Assessment, dated June, 2007. The proponent has committed to implementing these measures in order to reduce the potential direct and indirect impacts that could result from project activities. Therefore, the PMEs are considered part of the project description.

The impact analysis in this EIR/EIS assumes implementation of all PMEs. However, where other impacts are identified that are not addressed by these PMEs, or where the PMEs are not adequate to reduce impacts to less than significant levels, the EIR/EIS recommends additional mitigation measures. PMEs will be incorporated into the Mitigation Monitoring, Compliance, and Reporting Program developed for this alternative, and implementation of the PMEs will be monitored in the same fashion as the mitigation measures developed in this EIR/EIS.

Table E.7.2-1. Applicant Proposed Protection, Mitigation, and Enhancement Measures for the LEAPS Generation and Transmission Alternative

Number	Description
B-PME-1	Employ a qualified biologist or natural resource specialist to monitor construction activities and help prevent adverse effects on sensitive species or habitats.
B-PME-2	Conduct wetlands delineations and prepare habitat mitigation and management plans in consultation with the U.S. Army Corps of Engineers (Corps), the California Department of Fish and Game (CDFG), and the USFS.
B-PME-3	Develop and implement a plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas.
B-PME-4	Design and construct the transmission line to the standards outlined in 1996 by the Avian Power Line Interaction Committee (APLIC).
B-PME-5	Consult with the USFS and Interior to identify appropriate parcels for mitigation of habitat losses including 2:1 replacement ratio for about of 20 acres of oak woodlands and 1:1 replacement of 31 acres of coastal sage scrub.
B-PME-6	Provide compensation of \$500 per acre to Riverside County for project effects within Stephens’ Kangaroo Rat Fee Assessment Area.
B-PME-7	Retain a qualified biologist or natural resource specialist to serve as an environmental construction monitor to ensure that incidental construction effects on biological resources are avoided or limited to the maximal feasible extent.

Table E.7.2-1. Applicant Proposed Protection, Mitigation, and Enhancement Measures for the LEAPS Generation and Transmission Alternative

Number	Description
B-PME-8	Establish appropriate setbacks from streams, avoid sediment discharge, and implement BMPs identified by the USFS to avoid any effects on the existing steelhead recovery efforts in the San Mateo Watershed as part of the erosion control plan.
B-PME-9	Design and install physical barrier screens consistent with National Marine Fisheries Service (NMFS) criteria in areas of underwater intakes to prevent impingement and entrainment.
B-PME-10	Establish limits of flow velocity rates of underwater intakes of less than 1.5 feet per second to reduce entrainment of fish.
B-PME-11	Conduct monitoring for one year to determine the extent of fish entrainment and mortality at the Lake Elsinore intake/outlet structures, and implement and test behavioral avoidance devices if entrainment is significant.
B-PME-12	Develop and implement plans for clearing the upper reservoir area and revegetating disturbed areas with native plant species beneficial to wildlife prior the start of any land disturbing or land-clearing activities at the project.
V-PME-1	Prepare a plan to avoid or minimize disturbances to the quality of the existing visual resource of the project area.
V-PME-2	Install temporary roads on the National Forest System lands only with USFS approval and according to USFS policies, and remove, re-contour, and re-vegetate roads following construction except where the USFS authorizes continued use of the roads for transmission line maintenance.
LU-PME-1	Acquire fee simple or leasehold interests in lands needed for project purposes by voluntary sale or conveyance to the extent possible.
LU-PME-2	Acquire and modify the multi-family residences nearest the proposed powerhouse site (the Santa Rosa Villas in the case of the Santa Rosa powerhouse site and a single family home and the Lakeland Village Plaza in the case of the optional Evergreen powerhouse site), provide relocation assistance, use properties for construction purposes or retain in vacant condition, and return to the regional housing inventory upon completion of construction to address potential adverse effects on residents during construction.
WR-PME-1	Develop and implement a detailed site plan of construction sites and laydown areas relative to existing recreational facilities and contingencies for restricting public access to these areas and provision of alternative facilities.
WR-PME-2	Provide the USFS with an ancillary structure that would complement the fire fighters' memorial along Ortega Highway.
WR-PME-3	Provide interpretive signage at the upper reservoir.
WR-PME-4	During construction drawdown, remove or reduce the existing fish population via netting or rotenone poisoning, and develop an annual fish stocking program for Lake Elsinore in consultation with FWS, CDFG, and the Lake Elsinore and San Jacinto Watersheds Authority (Joint Watershed Authority).
WR-PME-5	Grade, contour, and revegetate with native plants to return the site to pre-construction conditions or prepare site at the construction laydown area for the upper reservoir or another site for future development by the USFS or for another entity as determined by the USFS.
WR-PME-4	Develop and implement a recreation plan, including the construction of a botanical garden, and provision of powerhouse tours and other amenities at the Santa Rosa or Evergreen powerhouse site.
CP-PME-1	Consult with the State Historic Preservation Officer (SHPO) at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project. (If activity is on National Forest System lands, also consult with the USFS at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project.)
CP-PME-2	If previously unidentified archaeological or historic properties are discovered during the course of constructing or developing the project works or other facilities at the project, stop all land-clearing and land-disturbing activities in the vicinity of such properties and consult with the SHPO. (Also consult with the USFS, if archaeological site or historic property is identified on National Forest System lands.)

Table E.7.2-1. Applicant Proposed Protection, Mitigation, and Enhancement Measures for the LEAPS Generation and Transmission Alternative

Number	Description
CP-PME-3	Implement measures proposed in the draft historic properties management plan (HPMP) developed in consultation with the SHPO and the USFS and filed with the Commission, including provisions for the following: (1) completing pre-construction archaeological surveys in the area of potential effects (APE), (2) determining the need for intensive surveys, (3) monitoring archaeological sites and buildings during construction, (4) appointing a Tribal liaison, (5) studying the potential effects of ground acceleration on historic buildings, (6) developing a program to monitor archaeological sites for 5 years, and (7) developing a public interpretation program.
CP-PME-4	Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources.
CP-PME-5	Prepare any recovered fossil remains to the point of identification, and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.
N-PME-1	Conduct all construction activities in accordance with the noise element of the County of Riverside Comprehensive General Plan, city of Elsinore construction noise standards and any applicable codes or standards.
T-PME-1	Develop and implement traffic management and control plans to address construction traffic and access to and from active construction sites.
T-PME-2	Participate in the installation of a traffic signal at the Grand/Ortega intersection.
PH-PME-1	Retain a board of three or more qualified independent engineering consultants experienced in critical disciplines, such as geotechnical, mechanical, and civil engineering, to review the design specifications and construction of the project for safety and adequacy.
PH-PME-2	Develop and implement a dam safety monitoring program. (This proponents' proposed measure is an administrative measure and would be coordinated with the Commission's Division of Dam Safety and Inspection and the California Department of Water Resources.)
PH-PME-3	Install fencing around the upper reservoir.
PH-PME-4	Develop and implement a plan for the design and construction of a system that would automatically detect conduit or penstock failure and, in the event of such a failure, immediately shut off flow in the conduit or penstock at the headworks.
WQ-PME-1	Develop and implement a plan for installing drainage and flood control measures and any water detention structures to control storm run-off over the term of any license issued for the project.
WQ-PME-2	Prepare a hazardous substances spill prevention and control plan.
WQ-PME-3	Consult with the Riverside Flood Control and Water Conservation District (Flood Control District) and formulate and implement plans to avoid adversely affecting existing drainage facilities and to control any project-related drainage.
WQ-PME-4	Develop and implement an upper reservoir and water conduit monitoring program to assess the effects of the upper reservoir liner and seepage collection systems, shafts, and tunnel on groundwater levels and water quality, including the installation of perimeter wells designed to establish groundwater levels and water quality prior to construction and to detect changes in groundwater levels and water quality after construction.
WQ-PME-5	Develop and implement a plan to monitor dissolved oxygen (DO) and temperature downstream of the tailrace in Lake Elsinore and in Temescal Wash during project operation.
WQ-PME-6	Pay an annual lake management fee to Elsinore Valley MWD for make-up water to maintain Lake Elsinore at elevation of 1,240 feet msl, or above (The proponents estimate this fee at \$1.8 million per year and indicate that it is subject to further negotiation with Elsinore Valley MWD.)
G-PME-1	Conduct additional geotechnical studies.
G-PME-2	Develop an erosion control plan prior to construction, and implement erosion control measures during construction.
G-PME-3	Achieve a balance of excavation and fill materials at the project site by using excavated materials from the intake, powerhouse, penstock, tunnel, and upper reservoir excavations in the construction of upper reservoir dam and embankments.

Impacts Identified

The environmental setting and impacts related to the LEAPS Generation and Transmission Alternative are presented below for each issue area. Impacts are classified as Class I (significant, cannot be mitigated to a level that is less than significant), Class II (significant, can be mitigated to a level that is less than significant), Class III (adverse, but less than significant), or Class IV (beneficial impacts). Tables have been included at the beginning of the environmental impacts and mitigation measures sections to summarize impacts identified for the LEAPS Generation and Transmission Alternative.

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E.7.2.2 Biological Resources

Impacts to biological resources from the generation components of the LEAPS Generation and Transmission Alternative are presented in this section. Impacts from the transmission components would be identical to the impacts presented for the LEAPS Transmission-Only Alternative in Section E.7.1.2, above.

Environmental Setting

LEAPS generation facilities include Lake Elsinore lower reservoir, Decker Canyon upper reservoir, Santa Rosa Powerhouse, and water conduits including power shafts, power tunnel, penstocks, and tailrace tunnels. These facilities, with the exception of Lake Elsinore, would be located on CNF Land. The following information is from FERC (2007) and EVMWD (2007).

Vegetation mapping for the generation components was conducted by Michael Brandman Associates (Figure Ap.8K-3 in Appendix 8K). The upper reservoir site occurs within northern mixed chaparral and coast live oak woodland. The underground penstock system crosses through areas dominated by dense chamise chaparral above 1,600 to 1,800 feet msl and coastal sage scrub habitat below. The proposed powerhouse and associated facilities would be located primarily within coastal sage scrub. The tailrace tunnel system would cross through developed areas, non-native grasslands, and then extend into Lake Elsinore. Elevations of the LEAPS project generation facilities range from about 1,255 feet above mean sea level (msl) at Lake Elsinore to about 2,900 feet msl at the upper reservoir site. This range of elevations supports a wide variety of habitats.

Overview of Special Habitat Management Areas. This alternative would cross through the CNF, Marine Corps Base Camp Pendleton, and the Fee Area and Core Reserve Area for the SKR.

Designated Critical Habitat. This alternative occurs within designated critical habitat for the QCB and coastal California gnatcatcher. QCB critical habitat occurs north of I-15. Coastal California gnatcatcher critical habitat occurs along the northern portion of the transmission line route, at the Lake Substation, and along several access roads.

Special Status Plant Species. Using the same definition of special status for the SRPL Proposed Project in Section D.2.1.1, the following four special status (listed or sensitive) plant species were documented along or near the route of the LEAPS Generation and Transmission Alternative during six years of focused surveys.

- Munz's onion
- Heart-leaved pitcher sage
- Rainbow manzanita
- Hammitt's clay-cress

The following special status (non-listed, sensitive) plant species have moderate to high potential to occur based on the habitats present and/or documented CNDDDB or USDA Forest Service records; however they would have been observed during the six years of focused plant surveys.

- Davidson's saltscale
- Thread-leaved brodiaea
- Orcutt's brodiaea
- Long-spined spineflower
- Summer holly
- San Diego button-celery
- Coulter's goldfields
- Parish's meadowfoam
- Hall's monardella
- California Orcutt grass

- Slender-horned spineflower
- Many-stemmed dudleya
- Sticky dudleya
- San Miguel savory
- Parry's tetracoccus

For more specific information about the special status plant species and their listing or sensitivity status, see the LEAPS Project Final EIS.

Special Status Wildlife Species. No listed wildlife species were documented along or near the LEAPS Generation and Transmission Alternative. The listed QCB, arroyo toad, coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher were believed to have moderate to high potential to occur based on the habitats present and the project's location in designated critical habitat (for the QCB and gnatcatcher). Therefore, multiple years of USFWS protocol surveys were conducted for these species (six consecutive years QCB; four years arroyo toad; and six consecutive years coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher), and none was found. Although the project occurs in special habitat management areas for the SKR, focused surveys were not conducted for the species because the specific locations of project features were not designed until 2007; therefore, the SKR is assumed present in these areas. The State listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore.

The following non-listed, sensitive wildlife species were documented along or near the LEAPS Generation and Transmission Alternative.

- Coastal California newt
- Coastal rosy boa
- Red-diamond rattlesnake
- Coast (San Diego) horned lizard
- Two-striped garter snake
- Cooper's hawk
- Southern California rufous-crowned sparrow
- Loggerhead shrike
- California spotted owl

The following non-listed, sensitive wildlife species have moderate to high potential to occur along or near the LEAPS Generation and Transmission Alternative based on the habitats present and/or documented CNDDDB or USDA Forest Service records.

- Western spadefoot toad
- Belding's orange-throated whiptail
- San Diego ringneck snake
- Southwestern pond turtle
- Coronado skink
- San Diego mountain kingsnake
- Long-eared owl
- Burrowing owl
- White-tailed kite
- Northwestern San Diego pocket mouse
- Western red bat

For more specific information about the special status wildlife species and their sensitivity status, see the LEAPS Project Final EIS.

Management Indicator Species. The National Forest Management Act of 1982 requires that the USDA Forest Service address Management Indicator Species (MIS) during the development of forest plans (USDA, 2005). Five MIS are known to occur in the project area as listed below.

- Engelmann oak
- Mountain lion
- Mule deer
- Song sparrow
- California spotted owl

One other MIS, arroyo toad, has potential habitat in the project area, but the species was not found during focused surveys. See Section E.1.1.1 and Appendix G of the LEAPS Project Final EIS for a discussion of these species.

The co-applicants propose to operate the project so that daily fluctuations in the surface elevation of Lake Elsinore would be about one foot. A daily fluctuation of one foot would affect about 79 acres along the lake margin between elevations 1,240 and 1,241 feet msl. A weekly fluctuation of 1.7 feet would affect an additional 55 acres (Anderson, 2006). The immediate shoreline of Lake Elsinore supports no native riparian vegetation. Most of the Lake Elsinore shoreline has been developed for residential, commercial, or industrial use. Vegetation near the shore in these areas consists of ornamental trees, shrubs, and flowers used in landscaping, or non-native weedy species that take hold in disturbed soils. Vegetation growing on the 2.5-mile-long levee that forms the southeastern shoreline is very sparse and consists mainly of non-native forbs and grasses.

There is no known significant migratory bird breeding habitat on the present shores of Lake Elsinore, which is subject to heavy human disturbance. Birds breed in shrubs and vegetation in the northern corner of the lake, back from the shore. A heron rookery is at least one-tenth of a mile from the water, in the Back Basin pond area. Double-crested cormorants are regularly observed at Lake Elsinore, likely to be foraging or wintering, as the only known rookery in western Riverside County is in the Prado Basin. Small breeding populations of snowy plover at Lake Elsinore were reported in the past, before the modification of Lake Elsinore into an operating lake and a back basin. Currently, existing shoreline conditions, lake level fluctuations, and high levels of human use around the margins of the lake preclude nesting by snowy plover. Suitable plover nesting substrates may be present within the loafing areas of the Back Basin. Caspian tern was reported nesting at Lake Elsinore. The available data reported 14 pairs in 1999 and none in the subsequent four years. Conditions around the lakeshore presently do not permit this or other open-substrate nesters to form breeding colonies on the main lake.

Lake Elsinore supports warm-water fisheries consisting primarily of threadfin shad, common carp, bluegill, and green sunfish as well as limited populations of stocked gamefish including largemouth bass. Lake Elsinore supports no native fish species, so impacts to fish in Lake Elsinore are not addressed in the Environmental Impacts and Mitigation Measures section below. Being historically ephemeral, with resulting variable water levels, high water temperature, high alkalinity, and eutrophic conditions, the lake has provided marginal habitat for native fish; however during wet years, Lake Elsinore was historically colonized by fish from the San Jacinto River (EIP Associates, 2005). The extreme conditions in Lake Elsinore have historically resulted in numerous fish kills, and the lake currently supports an introduced aquatic community that is highly tolerant of this environment (EIP Associates, 2005). Little native riparian vegetation exists on the shore of the lake, and the lake does not support floating or submerged aquatic vegetation (EIP Associates, 2005).

Historically, Lake Elsinore was stocked with a variety of native and non-native fish. As early as the 1890s, northern largemouth bass, green sunfish, and common carp were stocked in the lake. Through the years, often following fish kills, species of bass, bullheads, sunfish, crappies, and shad also were stocked in the lake in an effort to create a recreational fishery. The common carp, one of the first fish species planted in Lake Elsinore, is currently prevalent in the lake. Carp tend to be abundant in eutrophic lakes and reservoirs with silty bottoms and submerged aquatic vegetation. They are tolerant of high turbidity, high temperatures, and low dissolved oxygen concentrations and typically do not go below 100 feet (Moyle, 2002). The common carp is now considered a nuisance species. Following sur-

veys in 2003, the City of Lake Elsinore implemented a carp removal program, and an estimated 291,000 carp were removed from the lake (EIP Associates, 2005).

Jurisdictional Waters and Wetlands. Jurisdictional waters and wetlands were surveyed by MBA at the proposed Santa Rosa Powerhouse/Midpoint Substation and Decker Canyon reservoir sites during October, 2007 (MBA, 2007) Two main drainages and several tributaries occur at the Decker Canyon reservoir site and construction staging areas, and two main drainages and four swales were occur at the Santa Rosa Powerhouse site.

Environmental Impacts and Mitigation Measures

Table E.7.2-2 summarizes the biological resource impacts of the LEAPS generation component.

Table E.7.2-2. Impacts Identified – Biological Resources

Impact No.	Description	Impact Significance
LEAPS Generation Component		
B-1	Construction activities would result in temporary and permanent losses of native vegetation	I, III
B-2	Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality	II
B-3	Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species	II
B-4	Construction activities would create dust that would result in degradation of vegetation	II
B-6	Construction, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality	III
B-7	Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (includes Impacts B-7A through B-7O for individual wildlife resources)	I, II, No Impact
B-8	Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)	II
B-9	Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites	I, II, III
B-12	Maintenance activities would result in disturbance to wildlife and could result in wildlife mortality	II

Impacts to biological resources from the generation components of the LEAPS Generation and Transmission Alternative are presented in the following section. Impacts from the transmission components would be identical to the impacts presented above for the LEAPS Transmission-Only Alternative and are thus not presented below. Impacts from the LEAPS Transmission-Only Alternative are presented in Section E.7.1.2, above.

Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation (Class I for sensitive vegetation, vegetation management, and type conversion; Class III for non-sensitive vegetation)

Construction of the generation components would cause both temporary (during construction from vegetation clearing) and permanent (displacement of vegetation with project features such as a reservoir, substation, permanent access roads) impacts to vegetation communities (see Table E.7.2-3). Construction activities would also result in the alteration of soil conditions, including the loss of native seed banks and changes in topography and drainage, such that the ability of the site to support native vegetation after construction would be impaired.

Impacts to sensitive vegetation communities would be significant according to Significance Criterion 2.a. (substantial adverse effect on a riparian habitat or other sensitive natural community by temporarily or permanently removing it during construction, grading, clearing, or other activities). These impacts are not mitigable to less than significant levels (Class I) because it is unknown if enough mitigation land is available to compensate for the impacts. Implementation of Mitigation Measures B-1a(LE) and B-1c(LE) is required to, at least in part, compensate for impacts to sensitive vegetation communities. Impacts to non-sensitive vegetation (i.e., disturbed habitat and non-native vegetation) would be adverse but less than significant (Class III), and no mitigation is required.

Table E.7.2-3. Impacts to Vegetation Communities – Generation Components (acres)

Vegetation Community	Reservoir Impacts	Powerhouse Impacts	Construction Staging	Total Impacts
Non-Native Vegetation, Developed Areas, and Disturbed Habitat				
Disturbed habitat	0.9	3.7	12.6	17.2
Non-native vegetation (ornamental woodland)			5.2	5.2
Coastal and Montane Scrub Habitats				
Coastal sage scrub		48.3	4.4	52.7
Grasslands and Meadows				
Non-native grassland		0.8	27.9	28.7
Chaparrals				
Northern mixed chaparral	96.7		47.0	143.7
Woodlands and Forests				
Coast live oak woodland	4.7		0.9	5.6
Herbaceous Wetlands, Freshwater, and Streams				
Freshwater (open water)			3.8	3.8
GRAND TOTAL	102.3	52.8	101.8	256.9

Vegetation Management (Loss of Trees). It has been estimated that up to approximately 50 native oak trees would be removed for construction of the Decker Canyon Reservoir. Native shrubs and non-native trees or shrubs may also be present that would need to be removed.

The loss of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they typically do not support special status wildlife species. However, removal of a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). Likewise, removal of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 (Construction activities would result in a potential loss of nesting birds [violation of the Migratory Bird Treaty Act]; Section D.2.12) for how construction activities (including tree/shrub removal) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act. The loss of native trees and shrubs would be a significant impact (Class I) for these reasons:

- It can have a substantial adverse effect on candidate, sensitive, or special status species (Significance Criterion 1);

- It can have a substantial adverse effect on riparian habitat or other sensitive natural community (Significance Criterion 2);
- It can have a substantial adverse effect on federally protected water quality or wetlands (Significance Criterion 3);
- It can interfere with wildlife movement or the use of native wildlife nursery sites (Significance Criterion 4); and
- It can conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (Significance Criterion 5; see discussion in Section D.16).

No estimates were made for trees that would need to be trimmed; instead all trees were considered removed in this analysis. However, if it is determined that some trees do not need to be removed and only trimmed, the following explains the significance of trimming. Although the trimming of non-native trees or shrubs would usually be an adverse but less than significant impact (Class III) because they are non-native and they usually do not support special status wildlife species, trimming a non-native tree or shrub that contains an active bird nest would be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). Likewise, trimming of a native tree or shrub that contains an active bird nest would also be a violation of the Migratory Bird Treaty Act and a significant impact, but one that is mitigable to less than significant levels (Class II). See discussion in Impact B-8 for how construction activities (including tree trimming) would result in a potential loss of nesting birds and violation of the Migratory Bird Treaty Act.

Trimming up to 30 percent of a native tree's crown would diminish the tree's value as wildlife habitat and could cause harm to the tree leading to its decline or death. Therefore, native tree trimming would be significant according to Significance Criteria 1, 2, 4, and 5 listed above. The loss (or trimming) of this large number of native trees is considered a significant impact that would not be mitigable to less than significant levels (Class I) because adequate mitigation land required by Mitigation Measure B-1a(LE) for restoration and/or acquisition may not be available. However, Mitigation Measure B-1a(LE) is required to reduce the impacts to the greatest extent possible.

Type Conversion. As discussed in Section E.7.2.15, the construction and operation of new transmission lines in areas with high fire risk could cause wildfires, and could reduce the effectiveness of fire fighting efforts. Fires cause direct loss of vegetation communities, wildlife habitat, and wildlife species. Although periodic fires are part of the natural ecosystem, fires burning too frequently can have significant long-term ecological effects such as degradation of habitat (temporal loss of habitat and non-native plant species invasion) and loss of special status species. The biodiversity of southern California is uniquely adapted to low rainfall, rugged topography, and wildfires. However, fires have become more frequent with growth in the human population, creating a situation in which vegetation communities (and, therefore, habitats for plant and animal species) are changed dramatically and may not recover. This change in vegetation community is called "type conversion" and can occur to any native vegetation community. When burned too frequently, vegetation communities are often taken over by highly flammable, weedy, non-native plant species that burn even more often and provide minimal habitat value for native plant and animal species, especially those of special status. For example, the coastal California gnatcatcher is dependent primarily on coastal sage scrub vegetation which, if burned too many times, can convert to non-native grassland or disturbed habitat that would preclude its use by the gnatcatcher. If the project were to cause a fire, or inhibit fighting of fires, and this leads to type conversion of sensitive vegetation communities, the impact would be significant (Class I) according to Significance Criterion 1 (substantial adverse effect through habitat modification on any species identified as

candidate, sensitive, or special status) and/or Significance Criterion 2 (substantial adverse effect on a riparian habitat or other sensitive natural community).

Extensive mitigation for fire risk is presented in Section E.7.2.15. However, not all fires can be prevented. Although future fires may not cause type conversion in all instances, the impact must be considered significant because of the severity of potential habitat loss. This impact is not mitigable to less than significant levels (Class I). Implementation of the vegetation management program (described above) would reduce the fire risk of the project, although not to a less than significant level.

Mitigation Measures for Impact B-1: Construction activities would result in temporary and permanent losses of native vegetation

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality (Class II)

Decker Canyon is a central drainage that supports oak woodland habitat, with several tributary drainages on the upland slopes surrounding it. The area affected by reservoir construction at Decker Canyon would include 0.35.94 acres of Waters of the U.S. and 0.90.44 acres of Non-wetland Waters of the State. The drainage feature within the reservoir footprint at Decker Canyon is 3,300 feet long and ranges from 1 to 6 feet wide, with an average width of 4 feet. Sandy soils typify this site. This stream is ephemeral, likely flowing only during and immediately after flood events. Surveyors observed no vegetation within the active channel. Riparian vegetation outside the ordinary high water mark is dominated by upland species, including chamise, hoary-leaved ceanothus, toyon, and coast live oak, and no hydrophytic plants were documented. Based on a 2005 evaluation (refer to LEAPS EIS for details [2007]), Construction at the proposed Santa Rosa Powerhouse/Midpoint Substation site would affect about 0.10.55 acres of Waters of the U.S. and 0.40 acres of Waters of the State. Construction staging would also impact 3.8 acres of open water that would be jurisdictional.

These impacts are considered significant according to Significance Criterion 3.a. (substantial adverse effect on water quality or wetlands as defined by the ACOE and/or CDFG) but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-2a(LE).

Mitigation Measure for Impact B-2: Construction activities would result in adverse effects to jurisdictional waters and wetlands through vegetation removal, placement of fill, erosion, sedimentation, and degradation of water quality

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species (Class II)

A variety of invasive, non-native plant species are known to occur in the generation components area. These include red brome, black mustard, castor bean, tree tobacco, Russian thistle, yellow sweet clover, bristly ox-tongue, and giant reed.

Construction of the generation components would cause soil disturbance throughout the project area. Soil disturbance creates conditions that promote the establishment and spread of invasive, non-native plant species, and these species may be carried into and out of the project area by construction equipment or in fill material. These impacts are considered significant, but would be mitigable to less than significant levels (Class II) with implementation of the mitigation measures listed below.

During project operation, weed establishment and spread would be a continuing consideration as a result of off-road vehicles on access roads. This activity could cause soil disturbance, introduce more weed seed, and promote the spread of weeds. The introduction and spread of invasive, non-native, or noxious plant species in these areas would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of the mitigation measures listed below.

Mitigation Measures for Impact B-3: Construction and operation/maintenance activities would result in the introduction of invasive, non-native, or noxious plant species

B-3a(LE) Prepare and implement a Weed Control Plan.

B-15a Permanently close access roads along the transmission alignment.

B-15b Develop and implement an Invasive Weed Management Plan.

Impact B-4: Construction activities would create dust that may result in degradation of vegetation (Class II)

Construction activities such as grading, tower footing excavation, and driving of heavy equipment on unpaved roadways would result in increased levels of blowing dust that may settle on surrounding vegetation. Increased levels of dust on plants can significantly impact the plants' photosynthetic capabilities and degrade the overall vegetation community. This impact is considered significant but mitigable to less than significant levels (Class II) with implementation of the Mitigation Measure B-4a(LE) which requires measures to control dust, including revegetating disturbed areas.

Mitigation Measure for Impact B-4: Construction activities would create dust that may result in degradation of vegetation

B-4a(LE) Restrict the construction of access and spur roads.

Impact B-5: Construction activities would result in direct or indirect loss of listed or sensitive plants or a direct loss of habitat for listed or sensitive plants (No Impact)

Although four special status plant species were documented for the LEAPS Generation and Transmission Alternative during six years of surveys, no special status plants were observed at the locations of the generation components. Therefore there would be no impacts to special status plant species from construction of these components (No Impact).

Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality (Class III)

Adverse effects to general (i.e., non-special status) wildlife are anticipated from construction of the generation components from the removal of vegetation that would result in the temporary loss of wildlife habitat along with the displacement and/or potential mortality of resident wildlife species that are poor dispersers such as snakes, lizards, and small mammals. Construction may also result in the temporary degradation of the value of adjacent native habitat areas due to noise, increased human presence, and vehicle traffic. Since the impacts would be to non-special status species, they would be adverse but less than significant (Class III), and no mitigation is required. However, Mitigation Measures B-1a(LE)

B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) are recommended to reduce the disturbance to wildlife and reduce wildlife mortality.

Mitigation Measures for Impact B-6: Construction activities, including the use of access roads, would result in disturbance to wildlife and result in wildlife mortality

- B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities.** See Table D.2-7 for compensation ratios.
- B-1c(LE) Conduct biological monitoring.**
- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1i Restrict the construction of access and spur roads.**
- B-2a(LE) Provide restoration/compensation for affected jurisdictional areas.** See Table D.2-7 for compensation ratios.
- B-2b Identify environmentally sensitive times and locations for tree trimming.**
- B-4a(LE) Erosion Control Plan.**
- B-6a Littering is not allowed.**
- B-6b Survey areas for brush clearing.**
- B-6c Protect mammals and reptiles in excavated areas.**
- B-6d Reduce construction night lighting on sensitive habitats.**
- B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**

Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife (Class I construction impacts to non-listed, sensitive species. Other impact classes depend on species; see individual discussions)

Listed or sensitive (special status) wildlife species impacts would result from direct or indirect loss of known locations of individuals or direct loss of potential habitat as a result of temporary or permanent grading or vegetation clearing during construction of the generation components. In addition, individuals near construction areas may temporarily abandon their territories due to disturbance from noise and human activity. A number of non-listed, sensitive wildlife species have potential to occur in these areas; these species are listed at the beginning of Section E.7.1.2 (Environmental Setting – Lake-Pendleton 500 kV New Transmission Line).

Multiple years of surveys for the listed coastal California gnatcatcher and QCB, that have potential to occur in the generation components area, were negative. These species are not present and would not be impacted by construction of the generation components; they are not addressed individually below. The SKR has some potential to occur in the generation components area, but surveys for the species were not conducted because the specific locations of project features were not designed until 2007; therefore, the SKR is assumed to be present in these areas (see Impact B-7L below). The arroyo chub is considered threatened in its native range, which includes San Juan Creek. The potential effects of the generation components on the arroyo chub are addressed in Impact B-7T below.

Most of the non-listed, sensitive species' habitats are sensitive vegetation communities; the mitigation for the loss of the sensitive vegetation communities (Mitigation Measure B-1a[LE]) would normally compensate for the potential loss of these sensitive species and their habitats. However, since adequate

land required by Mitigation Measure B-1a(LE) may not be available, the impacts to non-listed, sensitive wildlife species are considered significant according to Significance Criterion 2.a. (impacts that directly or indirectly cause the mortality of candidate, sensitive, or special status wildlife species) and not mitigable to less than significant levels (Class I). Implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-1f, B-1i, B-2a(LE), B-2b, B-4a(LE), B-6a through B-6d, and B-7a(LE) is required to compensate, at least in part, for impacts to non-listed, sensitive wildlife species.

The State listed bald eagle has high potential to fly through the study area to forage at Lake Elsinore; the bald eagle is addressed in Impact B-10 below.

Mitigation Measures for Impact B-7: Construction activities would result in direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

B-1f Construction and survey activities shall be restricted based on final design engineering drawings.

B-1i Restrict the construction of access and spur roads.

B-2a(LE) Provide restoration/compensation for affected jurisdictional areas. See Table D.2-7 for compensation ratios.

B-2b Identify environmentally sensitive times and locations for tree trimming.

B-4a(LE) Erosion Control Plan.

B-6a Littering is not allowed.

B-6b Survey areas for brush clearing.

B-6c Protect mammals and reptiles in excavated areas.

B-6d Reduce construction night lighting on sensitive habitats.

B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).

Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat (Class I)

Potential SKR habitat (i.e., non-native grassland) is present primarily at the construction staging areas. The SKR is assumed present in these areas; surveys for the species were not conducted. Impacts to the SKR would be significant according to Significance Criterion 1.a. (substantial adverse effect, either directly or indirectly, on one or more individuals of a federal or State listed species) and not mitigable to less than significant levels because adequate land required for the SKR may not be available to compensate for the impacts. However, implementation of Mitigation Measures B-1a(LE), B-1c(LE), B-2a(LE), B-7a(LE), and B-7k(LE) is required to, at least in part, minimize impacts to the SKR.

Mitigation Measures for Impact B-7L: Direct or indirect loss of Stephens' kangaroo rat or direct loss of habitat

B-1a(LE) Provide restoration/compensation for affected sensitive vegetation communities. See Table D.2-7 for compensation ratios.

B-1c(LE) Conduct biological monitoring.

- B-2a(LE) Provide restoration/compensation for affected jurisdictional areas.** See Table D.2-7 for compensation ratios.
- B-7a(LE) Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals).**
- B-7k(LE) Conduct Stephens' kangaroo rat surveys, and implement appropriate avoidance/minimization/compensation strategies.**

Impact B-7T: Direct or indirect loss of arroyo chub or direct loss of habitat (No Impact)

The arroyo chub is considered highly sensitive because it is considered threatened in its native range, which includes San Juan Creek. Lake Elsinore water and any fish it carries could be introduced to the San Juan Creek drainage from the proposed Decker Canyon Reservoir in the event of reservoir leakage or reservoir wall failure during project operations. Such leakage would have to be extensive enough to carry enough water to support fish survival as the water flows down the canyon. If non-native fish were present and were to survive the event, the non-native fish could compete with the arroyo chub and adversely affect the native fish population. Since this is a highly unlikely scenario, it is anticipated that there would be No Impact on the arroyo chub from the non-native fish from Lake Elsinore.

Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act) (Class II)

The generation components area contains a variety of vegetation communities that provide sites for bird nests. Construction activities would disturb vegetation and have the potential to impact nesting birds. Ground-nesting birds could also be impacted by foot or vehicle/equipment traffic. The removal of vegetation and possibly other construction activity during the breeding season could result in the displacement of breeding birds, abandonment of active nests, and accidental nest destruction. With the exception of a few non-native bird species, an active bird nest is fully protected against take pursuant to the federal Migratory Bird Treaty Act. It is unlawful to take, possess, or destroy the nest or eggs of any such bird.

Even with mitigation, the project would have a significant impact if it was to violate the Migratory Bird Treaty Act and result in the mortality of migratory birds or to cause destruction or abandonment of migratory bird nests and/or eggs (Significance Criterion 1.g). Violation of the Migratory Bird Treaty Act would be a significant impact that is mitigable to less than significant levels (Class II) with implementation of Mitigation Measures B-1f through B-1i, B-2b, B-2c, B-6b, B-8a(LE), and B-8b.

Mitigation Measures for Impact B-8: Construction activities would result in a potential loss of nesting birds (violation of the Migratory Bird Treaty Act)

- B-1f Construction and survey activities shall be restricted based on final design engineering drawings.**
- B-1g Build access roads at right angles to streambeds and washes.**
- B-1h Comply with all applicable environmental laws and regulations.**
- B-1i Restrict the construction of access and spur roads.**
- B-2b Identify environmentally sensitive times and locations for tree trimming.**
- B-2c Avoid sensitive features.**
- B-6b Survey areas for brush clearing.**
- B-8a(LE) Conduct pre-construction surveys and monitoring for breeding birds.**

B-8b Removal of raptor nests.

Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites (Class I for mountain lion; Class II for bat colonies; Class III for linkages or wildlife movement corridors; No impact for movement of fish)

Most of the generation components occur in Core Area B of the Multi-Species HCP. Construction at Decker Canyon would remove more than 100 acres of suitable habitat for mountain lions. Core Area B represents a large proportion of the remaining habitat for mountain lions in the Santa Ana Range. Modeling of the Santa Ana mountain lion population indicates it is demographically unstable and at risk of extinction because it is isolated from other populations (Beier, 1993). Removal or disturbance of suitable habitat within Core Area B would result in additional adverse effects on mountain lions. A five-year study of mountain lions in the Santa Ana Mountains showed that one animal (a young male) occupied a home range that included the Decker Canyon reservoir site (Beier and Barrett, 1993). This impact is considered significant (according to Significance Criterion 4.b. – interfere with connectivity or corridor or linkage) and not mitigable to less than significant levels (Class I).

For other wildlife in Core Area B, the impacts to their movement would be adverse but less than significant (Class III), and no mitigation is required.

Although there are only two bat species with potential to occur in the project area (one with low potential and one with moderate potential [pallid bat and western red bat, respectively]), impacts to a bat nursery colony would be significantly impacted if humans approached an active nursery colony, if entrances to nursery colony sites become blocked, if construction involves blasting or drilling that causes substantial vibration of the earth/rock surrounding an active nursery colony, or if a structure such as a bridge is disturbed by construction. A bat nursery colony site is where pregnant female bats assemble (or one bat if it's of a solitary species) to give birth and raise their pups. These colonies could be located in rock crevices, caves, or culverts; inside/under bridges; in other man-made structures; and in trees (typically snags or large trees with cavities). Impacts to bat nursery colonies would be significant according to Significance Criterion 4 (impede the use of native wildlife nursery sites) but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-9a.

The generation components do not occur in areas with perennial stream flows that support fish species; construction of the generation components would not affect the movement of fish (No Impact).

Mitigation Measure for Impact B-9: Construction or operational activities would adversely affect linkages or wildlife movement corridors, the movement of fish, and/or native wildlife nursery sites

B-9a Survey for bat nursery colonies.

Impact B-10: Presence of transmission lines would result in electrocution of, and/or collisions by, listed or sensitive bird species (No impact)

The project's generation facilities would not present electrocution or collision risks to listed or sensitive bird species, including the bald eagle, because they do not include the transmission lines (No Impact).

Impact B-11: Presence of transmission lines would result in increased predation of listed and sensitive wildlife species by ravens that nest on transmission towers (No Impact)

The project's generation facilities does not include transmission line and would not present opportunities for ravens to nest (No Impact).

Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality (Class II general wildlife; No Impact West Nile virus)

These types of impacts would occur from maintenance activities: impacts to nesting birds if vegetation is cleared during the breeding season and mortality of special status species from vegetation clearing or the use of access roads. Disturbance to wildlife and potential wildlife mortality from maintenance would result in significant impacts if they impact listed species (Significance Criterion 1.a.); directly/indirectly cause the mortality of candidate, sensitive, or special status species (Significance Criterion 1.f.); violate the Migratory Bird Treaty Act (Significance Criterion 1.g.), or have a substantial adverse effect on riparian or other sensitive vegetation communities if weed species are introduced (Significance Criterion 2.b.; this impact would degrade wildlife habitat—see Mitigation Measures B-3a[LE] and B-15b).

Impacts to non-listed, sensitive wildlife species from maintenance activities would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Maintenance activities would impact nesting birds (violation of Migratory Bird Treaty Act) if vegetation is cleared during the general avian breeding season (February 15 through September 15) or the raptor breeding season (January 1 through September 15). This impact would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Impacts to SKR from maintenance would occur from brush clearing if it damages burrows or if vehicles crush burrows on dirt access roads. These impacts would be significant but mitigable to less than significant levels (Class II) with implementation of Mitigation Measure B-12a(LE).

Project operations at the Decker Canyon Reservoir (i.e., an open body of water) presents a concern regarding mosquito production and the potential for the infection of bird species with the West Nile virus. All species of mosquitoes require standing water to complete their life cycles. Factors that are conducive to mosquito breeding success in standing water include water level stability, lack of wave action, high nutrient levels, and the presence of vegetative or other cover that affords protection of the larvae from predators or desiccation (TVA, 2004). The water level in the reservoir would fluctuate up to 40 feet daily and up to 75 feet through the weekly cycle. The reservoir would not contain soils or support any vegetation. The reservoir characteristics and its operation would make the environment unsuitable for mosquitoes. Furthermore, the water level in Lake Elsinore would fluctuate causing wave action, along with wind and boats, so Lake Elsinore would also be an unsuitable environment for mosquitoes. Therefore, there would be No Impact to birds from West Nile virus associated with mosquito production from the project.

Mitigation Measures for Impact B-12: Maintenance activities would result in disturbance to wildlife and wildlife mortality

B-3a(LE) Prepare and implement a Weed Control Plan.

B-4a(LE) Erosion Control Plan.

B-12a(LE) Conduct maintenance activities outside the general avian breeding season.

B-15b Develop and implement an Invasive Weed Management Plan.

E.7.2.3 Visual Resources

Analysis of visual resources impacts of the generation component of the LEAPS Generation and Transmission Alternative are described below. Visual impacts related to the transmission component of this Alternative would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.3, above, and would be identical for the Generation and Transmission Alternative for all areas except Decker Canyon, and the analysis and descriptions for Key Viewpoints L1, L2, L4, L6, L7, and L8 are applicable and complete (see Section E.7.1.3). Because a pumped storage reservoir would be constructed and operated at Decker Canyon near South Main Divide Road, visual impacts for Key Viewpoints L3 and L5 would be different for the Generation and Transmission Alternative, and Key Viewpoint L10 would show a unique view of the proposed reservoir. Also, there would be a new Midpoint Substation and new Santa Rosa Powerhouse (underground) that would be visible from Grand Avenue in the City of Lake Elsinore (Key Viewpoint L9). Key Viewpoints associated with the generation components of the LEAPS Generation and Transmission Alternative are shown on Figure E.7.2-1.

Environmental Setting

LEAPS generation facilities include Lake Elsinore lower reservoir, Decker Canyon upper reservoir, Santa Rosa Powerhouse, Midpoint Substation, construction laydown areas, a 1.2-mile underground transmission interconnection, and water conduits including power shafts, power tunnel, penstocks, and tailrace tunnels (Figure E.7.2-1). The CNF encompasses the Decker Canyon upper reservoir site, all or portions of the penstocks from the upper reservoir to the powerhouse, and portions of the transmission alignment. This area of CNF is almost entirely surrounded by urban development, serving as a scenic backdrop valued by its urban communities as a visual resource.

The Scenic Integrity Objective (SIO; for discussion of SIOs, see Section D.3.1.2) for the lands where the upper reservoir site and staging areas would be located is designated by the USFS as High based on the public preferences for natural-appearing landscapes. The SIO for the San Mateo Canyon Wilderness, located approximately 0.5 miles from the upper reservoir site, is Very High, and only ecological changes are allowed within the wilderness.

The view of Decker Canyon from South Main Divide Road consists of riparian vegetation in the canyon bottom surrounded by mountain tops with chamise-dominated chaparral vegetation and rock outcroppings. The construction staging area would be on the east side of South Main Divide Road in an area that is currently partly barren and used for the launching of hang gliders. Maximum viewable distances across Decker Canyon from South Main Divide Road terminate at interior mountains higher than the viewpoint in the San Mateo Wilderness about 0.5 miles away. A portion of the view from the top of Decker Canyon extends northwest toward the confluence of Decker and San Juan Creek Canyons about five miles away; however, vegetation, canyon topography, and at times, atmospheric haze largely obstruct the view.

The Santa Rosa powerhouse site would be situated on privately held parcels within the CNF boundary but outside of USFS jurisdiction, and an SIO is therefore not designated. The land uses along Grand Avenue dictate the aesthetic feel of the Santa Rosa powerhouse site area, which includes single-family residences, small commercial establishments, multi-family residential development, and vacant property. The parcel associated with the proposed Santa Rosa powerhouse site consists primarily of non-native grasses with occasional shrubs, bare land, and numerous trails or dirt roads traversing the area. The general character of this parcel is considered open space within an urban environment. This characterization is derived from the parcel's fairly large size and lack of development; however, it is

surrounded by the urbanized areas of Lakeland Village and is subject to informal recreation uses (numerous dirt trails and roads traversing the parcel and visual evidence of illegal dumping). The landscape and visual aesthetics of this site are not unusual, but they are accentuated by the parcel's proximity to the mountains and the striking backdrop they provide to all parcels along Grand Avenue (FERC, 2007).

LEAPS Key Viewpoint L3 – South Main Divide Road Near Decker Canyon Reservoir Dam (SMS)

LEAPS Key Viewpoint L3 was established on the South Main Divide Road looking southeast, near where the 500 kV transmission line would leave the Lake Elsinore viewshed and cross over into the San Mateo Canyon Wilderness viewshed. The existing visual quality is high in this area, with only visible deviations being the South Main Divide Road and Elsinore Peak Electronic Site on the skyline to the left (see Figure E.7.2.3-3A). Landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline. Vegetation is low growing chemise and chaparral with only small clumps of trees scattered in ravines. Granitic rock outcrops add visual interest to the skyline of San Mateo Wilderness in the background and one foreground rock outcrop. This scene has high existing scenic integrity, and the FS has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

LEAPS Key Viewpoint L5 – Ortega Highway (SMS)

LEAPS Key Viewpoint L5 was established on the Ortega Highway looking northeast up Decker Canyon to the South Main Divide Road and the skyline, near the Decker Canyon upper reservoir dam site (see Figure E.7.2.3-4A). Like KVPs L3 and L4, the existing visual quality is high in this area, with only visible deviations being this Forest Adventure Pass parking area along Ortega Highway in the immediate foreground and the South Main Divide Road cut slopes in the middle ground. This is a parking area for wilderness access, forest recreation, and sight-seeing. Landforms are gently rolling mountains with a predominance of horizontal lines on the skyline in the middle ground. Small rock outcrops are evident in the middle ground, adding visual variety to this intact scene. This scene has high existing scenic integrity, and the FS has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

LEAPS Key Viewpoint L9 – Grand Avenue (VS-VC)

LEAPS Key Viewpoint L9 was established on Grand Avenue in the City of Lake Elsinore (see Figure E.7.2.3-1A). Views perpendicular to the road, looking southwest, reveal a relatively flat, open space leading to the foot of the mountains in the CNF. Just northwest of this site, along Grand Avenue, is an apartment complex, then the Butterfield Elementary School, all on the same side of the street. Continuing south on Grand Avenue, there are scattered residential uses.

The LEAPS Generation and Transmission Project would entail construction and operation of the Santa Rosa Powerhouse and Midpoint Substation on a 40-acre site in the middle of this photograph. The entire 40-acre site would be bounded by a 10-foot-high concrete block wall and the entire facility would be visible with foreground detail.

Visual Quality. Moderate. The foreground, with its relatively level plain and scattered trees, has minimal visual quality, but when taken in context with the mountains in the middle ground, the overall visual quality is moderate. Predominant colors are brown and tan soils, and gray-green to dark-green vegetation. Rockforms are non-distinctive, and water is lacking. Horizontal lines of existing electric

distribution system are present in this view, as are derelict fencing and roadside litter, resulting in an overall moderate visual quality.

Viewer Concern. Moderate. Travelers on Grand Avenue, and also representing viewers at the apartment complex and elementary school, are provided with distinct mountain views as they pass this vacant lot. Although there are some commercial land uses along Grand Avenue, the neighborhood is primarily residential in nature and any addition of industrial character to the predominantly natural appearing landscape or blockage of views to more valued landscape features (open space and mountain slopes) would be seen as an adverse visual change.

Viewer Exposure. High. There is no vegetative or topographic screening for the proposed Santa Rosa Powerhouse and Midpoint Substation, and viewing distances allow details to be seen in the foreground and context to be evaluated against the middle ground mountainside, resulting in high visibility. Viewing times are brief for travelers on Grand Avenue but are extended for residents located along Grand Avenue and at the elementary school, and for pedestrians walking along Grand Avenue. The number of viewers would be moderate and the duration of view would be brief for travelers on Grand Avenue and extended for residents and school children. Consequently, viewer exposure is high.

Overall Visual Sensitivity. Moderate-to-High. For travelers on Grand Avenue and residents/school children in the neighborhood in the vicinity of the Santa Rosa Powerhouse and Midpoint Substation, combining the moderate visual quality, low-to-moderate viewer concern, and high viewer exposure lead to a moderate-to-high overall visual sensitivity of the visual setting and viewing characteristics.

LEAPS Key Viewpoint L10 – South Main Divide Road Near Decker Canyon Reservoir (SMS)

LEAPS Key Viewpoint L3 was established on South Main Divide Road looking south, adjacent to where the Decker Canyon upper reservoir would be located. The existing visual quality is high in this area, with only visible deviation being the South Main Divide Road (see Figure E.7.2.3-2). Landforms are gently rolling mountains with a predominance of horizontal lines on ridge tops and the skyline. Vegetation is low growing chemise and chaparral with only small clumps of trees scattered in ravines. Granitic rock outcrops add visual interest. This scene has high existing scenic integrity, and the Forest Service has designated this entire area as Very High SIO inside the wilderness and High SIO outside the wilderness boundary.

Environmental Impacts and Mitigation Measures

Table E.7.2-4 summarizes the visual resource impacts of the LEAPS generation component.

Table E.7.2-4. Impacts Identified – Visual Resources

Impact No.	Description	Impact Significance
LEAPS Generation Component		
V-S-11	Construction of reservoir and associated facilities on National Forest System lands would cause medium-term visibility of construction activities, equipment, and night lighting and an increase in industrial character	Class I
V-S-12	Short-term visibility of construction activities, equipment and night lighting associated with construction of the powerhouse and transmission lines	Class III
V-S-13	Introduction of structure contrast and industrial character associated with the Santa Rosa Powerhouse and aboveground Midpoint Substation, when viewed from Key Viewpoint L9 on Grand Avenue	Class I
V-S-14	Inconsistency with USFS Scenic Integrity Objective due to long-term visibility of a non-natural landscape feature (reservoir facilities) from Key Viewpoints L3 and L10, on South Main Divide Road and from Key Viewpoint L5, Ortega Highway	Class I

Impact V-S-11: Construction of reservoir and associated facilities on National Forest System lands would cause medium-term visibility of construction activities, equipment, and night lighting and an increase in industrial character (Class I)

Construction of the proposed upper reservoir, staging area, and associated structures would directly affect approximately 150 acres of lands and would require about 3 million cubic feet of earthwork. Excavation of the water conduit tunnels would likely result in the temporary storage of earthen materials at the 20- to 40-acre staging area near the powerhouse. The upper reservoir construction activities would be limited to a single canyon near the point of entry into the CNF, which is at the urban-forest interface.

Construction would entail using vehicles, trailers, equipment, materials, laborers, earthen debris, and fencing along South Main Divide Road. The area would be de-vegetated, re-graded, leveled, barricaded, lined, and filled. Effects from construction on visual resources of the area would last for up to three years. This construction activity, while isolated to the single canyon, would be a condition where human alterations would be extremely visually evident from the San Mateo Canyon Wilderness and segments of South Main Divide Road, which would be inconsistent with the High SIO set by CNF for this area. Night lighting impacts during construction could also occur if lighting at construction and storage yards and staging areas is not appropriately controlled.

Visual impacts from construction of the reservoir on national forest lands are considered significant and unmitigable due to the large scale and duration of construction activities (Class I). However, to ensure that viewers are not unnecessarily impacted during construction, Mitigation Measures V-1a, V-1b, and USFS-37 would be required to reduce the impact to the extent feasible.

Mitigation Measures for Impact V-S-11: Construction of reservoir and associated facilities on Forest Service lands would cause medium-term visibility of construction activities, equipment, and night lighting and an increase in industrial character

V-1a Reduce visibility of construction activities and equipment.

V-1b Reduce construction night lighting impacts.

USFS-37 Condition No. 37—Scenery Conservation Plan.

Impact V-S-12: Short-term visibility of construction activities, equipment and night lighting associated with construction of the powerhouse and transmission lines (Class III)

Construction impacts related to the powerhouse and transmission line would result from the presence and visual intrusion of construction vehicles, equipment, materials, and work force at the powerhouse location and along the new transmission line routes. Construction activities around the proposed powerhouse site would involve the excavation of approximately 776,000 cubic yards of soil from the water conduits, penstock, powerhouse cavern and shaft, transformer gallery, surge shaft, draft tubes, tailrace tunnels, and intake/outlet structure. Construction activities would also affect about 30 acres of the powerhouse site and another 20 acres for staging construction activities. The landform in this area would be leveled, excavated, and built into and transformed from open space to a functioning underground powerhouse with aboveground substation and associated features. Effects from construction would include the presence of large excavation work, earthen debris, an open construction site and dust. Night lighting impacts during construction would potentially occur if lighting at the powerhouse location is not appropriately controlled.

Construction impacts on visual resources would also result from the temporary alteration of landforms and vegetation along the right-of-way (ROW). Vehicles, heavy equipment, project components, and workers would be visible during access and spur road clearing and grading, structure erection, conductor stringing, and site/ROW clean-up and restoration. View durations from these vantage points would vary from moderate to extended.

Laying the underground portion of the proposed transmission alignment would require exposing a linear trench in close proximity to South Main Divide Road requiring the clearing of existing vegetation and re-contouring the immediate area. Construction would significantly alter the landscape character along South Main Divide Road and would dominate the foreground views along the road between Ortega Highway and Rancho Capistrano where the underground segment of the transmission line would be buried. Traffic estimates provided by the proponents registered 515 vehicles on a single day in July 2002 at the intersection of South Main Divide Road and Ortega Highway. It is likely that the majority of these vehicles originate from the Rancho Capistrano residential community, and these people would see the construction work on a daily basis for a period of two years (FERC, 2007).

The southern segment of the Lake-Pendleton line from Lake Elsinore south to Camp Pendleton would run on the face of the mountains, parallel the top of the mountains just west of the ridgeline (below Rancho Capistrano), and wrap around the mountains heading southward inside the CNF boundary. Because portions of this route would cross both the face and near the top of the ridgeline, construction activities would be visible during the two-year construction period.

However, due to the relatively short duration of project construction in any one geographic area (approximately 24 months or less along the transmission line route where construction is transient), viewers would be aware of the temporary nature of the impact, which would reduce their sensitivity to the impact, and project construction impacts would generally constitute adverse, but less than significant (Class III) visual impacts. However, to ensure that viewers are not unnecessarily impacted during construction, Mitigation Measures V-1a, V-1b, and USFS-37 are recommended to reduce construction impacts, but are not required because the impact is less than significant without mitigation.

Impact V-S-13: Introduction of structure contrast and industrial character associated with the Santa Rosa Powerhouse and aboveground Midpoint Substation, when viewed from Key Viewpoint L9 on Grand Avenue (Class I)

Grand Avenue is in an area of dense residential and commercial development and carries a significant amount of local traffic near the proposed powerhouse. Views from here are predominantly residential with the mountains rising in the background to the west and Lake Elsinore when visible through open spaces between houses and vegetation to the east (FERC, 2007).

The 40-acre site containing the proposed underground powerhouse and aboveground substation would be highly visible to travelers on Grand Avenue and residents in Lake Elsinore (see Figure E.7.2.3-1B). The introduction of substantial structure contrast and industrial character to an otherwise primarily undeveloped and natural-appearing landscape would cause a moderate-to-high degree of overall visual change. Because the site would be terraced to accommodate the powerhouse and substation, and would be surrounded by a 10-foot-high concrete block wall, it would be a dominant focal point in the landscape, and would block views to the lower slopes of the middle ground-mountains. There would be no skyline obstruction by these facilities. The resulting visual impact would be adverse and significant (Class I). Although landscape screening could be provided in the immediate foreground of Grand Avenue, which may be effective in reducing visibility of the facility, no plans were submitted to the visual analyst indicating any such screening was planned. The following mitigation measures would be required.

Mitigation Measure for Impact V-S-13: Introduction of structure contrast and industrial character associated with the Santa Rosa Powerhouse and aboveground Midpoint Substation, when viewed from Key Viewpoint L9 on Grand Avenue

V-3a Reduce visual contrast of towers and conductors.

V-7b Screen ancillary facilities.

V-S1a Implement Condition No. 37—Scenery Conservation (on NFS lands)

Impact V-S-14: Inconsistency with USFS Scenic Integrity Objective due to long-term visibility of a non-natural landscape feature (reservoir facilities) from Key Viewpoints L3 and L10, on South Main Divide Road and from Key Viewpoint L5, Ortega Highway (Class I)

The LEAPS pumped storage project operations would require the long-term presence of a non-natural, fenced upper reservoir that would undergo typical water-level fluctuations of about 40 vertical feet on a daily basis and 75 vertical feet during the course of a full-week cycle, resulting in an unnatural “bath tub ring” of exposed wet/drying earthen (muddy) shoreline. The upper reservoir feature would be located within a CNF area with a High SIO designation, and it would be prominently visible from South Main Divide Road, Ortega Highway, and from within the San Mateo Canyon Wilderness.

Specifically, this alternative would eliminate a natural appearing canyon and introduce new visual elements into the viewshed of the Cleveland National Forest and San Mateo Wilderness Area. Introduced features would include pooled water at the upper reservoir, dam, 240-foot-tall earthen dam, chain link perimeter safety fences, and graded landscapes (see Figures E.7.2.3-2, E.7.2.3-3B, and E.7.2.3-4B). The high level of change that would result from the reservoir facilities would be inconsistent with Aesthetic Management Standard S9 of the Cleveland National Forest Land Management Plan requiring activities to meet the applicable SIO. Specifically, the dam, dike, reservoir, fencing, and berms would not repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident, as required by the applicable

“HIGH” SIO. Indeed, the facilities would be prominent features in the landscape. Furthermore, the reservoir facilities would not qualify for the exceptions of (1) a minor adjustment (one level reduction with approval) to the SIO, or (2) a temporary drop of more than one SIO not to exceed three years in duration, as required in Aesthetic Management Standard S10. The resulting visual impacts would be significant and unavoidable (Class I).

Mitigation Measure for Impact V-S-14: Inconsistency with USFS Scenic Integrity Objective due to long-term visibility of a non-natural landscape feature (reservoir facilities) from Key Viewpoints L3 and L10, on South Main Divide Road and from Key Viewpoint L5, Ortega Highway

V-7b Screen ancillary facilities.

V-S-14a **Upper Reservoir Revegetation—Newly planted vegetation (per Mitigation Measure USFS-37) shall be fertilized, irrigated, and maintained by the Applicant.** Vegetation survival shall be guaranteed by the Applicant for the life of the LEAPS project. Upon abandonment of the reservoir, dam, pumping facility, the Applicant shall restore the landscape to near-natural conditions, as directed by the CNF. The Applicant shall provide a bond to the CNF sufficient for removal of facilities and restoration of the landscape.

USFS-37 **Condition No. 37—Scenery Conservation Plan.**

Figure E.7.2.3-1A. LEAPS KVP L9 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.2.3-1B. LEAPS KVP L9 Simulation
[CLICK HERE TO VIEW](#)

Figure E.7.2.3-2. LEAPS KVP L10 Existing View and Simulation
[CLICK HERE TO VIEW](#)

Figure E.7.2.3-3A. LEAPS KVP L3 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.2.3-3B. LEAPS KVP L3 Simulation
[CLICK HERE TO VIEW](#)

Figure E.7.2.3-4A. LEAPS KVP L5 Existing View
[CLICK HERE TO VIEW](#)

Figure E.7.2.3-4B. LEAPS KVP L5 Simulation
[CLICK HERE TO VIEW](#)

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E.7.2.4 Land Use

Impacts to land use from the generation component of the LEAPS Generation and Transmission Alternative presented in this section. Impacts from the transmission component would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.4, above.

Environmental Setting

LEAPS generation facilities are shown on Figure E.7.2-1. LEAPS generation facilities would be located largely within the boundaries of the CNF, with the remainder being located in Riverside County and the City of Lake Elsinore. The CNF would encompass the Decker Canyon upper reservoir site, the construction staging area for the upper reservoir, all or portions of the penstocks from the upper reservoir to the powerhouse, and portions of the transmission line. The USFS has the authority to impose permit conditions on the project components located on USFS lands. Lands within CNF are managed by the USFS according to the vision, strategy, and design criteria laid out in the Cleveland National Forest Land Management Plan (USFS, 2005b), described in Section D.17. The Decker Canyon upper reservoir would be partially located in a Back Country, Motorized Use Restricted land use zone.

The BCMUR zone includes areas that are undeveloped, with few roads. Few facilities are found in this zone, and the level of human use and infrastructure is low to moderate. The characteristic ROS objectives are SPM and Semiprimitive, Non-Motorized (SPNM), and the zone is managed for non-motorized (mechanized, equestrian, and pedestrian) access. The zone allows for a range of low intensity land uses, and the management intent is to retain the natural character of the zone and limit the level and type of development. Some roads may be constructed and maintained, but the intent is to manage the zone for no increase or a very low level of increase in road system development. Major utility corridors are permitted in designated areas within this land use zone, and roads are suitable for authorized use within this zone.

In addition, water conduits, Santa Rosa Powerhouse, Midpoint Substation, and construction laydown areas would be located within Riverside County, within the Sphere of Influence of the City of Lake Elsinore, and would be subject to county jurisdiction. The Riverside County General Plan, including the Elsinore Area Plan, are discussed in Section E.7.1.4, above. The Lake Elsinore lower reservoir and the intake/outlet structure sites are located within the City of Lake Elsinore. The City of Lake Elsinore General Plan defines the goals, objectives, and policies that guide development in the City and its Sphere of Influence. The 1990 Plan is currently being updated. Lake Elsinore and the water intake/outlet are described in Section E.7.2.12, below.

Environmental Impacts and Mitigation Measures

Table E.7.2-5 summarizes the land use impacts of the LEAPS generation component.

Table E.7.2-5. Impacts Identified – Land Use		
Impact No.	Description	Impact Significance
LEAPS Generation Component		
L-1	Construction would temporarily disturb land uses at or near the alignment	Class I, II, III
L-2	Presence of a transmission line or substation would divide an established community or disrupt land uses at or near the alignment	Class II, III

Impact L-2: Construction would temporarily disturb land uses at or near the project facilities (Class I for residential displacement, Class II for school displacement, Class III for residential proximity)

Although currently vacant, the proposed Santa Rosa powerhouse/Midpoint Substation site is designated Medium Density Residential on the General Plan map (County of Riverside, 2005). The construction staging expansion are for the powerhouse and substation is currently the site of an occupied 12-unit apartment building, the Santa Rosa Mountain Villa apartments. The residents of this apartment building would lose their place of residence as a result of construction of the powerhouse, and this would be considered a significant impact because it would disrupt an existing land use (Class I). The proposed tailrace tunnel from the Santa Rosa powerhouse site to Lake Elsinore would be constructed underground, across Grand Avenue, a parcel with a single, occupied home, and a number of currently vacant parcels zoned for residential use in the vicinity of commercial uses at the lakefront. Construction of the tunnel would require the use of heavy equipment in the otherwise undisturbed mix of vacant and residential properties. The single home would be acquired and removed by the project proponent, resulting in a loss of a residential dwelling unit (Class I). No mitigation is available to reduce these impacts to a less than significant level; however, Mitigation Measures L-1a (Prepare Construction Notification Plan), L-1d (Provide advance notice and appoint public affairs officer), and L-1e (Notify property owners and provide access) are required to reduce the severity of impacts. Impacts to traffic on Grand Avenue as a result of tailrace tunnel construction are discussed in Section E.7.2.9, below.

The planning area is located within 1,000 feet of the Butterfield Elementary Visual and Performing Arts Magnet School, and construction of the powerhouse, substation, and tailrace tunnels would be incompatible with the school's adjacent occupancy. This disturbance would be considered significant (Class II), but could be mitigated through implementation of Mitigation Measure L-1h (Relocate Butterfield Elementary Visual and Performing Arts School).

For residences greater than 1,000 feet from the planning area, construction-related impacts would be considered adverse but not significant due to their distance from the alternative (Class III). Construction would create additional noise and dust in the vicinity as a result of heavy construction equipment on temporary and permanent access roads, moving building materials to tower sites and returning to construction staging areas. Mitigation measures to reduce noise and air quality impacts are presented in Sections D.8 and D.11, respectively.

The Decker Canyon upper reservoir site is designated Conservation—Habitat on the Riverside County General Plan (General Plan) map (County of Riverside, 2005), and is within a CNF BCMUR land use zone. Upper reservoir construction would eliminate dispersed recreational and forest habitat land uses. This impact is considered significant (Class II), and would be subject to the USFS mitigation Conditions listed below, which would reduce impacts to a less than significant level.

Mitigation Measure for Impact L-1: Construction would temporarily disturb land uses at or near the alignment

L-1a Prepare Construction Notification Plan.

L-1d Provide advance notice and appoint public affairs officer.

L-1e Notify property owners and provide access.

L-1h Relocate Butterfield Elementary Visual and Performing Arts School. In coordination with the Lake Elsinore Unified School District, the proponent shall relocate the Butterfield Elementary Visual and Performing Arts School to an acceptable temporary location for the

- duration of construction of the Santa Rosa Powerhouse, Midpoint Substation, and water conduits within 1,000 feet of the school. Relocation site and plans shall be subject to approval of the district.
- USFS 1 Condition No. 1—Requirement to Obtain a Forest Service Special-Use Authorization.**
- USFS 3 Condition No. 3—Forest Service Approval of Final Design.**
- USFS 4 Condition No. 4—Approval of Changes.**
- USFS 5 Condition No. 5—Consultation.**
- USFS 6 Condition No. 6—Surrender of License or Transfer of Ownership.**
- USFS 16 Condition No. 16—Valid Claims and Existing Rights.**
- USFS 17 Condition No. 17—Compliance with Regulations.**
- USFS 18 Condition No. 18—Protection of United States Property.**
- USFS 20 Condition No. 20—Surveys, Land Corners**
- USFS 21 Condition No. 21—Damage to Land, Property, and Interests of the United States**

Impact L-2: Presence of a transmission line or substation would disrupt land uses at or near the alignment (Class II for CNF, Class III for powerhouse site)

Once landscaped, the Santa Rosa powerhouse and Midpoint Substation would receive regular operations and maintenance use by the personnel on a scale consistent with neighboring uses. The proponents' proposal to establish a botanical garden on the property and to provide powerhouse tours would provide for ongoing recreational use of the property of a different character than currently exists. This is considered a less than significant impact (Class III) because, although zoned for residential use, no residential development plans currently exist for these parcels.

The underground conduit and transmission interconnection line would be located in an area zoned rural mountainous and conservation-habitat in the Riverside County General Plan. The presence of the underground conduit and transmission interconnection line would not permanently preclude current or future land uses.

The Decker Canyon upper reservoir site and parts of the underground conduit and transmission interconnection line sites are designated Conservation—Habitat on the Riverside County General Plan (General Plan) map (County of Riverside, 2005), and is within a CNF BCMUR land use zone. Operation of the upper reservoir would permanently eliminate dispersed recreational and forest habitat land uses. This impact is considered significant (Class II), and would be subject to the USFS mitigation Conditions listed below, which would reduce the impact to a less than significant level.

Mitigation Measures for Impact L-2: Project Operation would permanently disturb land uses through elimination of dispersed recreation and loss of forest habitat, and in being inconsistent with Forest Service land use zone objectives

- USFS 1 Condition No. 1—Requirement to Obtain a Forest Service Special-Use Authorization.**
- USFS 3 Condition No. 3—Forest Service Approval of Final Design.**
- USFS 4 Condition No. 4—Approval of Changes.**
- USFS 5 Condition No. 5—Consultation.**
- USFS 6 Condition No. 6—Surrender of License or Transfer of Ownership.**
- USFS 16 Condition No. 16—Valid Claims and Existing Rights.**

- USFS 17 Condition No. 17—Compliance with Regulations.**
- USFS 18 Condition No. 18—Protection of United States Property.**
- USFS 20 Condition No. 20—Surveys, Land Corners.**
- USFS 21 Condition No. 21—Damage to Land, Property, and Interests of the United States.**

E.7.2.5 Wilderness and Recreation

Impacts to wilderness and recreation from the generation component of the LEAPS Generation and Transmission Alternative are presented in this section. Impacts from the transmission component would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.5, above.

Environmental Setting

The City of Lake Elsinore has extensive residential and recreation-based commercial development around the lake. Lake Elsinore is an important regional resource for water-based recreation activities at an urban-wildland interface. The urban setting includes highly developed recreation facilities for boating, day and overnight use, fishing access at parks, RV and tent campgrounds, and resorts. The most important condition affecting recreation use at Lake Elsinore is the reservoir level. The proponents report that between 1992 and 1999, the surface elevation of Lake Elsinore fluctuated 40 feet, between 1,229 and 1,259 feet above mean sea level (msl). According to the Santa Ana Water Board, at lake levels below 1,240 feet msl water quality declines substantially, impacting recreational use. At low reservoir levels, this shallow lake's water temperature climbs, contributing to hyper-eutrophic conditions characterized by a cycle of excessive algal growth, low dissolved oxygen, and fish kills (see Section E.7.1.12, Water Resources, for a more thorough discussion of water quality in Lake Elsinore). As of October 15, 2007, the lake water level was 1,242.67 feet (City of Lake Elsinore, 2007).

The City of Lake Elsinore's 2000 population was approximately 35,000. Lake Elsinore provides recreational opportunities for the nearby City of Riverside (2000 population of 255,166), as well as the rest of Riverside County (2000 population of an additional 1.5 million). Recreational users also come from nearby Orange County, (2003 population of 2.9 million) (U.S. Census Bureau, 2005; FERC, 2007).

An important recreational resource in the vicinity of the LEAPS alternative is the San Mateo Canyon Wilderness Area in Cleveland National Forest. This 39,450-acre wilderness is located approximately 0.5 miles southwest of the proposed Decker Canyon reservoir site (Figure E.7.2-1). The Wilderness Area is managed by the Cleveland National Forest, and trails within the Wilderness Area are limited to non-motorized forms of access. No project facilities would be located within the Wilderness Area, although the Decker Canyon reservoir and the Lake-Pendleton 500 kV line (discussed in Section E.7.1, above) would be nearby.

In addition to San Mateo Canyon Wilderness Area, several other areas of regional recreational importance are found in the vicinity of the alternative. The lands associated the LEAPS Generation and Transmission Alternative support hiking, equestrian use, OHV use, scenic driving, camping, wildlife observation, mountain biking, and hang gliding. Nearby urban areas have sports fields, gymnasiums, playgrounds, and community parks.

Ortega Highway provides access to recreational resources in the vicinity. The highway is popular for scenic driving, cycling, and commuting, and is eligible for State Scenic Highway designation. Another main route of access is Interstate 15, located east of the project and Lake Elsinore. Paved and unpaved routes connect these two main access routes, providing access to public and private lands. South Main Divide Road is an important route from Ortega Highway that leads to the Morgan Trailhead, which is one of four points of entry for visitors to the San Mateo Canyon Wilderness.

The recreational opportunities available in Cleveland National Forest include day and overnight use, hiking, backpacking, mountain biking, wildlife observation, OHV use, and hang gliding. The USFS-operated campgrounds in the vicinity of the project include El Cariso and Wildomar. The Cleveland National Forest also provides 327 miles of trails for non-motorized use and 54 miles of designated routes for OHV use. The 360-acre Wildomar OHV area is designated for OHV use and includes eight miles of trails and a nearby campground. Boat launches at the lake are provided at the City Public Launch (operated by the City of Lake Elsinore) and at nine commercial launches associated with the privately owned resorts and campgrounds. Boating on Lake Elsinore has a limited capacity of 500 active boats. In 2000, 41,484 annual boating passes were sold. In addition to the multiple public facilities and accessible places in the vicinity of the LEAPS project, as many as 12 commercial businesses provide campgrounds and resorts for recreational vehicle, tent, and group use.

Historically, Lake Elsinore was stocked with a variety of native and non-native fish. As early as the 1890s, northern largemouth bass, green sunfish, and common carp were stocked in the lake. Through the years, often following fish kills, species of bass, bullheads, sunfish, crappies, and shad also were stocked in the lake in an effort to create a recreational fishery. The common carp, one of the first fish species planted in Lake Elsinore, is prevalent in the lake. Carp tend to be abundant in eutrophic lakes and reservoirs with silty bottoms and submerged aquatic vegetation. They are tolerant of high turbidity, high temperatures, and low DO concentrations and typically do not go below 100 feet (Moyle, 2002). The common carp is now considered a nuisance species. Following surveys in 2003, the City of Lake Elsinore implemented a carp removal program, and an estimated 291,000 carp were removed from the lake (EIP Associates, 2005).

Estimated visitor use at Lake Elsinore in 2000 was approximately 41,250 recreation visitor-days from local residents, and 177,300 visitor-days from out-of-area visitors. Trips from both groups of users were primarily boating-related, and only an estimated 5 to 20 percent of the use was associated with angling.

Nearby, on public lands managed by the Cleveland National Forest, recreational use during 2001 was estimated at between 500,000 and 1 million visits, including an estimated 30,000 wilderness visits. It should be noted that this level of use is attributed to the entire 567,000-acre Cleveland National Forest, which includes areas not in the vicinity of the LEAPS project.

Environmental Impacts and Mitigation Measures

Table E.7.2-6 summarizes the wilderness and recreation impacts of the LEAPS generation component.

Table E.7.2-6. Impacts Identified – Wilderness and Recreation

Impact No.	Description	Impact Significance
LEAPS Generation Component		
WR-1	Construction activities would temporarily reduce access and visitation to recreation or wilderness areas	Class III
WR-2	Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value	Class I, II, III

Impact WR-1: Construction activities would temporarily reduce access and visitation to wilderness or recreation areas (Class III)

Construction activities would have temporary effects on reservoir-based recreation activities at Lake Elsinore. At Lake Elsinore, construction activity would occur within the lake (which would serve as the lower reservoir). A cofferdam would be constructed in the lake to allow construction of the tailrace, intake/outlet structure, and other infrastructure necessary for project operations. According to the proposed construction schedule, this would take place over a period of about three years. Public boating access would be restricted in the vicinity of the cofferdam and access road for public safety reasons. The boatable area lost to the navigational restriction at the inlet/outlet structure would be less than one acre, assuming boating would be restricted within 100 feet of the intake/outlet structure (FERC, 2007). This surface-area access reduction would be offset by WQ-PME-6, in which the proponents propose to pay an annual lake management fee to Elsinore Valley MWD for make-up water to maintain Lake Elsinore at elevation of 1,240 feet msl. Construction of the cofferdam and associated activities would require restricted public boating access for up to three years. The aesthetic effects (noise and visibility of construction activities) would not continue beyond the three-year construction phase of the project. Although this impact would be adverse, based on its limited scale it is considered less than significant (Class III).

No developed recreational facilities are located near construction activities that would take place at Lake Elsinore. Most of the developed recreational facilities (including sports fields, gymnasiums, playgrounds and parks) are located on the east side of the lake, and construction activities would occur in the vicinity of the southwest portion of the reservoir shoreline. Although there would be a general increase in vehicular traffic on local roads, most construction activities would not directly affect developed recreational facilities at Lake Elsinore.

Hang gliders currently launch from various points along South Main Divide Road in the vicinity of Decker Canyon. Increased traffic on South Main Divide Road associated with construction activity at the upper reservoir may temporarily disturb the visitation of some users but impacts would be less than significant (Class III). Displaced users could potentially use alternative launch sites during construction activities. (Impacts to hang gliding launch sites associated with transmission infrastructure are described in Section E.7.1.5, above).

No developed recreational facilities are located in the vicinity of the proposed Santa Rosa powerhouse/Midpoint Substation site; therefore, construction activities would not affect recreation there. It would be necessary to temporarily close an area greater than the footprint of the powerhouse and laydown area for public safety reasons, causing a temporary direct loss of public access to National Forest System land at the site. Following construction, the proponents propose several treatments of the construction laydown area, such as grading, seeding, and surface treatment to allow development of a recreational facility or administrative site but impacts would be less than significant (Class III).

The Decker Canyon reservoir site is located northwest of the Morgan Trail and would require no temporary or permanent re-routing of Morgan Trail. Regardless, increased traffic on South Main Divide Road and noise associated with construction of the upper reservoir at the Decker Canyon site would be apparent to visitors using the Morgan Trailhead. According to the proponents' construction schedule, construction traffic and high levels of noise would likely affect visitors during the third year of construction. Considering the proponents proposal to provide alternative sites for recreational access, there would be minimal effects on trailhead visitors during construction and impacts would be less than significant (Class III).

The proponents propose to remove or reduce the existing fish population via netting or rotenone poisoning during construction drawdown. Either action would remove undesirable fish such as carp and threadfin shad from Lake Elsinore. If netting is used, the mesh size of the nets used may not capture juveniles and may capture desirable game fish as well. Rotenone poisoning of the fish population in the lake would kill desirable as well as undesirable fish; however, it would allow fisheries managers to restock the lake with desirable fish species and over the long term help to establish a desirable sports fishery. Netting rather than rotenone poisoning is the preferred approach to fisheries management. Fishery management during drawdown for other construction activity would not increase construction-related impacts beyond those that would already occur but impacts would be less than significant (Class III).

The impacts described above are considered adverse, but less than significant. No mitigation is required.

Impact WR-2: Presence of a transmission line or substation would permanently change the character of a recreation area, diminishing its recreational value (Class I for Decker Canyon, Class III for powerhouse site, Class II for other project facilities)

Because of safety considerations related to fluctuation of water depths resulting from generation and pumped storage operations, no water-related recreational activities would be provided at the upper reservoir; the reservoir would be fenced to prohibit public access. No developed recreation facilities are located in the vicinity of the Decker Canyon upper reservoir site.

The direct effect on dispersed recreation of a reservoir at the Decker Canyon reservoir site would include the loss of public access to approximately 100 acres of National Forest land that would be necessary for reservoir operations. This impacts is considered significant and unavoidable (Class I). Developed recreational facilities would not be provided at the Decker Canyon reservoir, although information signs could be provided to inform the public about the project, cultural, or natural resources.

A small area necessary for operating the proposed Santa Rosa powerhouse would be closed to public access for safety reasons, causing a direct loss of public access to National Forest System land; however, because the powerhouse itself would be underground, use of the site would shift from dispersed use to developed recreational use at a multi-use recreation site once the facility is finished. This impact would be adverse, but less than significant (Class III).

Potential project-related adverse effects on recreational fish populations from operations in Lake Elsinore would include mortality from entrainment (i.e., passing aquatic organisms through pump intake valves and turbines) and impingement (i.e., trapping aquatic organisms on intake screens or trashracks). Attraction flows and/or suction caused by the intakes could be too strong for some Lake Elsinore fish to escape, particularly juvenile fish with low swimming speeds, resulting in death or injury as they are pumped through the turbines to the upper reservoir. Fish that are entrained to the upper reservoir may not survive due to direct mortality from passage through the turbines, or delayed mortality from exhaustion, suffocation, or other physical injury. Fish that may survive transport through the turbines may not survive in the upper reservoir due to a lack of habitat, a forage base for food, and high reservoir fluctuations.

The proponents would operate the project with lake elevations between 1,240 and 1,247 feet msl consistent with the Lake Elsinore Stabilization and Enhancement Project. The proponents would pay a management fee to the Elsinore Valley MWD for water to maintain Lake Elsinore at a minimum water surface elevation of 1,240 feet msl or above. Maintenance of reservoir levels by the Elsinore Valley MWD would provide a predictable surface area for boating, which would be higher than historical

summer lake elevations. Stabilized lake levels would improve boating opportunities and the availability of beaches for swimmers and anglers. Daily cycling of water between Lake Elsinore and the upper reservoir during the proposed hydropower operations is expected to slightly improve water quality by increasing the level of dissolved oxygen in the water column (FERC, 2007). Expected marginal improvements to water quality, in combination with measure WR-PME-4 and the Mitigation Measures described below, would offset adverse effects on recreational angling in Lake Elsinore. The proponents propose to develop an annual fish stocking program for Lake Elsinore in consultation with the FWS, CDFG, and the Joint Watershed Authority (WR-PME-4). This measure, in combination with expected water quality improvements from pumping activities and the Mitigation Measures described below, would reduce recreational impacts from entrapment and entrainment to a less than significant level (Class II).

FERC-7 Environmental Measure 7—Entrainment Monitoring. Conduct entrainment monitoring for 1 year and once every 5 years over the term of any license issued to the project to determine the extent of fish entrainment and mortality at the Lake Elsinore intake/outlet structures and provide the monitoring results to CDFG, FWS, the State Water Board, and the Joint Watershed Authority, and, based on the results of entrainment monitoring, develop and implement a plan to mitigate for entrainment losses through measures, such as enhancing nearshore fish habitat or stocking fish, that would aid in establishment of naturally sustaining population of desirable sport fish.

FERC-17 Environmental Measure 17—Recreation Development Plan. Consult with the USFS to develop and implement a recreation development facility plan for a day-use recreation facility at the construction laydown area used during the construction of the upper reservoir on National Forest System lands or for an alternative use and/or location.

FERC-18 Environmental Measure 18—Recreation Plan. Develop and implement a recreation plan that provides for transferring of cleared land off National Forest System lands to a local entity and developing recreational facilities at the powerhouse location and operation and maintenance (O&M) funding sufficient to operate the facilities.

USFS-27 Condition No. 27—Recreation Facilities and Administration. Within one year of license issuance, the licensee shall file with the Commission a plan approved by the Forest Service for the development of recreation facilities to offset the loss of recreation opportunities on National Forest System lands associated with this project. The plan shall address the development, operation and maintenance of recreation facilities on National Forest System lands to include the project equipment and material laydown area as well as for other locations as approved by the Forest Service.

Creation of enhanced or new recreation facilities and opportunities elsewhere would help reduce the impact of removing land from recreational use. However, because land would be permanently removed from public access for Decker Canyon Reservoir, this would remain an unmitigable impact (Class I).

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E.7.2.6 Agriculture

Impacts to agriculture from the generation component of the LEAPS Generation and Transmission Alternative are presented in this section. Impacts from the transmission component would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.6, above.

Environmental Setting

LEAPS generation facilities include existing Lake Elsinore lower reservoir, and proposed Decker Canyon upper reservoir, Santa Rosa Powerhouse, and water conduits including power shafts, power tunnel, penstocks, and tailrace tunnels. No DOC Farmlands, Active Agricultural Operations, or Williamson Act lands occur within the vicinity of the proposed LEAPS generation facilities (EVMWD, 2007).

No DOC Farmlands or Williamson Act lands were identified in the area; thus, no impacts to these resources would occur (No Impact). Impact AG-1 (Construction activities would temporarily or permanently convert DOC Farmland to non-agricultural use), Impact AG-3 (Presence of the transmission line would convert DOC Farmland to non-agricultural use), Impact AG-4 (Presence of the transmission line would interfere with Active Agricultural Operations), and Impact AG-5 (Presence of the transmission line would conflict with a Williamson Act contract) would not occur. No APMs regarding impacts to agriculture were presented by the proponents, no Mitigation Measures regarding impacts to agriculture are required or recommended by FERC, and no 4(e) terms and conditions or 10(a) recommendations regarding impacts to agriculture were offered by the Forest Service, Pacific Southwest Region.

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E.7.2.7 Cultural and Paleontological Resources

Impacts to cultural and paleontological resources from the generation component of the LEAPS Generation and Transmission Alternative are presented in this section. Impacts from the transmission would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.7, above.

Environmental Setting

Cultural resources record searches were conducted for the generation component of the LEAPS Generation and Transmission Alternative with a 0.5-mile search radius. Survey by SWCA and AE archaeologists combined with adequate previous surveys have resulted in intensive cultural resource surveys for 78.71 percent of the total generation component, including 100 percent of the Decker Reservoir site and the Santa Rosa Powerhouse/Midpoint Substation site. Six cultural resources have been identified within the study area for the generation portion of the LEAPS Generation and Transmission Alternative (see Table Ap.9B-119). Impacts associated with the transmission component of the LEAPS Generation and Transmission Alternative would be identical to those presented in Section E.7.1.7, above.

- Four of the resources are prehistoric in age, including bedrock milling sites. The NRHP/CRHR eligibilities of the four prehistoric cultural resources have not been determined.
- One of the resources is a historic Bungalow-style residence that has been evaluated as “significant locally,” but has not been formally evaluated for NRHP or CRHR eligibility.
- Lake Elsinore (P-33-11009) was recorded as a TCP in 1982 and USFS considers it eligible for the NRHP. It is the only TCP to have been identified thus far within the LEAPS Generation and Transmission Alternative. It is important to the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs.
- An additional four historic built environment resources have been identified within 0.5 miles of the LEAPS Generation and Transmission Alternative. Two are historical residences, one is the Ortega Highway, and the last is a hillside rock alignment: the Elsinore “E,” first aligned and whitewashed in 1923. The rock alignment has been determined eligible for NRHP listing by the USFS.

Paleontological Resources

The proposed Santa Rosa Powerhouse, Decker Canyon Reservoir, and Midpoint Substation project sites and construction staging areas are underlain by both Quaternary alluvial units and granitic rocks. Granitic rocks have no paleontological resources potential. Quaternary alluvium has a paleontological sensitivity ranging from low to high, depending on the age of the sediments. Refer to the setting for paleontological resources for the Lake-Pendleton 500 kV transmission line above for a description of the geologic units referenced in the tables below.

The paleontological sensitivity of the geologic units traversed by linear portion of the generation component of the LEAPS Generation and Transmission Alternative is shown in Table E.7.2-7. Areas determined to have paleontological sensitivity are located from MP 0.9 to MP 1.2.

Table E.7.2-7. Paleontological Sensitivity – Linear Portion of the Generation Component, LEAPS Generation and Transmission Alternative

Mileposts	Rock Units	Sensitivity	Fossil Localities
0-0.9	Granitic rocks, undivided	None	—
0.9 -1.2	Quaternary Older Fan/Alluvium	High	—

Environmental Impacts and Mitigation Measures

Table E.7.2-8 summarizes the cultural and paleontological resource impacts of the LEAPS generation component.

Table E.7.2-8. Impacts Identified – Cultural Resources

Impact No.	Description	Impact Significance
LEAPS Generation Component		
C-1	Construction of the project would cause an adverse change to known historic properties	Class I or II
C-3	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains	Class I or II
C-4	Construction of the project would cause an adverse change to Traditional Cultural Properties	Class I or II
C-5	Operation and long-term presence of the project would cause an adverse change to known historic properties	Class I or II
C-6	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources	Class II
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources	Class II

Impacts to cultural and paleontological resources due to the generation component of the LEAPS Generation and Transmission Alternative are discussed below. Impacts related to the transmission component of this Alternative are discussed in Section E.7.1.7, above. Impacts are classified as Class I (significant, cannot be mitigated to a level that is less than significant), Class II (significant, can be mitigated to a level that is less than significant), Class III (adverse, but less than significant), or Class IV (beneficial impacts).

By letter of February 18, 2005, the proponents filed a revised draft HPMP (February 2005) that specifies a variety of measures for protection and management of historic properties both during construction and during subsequent operations and maintenance over the term of the license. The co applicants sent copies of this revised draft HPMP to the Tribes, the USFS, BLM, and Camp Pendleton for review and comment. The HPMP is summarized in Section E.7.1.7, above.

There are six known cultural resources located within the generation portion of the LEAPS Generation and Transmission Alternative. Direct impacts have been identified for all six (6) of these resources (see Table Ap.9B-120). There is also the potential to encounter undiscovered cultural resources during project construction. Lake Elsinore (P-33-11009) has been determined NRHP eligible by the USFS as a TCP. The NRHP/CRHR eligibilities of the remaining five known cultural resources have not been determined. Formal eligibility determinations would be made by FERC prior to construction for any resources that would be affected if the LEAPS Generation and Transmission Alternative is built.

There are four historic built resources within 0.5 miles of the LEAPS Generation and Transmission Alternative (see Table Ap.9B-121). The Elsinore “E” has been determined NRHP eligible; however, indirect visual impacts to this resource would not be significant (Class III). Similarly, indirect visual impacts to the portion of Ortega Highway (P-33-7234) within 0.5 miles of the alternative would not be significant (Class III). Two of the structures are “locally significant” residences.

Because known cultural resources that are potentially eligible for the NRHP or CRHR exist within the alternative corridor or impact areas, as well as the potential for encountering undiscovered cultural resources, the following impacts would occur during project construction or operation.

Impact C-1: Construction of the project would cause an adverse change to known historic properties (Class I or II)

Avoidance is recommended for all cultural resources within the LEAPS Generation and Transmission Alternative project areas. If impacts cannot be avoided, those to CA-RIV-5877, CA-RIV-5878, CA-RIV-7659, and P-33-7221 can likely be mitigated to a level that is less than significant (Class II). Impacts to the TCP, Lake Elsinore, can potentially be reduced to a level that is less than significant (Class II), but may remain unavoidably significant (Class I; see Impact C-4 below for more detail).

Mitigation Measures for Impact C-1: Construction of the project would cause an adverse change to known historic properties

- C-1a Inventory and evaluate cultural resources in Final APE.**
 - C-1b Avoid and protect potentially significant resources.**
 - C-1c Develop and implement Historic Properties Treatment Plan.**
 - C-1d Conduct data recovery to reduce adverse effects.**
 - C-1e Monitor construction at known ESAs.**
 - C-1f Train construction personnel.**
- FERC EM-25 Environmental Measure 25.**
- USFS-28 Condition No. 28—Heritage Resources Management Plan.**

Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or II)

Types of subsurface features that could be encountered along the LEAPS Generation and Transmission Alternative include prehistoric resources such as buried living surfaces, artifact deposits, hearths, burials, and cremations. Historical resources that could be unearthed during project construction include refuse pits, privies, and structural foundations. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, or excavation associated with tunnel construction. Impacts to most unknown significant prehistoric and historic archaeological sites would be mitigated to a level that is less than significant (Class II) by implementing Mitigation Measures C-1c, C-1d, C-1f, C-2a, C-3a, FERC EM-25, and USFS-28. However, effects related to Native American human remains would be significant (Class I) even with mitigation.

Mitigation Measures for Impact C-3: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains

- C-1c Develop and implement Historic Properties Treatment Plan.**
 - C-1d Conduct data recovery to reduce adverse effects.**
 - C-1f Train construction personnel.**
 - C-2a Properly treat human remains.**
 - C-3a Monitor construction in areas of high sensitivity for buried resources.**
- FERC EM-25 Environmental Measure 25.**
- USFS-28 Condition No. 28—Heritage Resources Management Plan.**

Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties (Class I or II)

To date, one TCP has been identified within the LEAPS Generation and Transmission Alternative. Lake Elsinore (P-33-11009) was recorded in the state inventory in 1982, and USFS considers it eligible for listing on the NRHP. It is viewed by the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. FERC, as the Federal Lead Agency under NEPA and Section 106 of the NHPA has initiated government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. That consultation will determine whether there are other TCPs that could be affected within the LEAPS Generation and Transmission Alternative. Though impacts to TCPs are often significant (Class I), mitigation, as defined by NEPA (in King, 2003), can include “minimizing impacts by limiting the degree or magnitude of the action...,” rectifying or reducing the impact, and/or “compensating for the impact by replacing or providing substitute resources or environments,” which when properly coordinated with Native Americans or other traditional groups can potentially reduce the impact to less than significant (Class II), but in some cases, impacts would remain significant (Class I). Implementation of Mitigation Measure C-4a (Complete Consultation with Native Americans and other Traditional Groups), along with FERC EM-25 and USFS-28 could potentially reduce impacts to TCPs to a level that is less than significant (Class II).

Mitigation Measure for Impact C-4: Construction of the project would cause an adverse change to Traditional Cultural Properties

C-4a Complete consultation with Native American and other Traditional Groups.

FERC EM-25 Environmental Measure 25.

USFS-28 Condition No. 28—Heritage Resources Management Plan.

Impact C-5: Operation and long-term presence of the project would cause an adverse change to known historic properties (Class I or II)

Direct and indirect impacts would occur to historic properties within and in the vicinity of the project area during operation and long-term presence of the project. There are two “locally significant” historical residences within 0.5 miles of the alternative and a third within the alternative that may be NRHP or CRHR eligible and are potentially subject to long-term and operational impacts. Lake Elsinore is within the alternative, has been recommended NRHP eligible as a TCP, and is potentially subject to long-term and operational impacts. Direct impacts to these resources or other newly identified resources could result from maintenance or repair activities, while increased erosion could result from lake fluctuations or water transmission failures. These impacts would be significant, but can be mitigated to a level that is less than significant (Class II) by implementing site protection measures and monitoring procedures, as detailed in Mitigation Measure C-5a (Protect and monitor NRHP and/or CRHR-eligible properties), as well as implementation of Mitigation Measures C-2a (Properly treat human remains), C-4a (Complete consultation with Native Americans and other traditional groups), FERC EM-25, and USFS-28. Impacts to human remains would remain significant (Class I).

Mitigation Measures for Impact C-5: Project operation and maintenance would cause an adverse change to known historic properties

C-1b Avoid and protect potentially significant resources.

C-1c Develop and implement Historic Properties Treatment Plan.

- C-2a** Properly treat human remains.
- C-4a** Complete consultation with Native American and other Traditional Groups.
- C-5a** Protect and monitor NRHP and/or CRHR-eligible properties.
- FERC EM-25** Environmental Measure 25.
- USFS-28** Condition No. 28—Heritage Resources Management Plan.

Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources (Class II)

Three historic architectural or built environment resources, one within and two within 0.5 miles of the LEAPS Generation and Transmission Alternative are potentially subject to long-term visual impacts. Each of these resources has been determined “locally significant,” but remains to be formally evaluated for NRHP or CRHR eligibility. Visual screening of the project components would reduce impacts to these historical resources to a level that is less than significant (Class II).

Mitigation Measures for Impact C-6: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources

- C-6a** Reduce adverse visual intrusions to historic built environment properties.

Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources (Class II)

The potential to discover paleontological resources during construction of the proposed LEAPS Generation and Transmission Alternative ranges from zero to high, resulting in potentially significant impacts (Class II). Potentially significant impacts could be mitigated through implementation of the measures listed below.

Mitigation Measure for Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources

Implementation of the approved HPMP and the following mitigation measures would reduce project effects to a level that is less than significant (Class II).

- PAL-1a** Inventory and evaluate paleontological resource in the Final APE.
- PAL-1b** Develop Paleontological Monitoring and Mitigation Plan.
- PAL-1c** Monitor construction for paleontology.
- PAL-1d** Conduct paleontological data recovery.
- PAL-1e** Train construction personnel.
- USFS-28** Condition No. 28—Heritage Resources Management Plan.

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E.7.2.8 Noise

Noise-related impacts from the generation component of the LEAPS Generation and Transmission Alternative are presented in this section. Transmission impacts would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.8, above.

Environmental Setting

The LEAPS Generation and Transmission Alternative facilities include Lake Elsinore lower reservoir, Decker Canyon upper reservoir, Santa Rosa Powerhouse, and water conduits including power shafts, power tunnel, penstocks, and tailrace tunnels. The ambient noise levels and general environmental setting for this alternative are described in Section E.7.1.8.

Noise Sensitive Receptors. The area surrounding the proposed Santa Rosa powerhouse site includes residential communities to the north and northeast and Butterfly Elementary Visual and Performing Arts Magnet School. The closest residential area to the proposed powerhouse site is an apartment complex located approximately 410 feet away. The elementary school and ball park are located approximately 720 feet from the powerhouse site. All other areas in the vicinity of the site are forested or undeveloped land.

Environmental Impacts and Mitigation Measures

Table E.7.2-9 summarizes the noise impacts of the LEAPS generation component.

Table E.7.2-9. Impacts Identified – Noise

Impact No.	Description	Impact Significance
LEAPS Generation Component		
N-1	Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances	Class I
N-2	Construction activity would temporarily cause groundborne vibration	Class II
N-3	Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components	Class III
N-4	Routine inspection and maintenance activities would increase ambient noise levels	Class III

Impacts of the LEAPS Transmission-Only Alternative are presented in Section E.7.1.8, above.

Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances (Class I)

Construction of the powerhouse at the proposed Santa Rosa site and reservoir would result in an increase of noise levels from construction activities at sensitive land use receptors including nearby residences, schools, churches, and parks. During project construction, the highest noise-generating activities are expected to be blasting, earth moving, including excavation, grading, and filling. Aside from blasting, the maximum noise level generated during project construction is expected to be 98 dBA at 50 feet (FERC, 2007). The proponents would conduct blasting in a highly controlled manner involving time delays between numerous small micro blasts to fracture rock without injecting material and to minimize noise effects on nearby residents.

The closest sensitive land uses to the Santa Rosa powerhouse occur at distances of 400 to 500 feet. Rock drilling is estimated to generate noise levels of 70 dBA or less at these locations during powerhouse construction. Rock drilling, if necessary, would only generate loud noises during early stages of construction and would be expected to be substantially attenuated at greater depths of excavation. Construction of tunnels and electricity generation facilities would all occur underground. Construction would adversely affect residences near the powerhouse and along access routes. This impact would be significant without additional measures. Mitigation Measure L-1a would be appropriate for notification of residences (see Section D.4, Land Use). By establishing best management practices for activities likely to violate local noise standards, Mitigation Measure N-1a, in combination with the notification required by Mitigation Measure L-1a, would reduce this impact to the extent feasible, but the substantial noise increase from powerhouse construction would be significant and unavoidable (Class I).

Noise attributed to upper reservoir construction would be substantially attenuated before it would reach sensitive receptors, and the noise level increase attributed to the construction vehicles driving on Ortega Highway would not be likely to cause a substantial increase over existing levels. Therefore, construction of the reservoir would not result in significant noise effects (Class III).

Mitigation Measures for Impact N-1: Construction noise would substantially disturb sensitive receptors and violate local rules, standards, and/or ordinances

L-1a Prepare Construction Notification Plan.

N-1a Implement Best Management Practices for construction noise.

Impact N-2: Construction activity would temporarily cause groundborne vibration (Class II)

Vibration levels from construction equipment, rock drilling, and blasting would be perceptible at locations adjacent to the work. This impact would be significant because blasting could result in physical damage of vulnerable structures. Managing blasting and its effects on nearby land uses and structures through a detailed blasting plan would reduce the adverse effects of blasting. A blasting plan would include the blasting methods, surveys of existing structures and other built facilities, and distance calculations to estimate the area of effect of the blasting. With advance notification (Mitigation Measure L-1a) and an established blasting plan (Mitigation Measure N-2a), the impacts from construction-related groundborne vibration would be adverse but less than significant (Class II).

Mitigation Measure for Impact N-2: Construction activity would temporarily cause groundborne vibration

L-1a Prepare Construction Notification Plan.

N-2a Avoid blasting where damage to structures could occur.

Impact N-3: Permanent noise levels would increase due to corona noise from operation of the transmission lines and noise from other project components (Class III)

The Santa Rosa powerhouse would include noise sources with the major machinery such as pumps, turbines, and transformers associated. The equipment supporting powerhouse operations would be placed underground and would not affect surface noise levels (FERC, 2007). The proponents would be required to meet Riverside County attenuation standards, which would mitigate any noise effects from operation to less than significant levels (Class III).

Impact N-4: Routine inspection and maintenance activities would increase ambient noise levels (Class III)

Routine operation and maintenance of the Santa Rosa powerhouse would introduce new noise sources to the area, but it would not a substantial increase in vehicular traffic. An overhead crane and auxiliary equipment at the powerhouse would be new stationary noise sources, which would be designed with sufficient attenuation to meet Riverside County standards (i.e., 65 dBA in daytime and 45 dBA at night-time) at the boundary of the nearest residential properties. Noise from routine maintenance of the powerhouse would be less than significant (Class III).

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E.7.2.9 Transportation and Traffic

The transportation and traffic impacts of the generation component of the LEAPS Generation and Transmission Alternative are presented in the following section. Impacts related to the transmission component of this alternative would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.9, above, and are not discussed here.

Environmental Setting

The Lake Elsinore area is accessible by Interstate 15 from the north and south and by Ortega Highway from the west. Orange County has designated Ortega Highway as a primary arterial highway and the state of California has designated Ortega Highway as a State Legal Advisory Route, which limits the size and length of trucks allowed to use the route (Kingpin to Rear Axle not to exceed 30 feet). The proposed upper reservoir site would be accessed via South Main Divide Road, a Riverside County-maintained, paved, two-lane road with access off of Ortega Highway. The intersection of South Main Divide Road and Ortega Highway is stop sign controlled. South Main Divide Road provides access to the upper mountainous areas within the Cleveland National Forest and residences in the Rancho Capistrano community and other unincorporated areas.

The proposed Santa Rosa powerhouse site would be primarily accessed via Santa Rosa Drive, upslope from Grand Avenue, which generally runs north-south along the western edge of Lake Elsinore through Lakeland Village. Grand Avenue is divided by a two-way left turning lane. Ortega Highway intersects Grand Avenue less than one mile north from the proposed powerhouse and substation at a stop light. The posted speed limit just north of this intersection is 40 mph. Grand Avenue connects with roadways that provide access to and from the Interstate 15 and Lake Elsinore.

According to a study carried out by the proponents, under existing conditions, the street and highway segments that would be affected by the LEAPS project are currently all operating at an acceptable level of service (LOS) during both morning and evening peak hours. Under the existing conditions plus ambient growth scenario (assessed by applying a growth rate of 2 percent per year [compounded] to existing traffic volumes over the 7-year period from 2003 to 2010), the five street segments are expected to maintain their acceptable LOS. Under the growth scenario, the Ortega Highway-Grand Avenue intersection worsens to a LOS rating of “E,” indicating that the intersection would require improvement (FERC, 2007).

Environmental Impacts and Mitigation Measures

Table E.7.2-10 summarizes the transportation and traffic impacts of the LEAPS generation component.

Table E.7.2-10. Impacts Identified – Transportation and Traffic

Impact No.	Description	Impact Significance
LEAPS Generation Component		
T-1	Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow	Class II
T-2	Construction would temporarily disrupt the operation of emergency service providers	Class II
T-4	Construction would temporarily disrupt pedestrian and/or bicycle movement and safety	Class II

Table E.7.2-10. Impacts Identified – Transportation and Traffic

Impact No.	Description	Impact Significance
T-5	Construction vehicles and equipment would potentially cause physical damage to roads in the project area	Class II
T-7	Construction would result in the short-term elimination of parking spaces	Class II
T-9	Construction would generate additional traffic on the regional and local roadways	Class I

Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow (Class II)

Construction of the generation components of the LEAPS Generation and Transmission Alternative would require the use of heavy equipment and movement of large amounts of earth; this would potentially cause temporary road and lane closures that would affect traffic flow. This is considered a significant impact (Class II) that could be mitigated to a less than significant level through implementation of Mitigation Measure T-1a, which would ensure that traffic delays are not experienced during peak hours as well as requiring the project owner to coordinate with appropriate jurisdictions (Caltrans, County of San Diego and Camp Pendleton Marine Corps Base) to determine when the least amount of traffic may experience lane/road closures in order to minimize impacts on transportation.

Lane closures on CNF would also potentially occur on South Main Divide Road and Ortega Highway (SR74), and this would be considered a significant impact. The Forest Service has put forth Condition 26, below, for management of traffic impacts within the CNF. This measure would reduce impacts of lane closures on CNF to a less than significant level (Class II).

Mitigation Measures for Impact T-1: Construction would cause temporary road and lane closures that would temporarily disrupt traffic flow

USFS-26 Condition No. 26—Road and Traffic Management Plan.

FERC-22 Environmental Measure 22—Traffic Management Plan: Forest.

FERC-23 Environmental Measure 23—Traffic Management Plan: Non-Forest.

T-1a Restrict lane closures.

Impact T-2: Construction would temporarily disrupt the operation of emergency service providers (Class II)

Construction activities could potentially interfere with emergency response by ambulance, fire, paramedic, and police vehicles. Potential roadway segments that would be most impacted would be two-lane roadways, which provide one lane of travel per direction (Ortega Highway and South Main Divide Road). Additionally, there is a possibility that emergency services would be needed at a location where access is temporarily blocked by the construction zone. Temporary disruptions of the operation of emergency service providers is considered significant (Class II). This impact could be mitigated to a level that is less than significant through implementation of Mitigation Measure T-2b, which requires the proponent to coordinate in advance with emergency service providers to avoid restricting movements of emergency vehicles.

Mitigation Measure for Impact T-2: Construction would temporarily disrupt the operation of emergency service providers

T-2b Coordinate with Emergency Service Providers.

Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety (Class II)

Bicycle and pedestrian circulation would be significantly affected by reservoir construction activities within CNF if pedestrians and bicyclists were unable to pass through the construction zone or if established pedestrian and bike routes were blocked. Significant impacts to bicycle circulation would most likely occur on South Main Divide Road due to construction laydown areas being located directly adjacent to the road, and significant impacts to pedestrian circulation would occur at the Morgan Trailhead, the Tenaja Trailhead, and Horsethief Trail due to the use of heavy equipment in these locations. Potential impacts to pedestrian and bicycle circulation would be reduced to a less than significant level with the implementation of Mitigation Measures T-4a and WR-1b (Class II) because alternative pedestrian and bicycle routes would be established around the construction zone for safe passage, and temporary detours for trail users within CNF would be implemented. Additional impacts to trail users are described in Section E.7.1.5, Wilderness and Recreation.

Mitigation Measures for Impact T-4: Construction would temporarily disrupt pedestrian and/or bicycle movement and safety

T-4a Ensure pedestrian and bicycle circulation and safety.

WR-1b Provide temporary detours for trail users.

T-7a Notify public of potential short-term elimination of parking spaces.

Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area (Class II)

Although grading quantities in the areas of the proposed upper reservoir have been designed to be balanced, there could potentially be a significant number of trucks hauling earth between the proposed Santa Rosa powerhouse to the upper reservoir site and to other off-site locations. Based on the potentially large number of heavy truck trips generated by the proposed actions, the effects on pavement could be substantial—particularly on Grand Avenue and smaller roads such as South Main Divide Road that are not engineered for substantial, repetitive, heavy truck traffic. Potential effects would be physical damage to roadways associated with breaks in the pavement, which could increase to significantly cracked or destroyed roadways. Damage to roadways is considered a significant impact (Class II) that could be mitigated through implementation of the following safety and compensatory mitigation measures.

Mitigation Measures for Impact T-5: Construction vehicles and equipment would potentially cause physical damage to roads in the project area

USFS-11 Condition No. 11—Road Use.

T-1a Restrict lane closures.

T-1b Repair damaged roads.

Impact T-7: Construction would result in the short-term elimination of parking spaces (Class II)

Transmission line construction could result in short-term elimination of parking spaces near the generation facilities. This impact is considered significant, as no compensatory parking areas are proposed (Class II). To ensure that parking is not unnecessarily impacted during construction, Mitigation Measures T-7a is required in order to notify the public of temporary elimination of parking spaces and where temporary spaces will be relocated, as applicable.

Mitigation Measure for Impact T-7: Construction activities would cause a temporary disruption to rail traffic or operations

Impact T-9: Construction would generate additional traffic on the regional and local roadways (Class I)

During construction, a wide range of vehicles, including heavy trucks used to transport materials and equipment between the powerhouse and the upper reservoir sites would use South Main Divide Road, Ortega Highway, and Grand Avenue as well as other auxiliary roads depending on final design plans. The proponents propose that there would be a balance between the excavated and fill material throughout the project site. To achieve this balance, material excavated at the lower project sites would be transported by trucks to the upper reservoir to construct the impoundment dam. 73,750 truck loads are approximated, and using the proponents' volume estimates for peak hour times for the entire day, the maximum number of one-way trucks available to haul material away would be 63 at 288 truckloads per day. As such, it would take about 256 days to haul the material from the bottom sites to the upper reservoir area. Total truck traffic would be twice this amount because trucks would likely be running both directions. Construction trucks would drive on Grand Avenue between Santa Rosa Drive and Ortega Highway (0.9 miles), on Ortega Highway between Grand Avenue and South Main Divide Road (5.1 miles), and on South Main Divide Road between Ortega Highway and Decker Canyon upper reservoir (1.7 miles), a 1,590-foot elevation change in total.

The proponents state that an impervious clay core may be required for upper reservoir construction. The source of the material is specified by the proponents as the Pacific Clay site in Alberhill, a 6.4 mile drive northeast of the project area accessible via Grand Avenue or Interstate 15. An additional option proposed by the proponents would be to import bentonite clay and mix it with materials present at the site (at an unspecified ratio) to produce an impervious core. For this assessment, a worst-case assessment of clay importation from Alberhill is assumed, and the effects of importing bentonite to the site would be less. Once fill sources, volumes, and dam designs are finalized, better trip generation estimates could be made (FERC, 2006). Assuming Alberhill clay is required to line the bottom of the upper reservoir and using the same 288 number of one way trips, it would take about 21,500 hauling trips to get 150,000 cubic yards from Alberhill to the upper reservoir (accounting for the return trip would double this number). This equals about 75 days.

Ortega Highway is a steep, winding, two-lane highway and having 10 to 15 fully loaded trucks on the highway at the same time would substantially reduce the flow of traffic.

Residents of Rancho Capistrano would be subject to truck traffic and could experience delays or regulated travel depending on final construction and traffic plans. Effects from construction would last throughout the construction phase for an estimated 4 years. In addition, there would be some very minor traffic effects from the arrival and departure of employees. The increase in traffic and potential lane and/or business/residential access restriction due to construction activities would cause a significant impact.

Traffic along Grand Avenue could be affected if special handling of lakebed materials is needed. Excavations from the bottom of Lake Elsinore could produce sediment material with toxic properties. If special handling of the material is required, this could generate additional traffic and or lane closures on roadways in the project vicinity depending on the final disposal site and preferred route. In addition, traffic on Grand Avenue would be affected during road closures that would be required during tailrace tunnel construction. To mitigate potential effects on the traffic resources at the Grand Avenue/Ortega Highway intersection Mitigation Measure T-9b would be required. This measure requires adding a second left turn lane or through lanes on Grand Avenue.

Due to the magnitude of construction activities, the overall impact to traffic on regional and local roadways would be significant and unavoidable (Class I). Nonetheless, the following mitigation measures would be required to reduce impacts to the extent feasible.

Mitigation Measures for Impact T-9: Construction would generate additional traffic on the regional and local roadways

FERC-22 Environmental Measure 22—Traffic Management Plan: Forest.

FERC-23 Environmental Measure 23—Traffic Management Plan: Non-Forest.

USFS-26 Condition No. 26—Road and Traffic Management Plan.

T-9a Prepare Construction Transportation Plan.

T-9b Add traffic lanes on Grand Avenue.

T-9c Prepare Construction Transportation Plan—Riverside County. Where construction traffic has the potential to significantly impact regional and local roadways by generating additional traffic, the proponent shall prepare a Construction Transportation Plan (CTP) describing alternate traffic routes, timing of commutes, reduction in crew related traffic and other mitigation methods for reducing construction generated additional traffic on regional and local roadways. Within Riverside County the CTP must provide improvements or other measures to mitigate traffic impacts from reducing the existing LOS or to cause it to be lower than a LOS C during any peak hour. The CTP must provide improvements or other measures to mitigate traffic impacts to avoid reduction in LOS below C. The proponent shall submit the Construction Transportation Plan to Riverside County for approval prior to commencing construction activities.

Operational Impacts of Generation

Operation and maintenance activities would require only minimal personnel and use of vehicles. Therefore, operation of the project would not increase the traffic on roadways, create traffic delays, nor affect air navigation; therefore, project operations would have no impacts on transportation and traffic (No Impact).

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E.7.2.10 Public Health and Safety

This section evaluates impacts to public health and safety as a result of construction and operation of the generation component of the LEAPS Generation and Transmission Alternative. Impacts to public health and safety of the transmission component of the LEAPS Generation and Transmission Alternative would be identical to those presented for the LEAPS Transmission-Only Alternative, in Section E.7.1.10, above, and are not analyzed here.

Environmental Setting

The LEAPS generation facilities are located adjacent to the western edge of Lake Elsinore and on the eastern slopes of the mountains west of the lake. Lake Elsinore has extensive residential development around the reservoir; the reported population of this community in 2000 was approximately 35,000 people. The facilities located on the western side of the reservoir are in the community of Lakeland Village, which consists of a mix of newer high density and older medium density residential developments, scattered rural residences, and scattered commercial businesses.

Database Search. New environmental databases (EDR, 2007a,b) were obtained and reviewed for the generation-related components of the LEAPS project. Based on review of the EDR environmental databases, there are no known contaminated sites and only one hazardous material site within 0.25 miles of the generation-related components with potential to impact the project. The site is summarized in Table E.7.2-11.

Table E.7.2-11. Identified Hazardous Material Sites within 0.25 Miles of the LEAPS Generation Components

EDR Map ID ¹	Site Name	Site Address	Database Lists ²	Comments
3	WHI James Truck & Auto	16817 Grand Avenue, Lake Elsinore	RCRA-SQG, FINDS	Site is located approximately 800 feet southwest of Santa Rosa Powerhouse location

Source: EDR, 2007a.

1 EDR Environmental Information Data Site I.D.

2 FEDERAL RECORDS

RCRA-SQG: Resource Conservation and Recovery Act Information

FINDS: Facility Index System/Facility Registry System, contains both facility information and 'pointers' to other sources that contain more detail.

Environmental Impacts and Mitigation Measures

Table E.7.2-12 summarizes the public health and safety impacts of the LEAPS generation component.

Table E.7.2-12. Impacts Identified – Public Health and Safety (Contamination)

Impact No.	Description	Impact Significance
LEAPS Generation Component		
P-1	Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination	Class II
P-5	Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance	Class II
P-6	Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers	Class II

Table E.7.2-12. Impacts Identified – Public Health and Safety (Contamination)

Impact No.	Description	Impact Significance
P-7	Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites	Class II
P-8	Project construction would result in noxious gas release	Class III
P-9	Project construction would require use of a toxic substance, resulting in public exposure	Class II
P-10	Generation could cause contamination of project waters with hazardous materials	Class II

Impact P 1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination (Class II)

Hazardous materials, such as vehicle fuels and oils, would be used and stored during construction activities, resulting in a potential for soil contamination from improper handling, spills, or leaks. This would be a significant impact. Additionally, helicopters may be used to support construction activities in areas where access is limited or where there are environmental constraints to accessing the project area with standard construction vehicles and equipment. All helicopter construction and maintenance activities would be based at a fly yard. Refueling activities for the helicopters could potentially result in soil contamination from improper handling and storage of helicopter fuel at the staging areas or during refueling, a potentially significant impact. Implementation of the mitigation measures presented below would reduce this impact to less than significant (Class II). The full text of the mitigation measures appears in Appendix 12.

Mitigation Measure for Impact P-1: Improper handling and/or storage of hazardous materials during construction could cause soil or groundwater contamination

- P-1a** **Implement Environmental Monitoring Program.**
- P-1b** **Maintain emergency spill supplies and equipment.**
- P-1c** **Personnel trained in proper use and safety procedures for the chemicals used.** All personnel involved in using hazardous materials shall be trained in the proper use and safety procedures for the chemical and provided with the necessary Personal Protection Equipment (PPE). A Hazard Communication (HAZCOM) Plan with Material Safety Data Sheets on all hazardous materials used for the project shall be developed. [HS-APM-1]
- P-1d** **Personnel trained in refueling of vehicles.** Only personnel trained in refueling vehicles would be allowed to perform this operation. All refueling operation shall be in designated areas or performed by assigned vehicles. [HS-APM-2]
- P-1e** **Preparation of environmental safety plans including spill prevention and response plan.** All applicable environmental safety plans associated with hazardous materials shall be developed for the project. These plans include but are not necessarily limited to Hazardous Material Business (HMB) Plan; HAZCOM Plan; Spill Response Plan; 90-day temporary storage and disposal (TSD) facility permit; and SPCC Plan (only if storage is over 1,350 gallons at one location). [HS-APM-3]
- P-1f** **Applicant's and/or General Contractor environmental/health and safety personnel.** The applicant will assign an Environmental Field Representative and/or General Contractor assigned Health & Safety Office to the project. [HS-APM-8]
- P-1g** **Proper storage and disposal of generated waste.** All hazardous waste and solid waste shall be stored and disposed of in accordance with federal, State, and local regulations.

Whenever feasible, hazardous material minimization methods shall be employed and all hazardous materials recycled. [HS-APM-10]

Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance (Class II)

Soil or groundwater contamination could result from accidental spill or release of hazardous materials along the transmission alignment during maintenance operations. This could potentially result in exposure of maintenance workers and the public to hazardous materials; and could result in contamination to soil and/or groundwater. Implementation of the following mitigation measures would be required. These measures would reduce the likelihood of spills and would reduce any significant impacts of spills, but they would not completely prevent spills from occurring. However, in the event a spill were to occur, these mitigation measures would reduce the potential for contamination from such a spill and exposure of workers or the public to hazardous materials by ensuring that that any spilled material and any resulting surface contaminated soil would be quickly and correctly cleaned up and disposed of, resulting in limited to no exposure of hazardous materials to the environment and workers, a less than significant impact (Class II)

Mitigation Measure for Impact P-5: Soil or groundwater contamination could result from accidental spill or release of hazardous materials during operation and maintenance

- P-1c Personnel trained in proper use and safety procedures for the chemicals used.** [HS-APM-1]
- P-1e Preparation of environmental safety plans including spill prevention and response plan.** [HS-APM-3]
- P-1g Proper storage and disposal of generated waste.** [HS-APM-10]

Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers (Class II)

Herbicides used for vegetation control in the project ROW and around the project have the potential to harm personnel or members of the public if not handled appropriately. This is considered a significant impact (Class II) that can be mitigated through implementation of Mitigation Measures P-6a (Develop list of approved herbicides) and P-6b (Update and follow Sempra's Physical and Climatic Target Area Evaluation Form).

Mitigation Measure for Impact P-6: Herbicides used for vegetation control around towers and other project facilities could result in adverse health effects to the public or maintenance workers

- P-6a Develop list of approved herbicides.**
- P-6b Update and follow Sempra's Physical and Climatic Target Area Evaluation Form.**

Impact P-7: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites (Class II)

Excavations from the bottom of Lake Elsinore could produce lakebed sediment material with naturally toxic properties. This impact, should it occur, would be considered significant (Class II), and FERC Environmental Measure 19 (Lakebed Sediment Toxicity Plan) would be required to mitigate this impact to a less than significant level.

Mitigation Measure for Impact P-7: Excavation or grading could result in mobilization of existing soil or groundwater contamination from known sites

FERC-19 Environmental Measure 19—Lakebed Sediment Toxicity Plan. Develop and implement a plan to determine the toxicity of sediments in Lake Elsinore lakebed that would be disturbed by construction of the intake/outlet structure and to provide for appropriate handling and disposal if toxins are identified in the lakebed sediment prior to beginning construction of the intake/outlet structure in Lake Elsinore.

Impact P-8: Project construction would result in noxious gas release (Class III)

Construction of the generation component of the LEAPS Generation and Transmission Alternative creates two public health and safety concerns. First, the proponents indicate that during construction about 200,000 cubic yards of sediment would be displaced from the lakebed. Excavation from the bottom of Lake Elsinore could produce sediment material with toxic properties. Some lakebed sediments would be disturbed to prepare the construction area for “dry” construction (placement of a cofferdam). Construction of the intake/outlet structure would have relatively short-term effects on the disruption (displacement) of lakebed sediments and concurrent short-term effects on water quality. As put forth by the proponents, characterization of lakebed sediments would be completed prior to the start of construction. The organic matter and gasses associated with algal breakdown become trapped at the bottom of the lake, and exposing the sediments and bottom material to the atmosphere would allow this material to break down. The removal of the sediments from the water to the shore would expedite the off-gassing process, possibly producing a concentrated or objectionably odorous gas plume. These effects are expected to be short-term, and communities adjacent to the construction would be at highest risk of exposure; however, distant communities across the lake could potentially be affected, depending on the wind patterns and concentrations at the time of gas release. These foul-smelling gases are not expected to be toxic, and impacts are expected to be less than significant (Class III).

Impact P-9: Project construction would require use of a toxic substance, resulting in public exposure (Class II)

Rotenone may be used as a poison within Lake Elsinore to eliminate fish populations prior to reservoir drawdown. Rotenone is a naturally occurring chemical with insecticidal, acaricidal (mite and spider-killing) and piscicidal (fish-killing) properties, obtained from the roots of several tropical and subtropical plant species (PestNews, 2007). It is a selective, non-specific insecticide, used in home gardens for insect control, for lice and tick control on pets, and for fish eradications as part of waterbodies management. Both a contact and stomach poison to insects, it kills them slowly, but causes them to stop their feeding almost immediately. It exerts its toxic action by acting as a general inhibitor of cellular respiration. Rotenone is rapidly broken down in soil and water: its half-life in both is between one and three days. Nearly all its toxicity is lost in five to six days of spring sunlight, or two to three days of summer sunlight. It does not readily leach from soil and it is not expected to be a ground-water pollutant. However, research shows some concern about development of Parkinson’s Disease from chronic exposure to rotenone (Journal of Neuroscience, 2007).

Application of rotenone to Lake Elsinore would require temporary restriction of public access, and could have public health impacts should recreational users ignore these restrictions. These mitigation requirements are presented in Mitigation Measure P-9a, and would result in a less than significant impact (Class II). The following Forest Service condition would also be required.

Mitigation Measures for Impact P-9: Construction of generation facilities would result in noxious gas release and use of hazardous materials (Class II)

P-9a **Notify residents and recreational users of rotenone use.** At least 30 days prior to application of rotenone, the proponent shall post signs at all lakeshore recreation areas and shall publish notices in local newspapers, informing the public of the timing of planned rotenone application. The notice shall provide information on lake closure and potential health effects. In addition, the proponent shall patrol the lake at all recreation sites during the closure to ensure that no recreation takes place during the period of rotenone exposure.

USFS-22 **Condition No. 22—Risks and Hazards.** As part of the occupancy and use of the project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting NFS lands that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on National Forest System lands shall be performed after consultation with the Forest Service. In emergency situations, the Licensee shall notify the Forest Service of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not the Forest Service is notified or provides consultation; the Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Impact P-10: Generation could cause contamination of project waters with hazardous materials (Class II)

The operation of the LEAPS generation project would require the storage of more than 1,320 gallons of petroleum products, which as outlined in the mitigation below would require the development and implementation of a hazardous substances spill prevention and control plan. Construction and operation of the pumped storage generation project, and the associated storage of oils, fuels, and lubricants has the potential to introduce hazardous substances into project waters. The cycling of water between the upper and lower reservoirs, the fluctuating shoreline, and the maintenance of facilities and transmission lines could affect multiple water quality parameters within Lake Elsinore and San Juan and San Mateo Creeks, which could have resultant effects on public health.

As indicated in the City of Lake Elsinore's Background Report, a substantial number of hazardous sites exist throughout the Lake Elsinore area. The city acknowledges that there are a large number of businesses and other entities that generate, transport, store, treat, and/or dispose of hazardous wastes. However, based on a contaminated sites database search, no contaminated facilities exist either on or in close proximity to the LEAPS generation facility sites (EDR, 2007j).

Impacts to public health and safety resulting from operation of generation components would be mitigated to less than significant levels (Class II) through implementation of Forest Service 4(e) Condition No. 22 (Risks and Hazards).

Mitigation Measure for Impact P-10: Generation could cause contamination of project waters with hazardous materials

USFS-22 **Condition No. 22—Risks and Hazards.**

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E.7.2.11 Air Quality

Air quality impacts from the generation component of the LEAPS Generation and Transmission Alternative are discussed below. Impacts from the transmission component would be identical to those presented for the LEAPS Transmission-Only Alternative in Section E.7.1.11, and are not discussed here.

Environmental Setting

The environmental setting of the LEAPS Generation and Transmission Alternative would be identical to that of the LEAPS Transmission-Only Alternative, discussed in Section E.7.1.11, above.

Environmental Impacts and Mitigation Measures

Table E.7.2-13 summarizes the air quality impacts of the LEAPS generation component.

Table E.7.2-13. Impacts Identified – Air Quality

Impact No.	Description	Impact Significance
LEAPS Generation Component		
AQ-1	Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants	Class I
AQ-2	Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants	Class III
AQ-3	Power generated during transmission line operation would cause emissions from power plants.	Class I
AQ-4	Project activities would cause a net increase of greenhouse gas emissions	Class I

Air quality impacts of the LEAPS Generation and Transmission Alternative are discussed below. No agency or other entity proposed any measures to address potential effects on air quality during the LEAPS project public comment and consultation periods. No 4(e) terms and conditions or 10(a) recommendations regarding impacts to air quality were offered by the Forest Service, Pacific Southwest Region.

Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class I)

Development of the LEAPS pumped storage generation project would result in construction-related emissions from heavy-duty diesel and gasoline-powered construction equipment (e.g., ozone precursors, carbon monoxide, and PM10) and fugitive particulate matter (dust) from travel on unpaved surfaces. The impacts associated with heavy equipment, delivery and earth-moving trucks, worker vehicles, paints and dust from grading, surface preparation, and earth-moving equipment would be similar in nature to those that would occur for the Proposed Project. Estimates of construction activity and emissions by FERC (2007) for the types and number of construction equipment, number of construction personnel, and number of material delivery trips allow characterization of the construction air quality impacts from the LEAPS Generation and Transmission Alternative. The estimates of LEAPS construction emissions assume implementation of aggressive dust control measures.

Table E.7.2-14 shows that construction of both the LEAPS generation facilities and 500 kV Lake-Pendleton transmission line would exceed the thresholds and cause significant air quality impacts. Emissions would exceed the thresholds in Section D.11.4.1 and in Table E.7.1-25 and the SCAQMD localized significance thresholds. Depending on the construction schedule, these emissions could also exceed

the General Conformity *de minimis* levels. Accidental wildfire could cause adverse air quality impacts that would be avoided by reducing the likelihood of construction triggering a wildfire (described further in Section D.15). Construction emissions would not permanently affect visibility or vegetation in a federal Class I wilderness area, but federal Class I areas or State wilderness areas would temporarily be exposed to construction emissions duration of construction. The potential to deteriorate air quality related values (AQRVs) would be as described in Section D.11.6.

Available mitigation would include Mitigation Measures AQ-1a and AQ-1b for dust control and controlling equipment exhaust, respectively, and measures incorporating SDG&E’s relevant APMs listed in Table D.11-10. However, with mitigation, construction-phase emissions would still exceed the local significance thresholds and could expose sensitive receptors to substantial pollutant concentrations (Class I).

Mitigation Measures for Impact AQ-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants

- AQ-1a Suppress dust at all work or staging areas and on public roads.**
- AQ-1b Use low-emission construction equipment.**
- AQ-1d Implement dust reduction measures.** [AQ-APM-2]
- AQ-1e Prevent transport of mud and dust.** [AQ-APM-3]
- AQ-1f Encourage carpooling.** [AQ-APM-4]
- AQ-1g Minimize vehicle idling.** [AQ-APM-5]
- AQ-1h Obtain NOx and particulate matter emission offsets.**

Table E.7.2-14. Emissions from Construction of LEAPS Generation and Transmission Alternative

Construction Activity	NOx (lb/day)	VOC (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	CO (lb/day)	SOx (lb/day)	CO ₂ (lb/day)
Off-Road Equipment and On-Road Vehicles	4,280.8	576.3	224.3	224.3	1,987.7	91.0	422,702.0
Fugitive Dust	---	---	3,248.7	379.0	---	---	---
Daily Activity Totals	4,280.8	576.3	3,473.0	603.3	1,987.7	91.0	422,702.0
Significance Criteria	100	75	100	55	550	150	0
Exceed Significance Threshold?	Yes	Yes	Yes	Yes	Yes	No	*

Source: EIR/EIS Appendix 10.

* For discussion of impact significance of CO2 emissions and greenhouse gases, see Impact AQ-4.

Impact AQ-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants (Class III)

Dust and exhaust emissions would be generated during operation, maintenance, and inspection activities for the LEAPS Generation and Transmission Alternative operation, maintenance, and inspection would cause workers to travel to and from the power plant site and along the transmission line ROW. Emissions from these new vehicle trips and additional dust from travel would be minor. Wildfire risk and severity would also increase with the operation and the presence of the LEAPS transmission, and the air quality effects of wildfire would be adverse but short term (see discussion in Section D.15). Direct emissions from vehicular traffic for maintenance activities would be less than the thresholds for operation significance in Table D.11-8 and Table E.7.1-25. The emissions would cause an adverse but less than significant impact, and mitigation measures are not required (Class III).

Impact AQ-3: Power generated during transmission line operation would cause emissions from power plants (Class I)

Operating the LEAPS pumped storage generator would require off-peak power to pump water to the reservoir. In this way, operation of the generation component of the LEAPS Generation and Transmission Alternative would indirectly result in power plant emissions even though the LEAPS generators would create no direct emissions. The maximum pumping load to refill the upper reservoir would be approximately 600 MW with typical operation requiring closer to 500 MW, primarily consumed during off-peak periods at night and on weekends. Pumping energy requirements would exceed generation. This energy deficit would need to be provided by other forms of electrical generation. According to FERC (2007), approximately 312,000 MWH would need to be provided by generators elsewhere. The deficit was predicted by CAISO to be somewhat smaller (135,460 to 191,390 MWH) depending on where and how renewable energy in California is built by 2015 (CAISO, 2007).

Indirect emissions of criteria pollutants caused by generators providing pumping power (LEAPS consumption of 1,872,000 MWH) to LEAPS were evaluated by FERC based upon most likely and worse-case emission scenarios. The “most likely case” emission scenario assumes that the pumping power is supplied by gas-fired combined cycle turbines. The FERC “worst-case” assumed that the LEAPS pumps consume electricity from coal-fired sources. The annual emissions under the “no-action” case, assuming that gas-fired generation would use a simple cycle combustion turbine to provide energy (LEAPS generation of 1,560,000 MWH) in the absence of LEAPS, and the most likely case of LEAPS operation were estimated by FERC.⁸ The emissions estimates were calculated using factors from two sources: (1) state average emission factors presented in EPA’s Emissions & Generation Resource Integrated Database (EGRID) for emissions of NO_x and SO₂ (EPA, 2005a), and (2) worst-case emission factors by source type presented in EPA (1995) for other pollutants. Separately, CAISO estimated the indirect emissions of NO_x and CO₂ compared to a base case without LEAPS (CAISO, 2007). CAISO did not develop an emission estimate for other pollutants that would be emitted by power plants. The net changes in indirect emissions caused by LEAPS generation are presented for both the FERC and CAISO models in Table E.7.2-15.

The FERC and CAISO estimates show that the pumped storage facility would cause more NO_x, VOC, PM₁₀/PM_{2.5}, SO₂, and CO₂ from power plants and less CO emissions than the “no-action” case. These indirect emissions would be caused by power plants connected to the transmission grid across the western U.S. and Canada. Although the power could originate outside of the South Coast Air Basin, for the purposes of impact characterization, the emissions are assumed to occur locally. Table E.7.2-15 shows that indirect emissions caused by power plants operating to provide pumping power to the LEAPS Project would be significant for NO_x, and increased CO₂ emissions would occur. (See Impact AQ-4 for characterization of CO₂ impact.)

⁸ A simple cycle combustion turbine plant was assumed to provide the energy in the absence of LEAPS because this technology is considered “state of the art” and with no action on LEAPS, it could likely be permitted in the Southern California region (FERC, 2007).

Table E.7.2-15. Annual Emissions from LEAPS Generation Pumping Energy Consumption

Scenario	Generation Technology	Annual Gen (MWH)	NOx (ton/year)	VOC (ton/year)	PM10/PM2.5 (ton/year)	CO (ton/year)	SOx (ton/year)	CO ₂ (ton/year)
Energy generated in absence of LEAPS ("No Action" on LEAPS)	Gas-fired simple cycle turbine	1,560,000	560.8	15.9	90.9	113.7	15.6	—
Energy consumed by LEAPS pumping	Gas-fired combined cycle combustion turbine	1,872,000	673.0	19.1	109.1	36.4	18.7	—
FERC Estimate of Net Energy Consumption and Emissions	—	312,000	112.2	3.2	18.2	-77.3	3.1	—
CAISO Estimate of Net Energy Consumption and Emissions	—	135,460 to 191,390	29.2 to 129.6	—	—	—	—	39,140 to 120,700
Significance criteria	—	—	25	25	70	100	—	0
Exceeds significance threshold?	—	—	Yes	No	No	No	—	*

Source: FERC, 2007 and CAISO, 2007. Modified per personal communication with FERC (Fargo, 2007)

* For discussion of impact significance of CO₂ emissions and greenhouse gases, see Impact AQ-4.

Incrementally increased emissions from fossil fuel-fired power plants would be generally unavoidable under the LEAPS Generation and Transmission Alternative. Significant impacts would occur for ozone precursors above the General Conformity rule *de minimis* levels. Impacts of particulate matter and particulate matter precursors would also be considered significant because the daily emissions of particulate matter would exceed the threshold levels in Table E.7.1-25. The nonattainment pollutants and precursors would substantially contribute to existing violations of ozone and particulate matter standards in Southern California. Power plant emissions could adversely affect visibility and vegetation in federal Class I or State wilderness areas, which would significantly deteriorate AQRVs in the wilderness areas. Toxic air contaminants from routine fossil fuel-fired power plant operation would also cause health risks that could adversely affect sensitive receptors near the power plants. Mitigation would be needed for offsetting any emissions of PM10 and ozone precursors. This mitigation could be achieved through New Source Review requirements or with mitigation measures on specific power plants; however, existing power plants would only become subject to New Source Review if they require modification. Mitigating PM10 and ozone precursors from existing power plants was considered but rejected as a way of avoiding these impact because there would be no way to identify with any certainty which power plants in the transmission system provide the pumping power or the precise level of power plant emissions needing mitigation. Additionally, trading programs for all ozone and PM10 precursors (including PM2.5) are not formally active in much of the western U.S. or Canada. As a result, the impact of the power plant emissions would remain significant and unavoidable (Class I).

Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions (Class I)

Significant greenhouse gas emissions would occur during construction of the LEAPS transmission line and generation components, as well as from power plants providing pumping power, as described in Impact AQ-3. The GHG emissions associated with LEAPS Generation Pumping would depend on the mix of generators that provides power to the region, which is predominantly natural gas and coal-fired. Because coal-fired power plants in the western U.S. and Canada are likely to provide the pumping

power for this alternative, a net increase over the baseline power plant GHG emissions would occur, and the average power plant emissions would exceed the CPUC Greenhouse Gas Emissions Performance Standard of 0.5 metric tons (1,100 lb) of CO₂ per megawatt-hour (CAISO, 2007). The power produced for the pumped storage facility would therefore cause a significant GHG impact. Electrical equipment associated with new transmission system connections for the pumped storage facility would also result in the potential escape of sulfur hexafluoride (SF₆), a potent GHG. These GHG impacts would be significant because they would exceed those of the baseline conditions.

The construction-phase GHG emissions and operational-phase emissions including SF₆ fugitives would occur in conjunction with GHG increases at power plants. Thus, an overall net increase of GHG emissions would occur. Mitigation would reduce the GHG impact but not to a less than significant level (Class I).

Mitigation Measure for Impact AQ-4: Project activities would cause a net increase of greenhouse gas emissions

- AQ-4a** **Offset construction-phase greenhouse gas emissions with carbon credits.**
- AQ-4b** **Offset operation-phase greenhouse gas emissions with carbon credits.**
- AQ-4c** **Avoid sulfur hexafluoride emissions.**

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E.7.2.12 Water Resources

Impacts to water resources from the generation component of the LEAPS Generation and Transmission Alternative are described below. Water resource impacts from the transmission component would be identical to those presented for the LEAPS Transmission-Only Alternative presented in Section E.7.1.12, above, and are not discussed here.

Environmental Setting

Lake Elsinore is a natural lake about 5 miles long and 2 miles wide. It is a terminal lake and a natural low point in the San Jacinto River Basin; it does not connect with the Santa Ana River under normal rainfall conditions. In high precipitation and runoff years, the San Jacinto River flows through Lake Elsinore to the Santa Ana River via Temescal Wash, a natural drainage system that extends about 28 miles from Lake Elsinore to the Santa Ana River, which eventually drains to the Pacific Ocean. Lake Elsinore has overflowed to the northwest through Walker Canyon very rarely, only three times in the 20th Century and 20 times since 1769 based on Mission diaries. Each overflow event was short-lived demonstrating that Lake Elsinore is essentially a closed-basin lake system (FERC, 2007).

Lake Elsinore is an ephemeral lake, and water surface elevations have historically experienced significant fluctuations due to periods of flooding followed by prolonged dry periods. Lake Elsinore has dried completely on four occasions since 1769 (EVMWD, 2007). Lake Elsinore has a relatively small drainage basin (< 1,240 square kilometers) from which the San Jacinto River flows (semi-annually) into and terminates within the lake's basin. Lake Elsinore is a shallow lake with a large surface area: it has an average depth of 24.7 feet and a surface area of 3,500 acres. The main sources of water flowing into Lake Elsinore are direct natural runoff from the surrounding mountains and drainage from the San Jacinto River (EIS). Annual average precipitation in the Lake Elsinore watershed is 11.6 inches and the average annual evaporative loss is 56.2 inches. This excessive evaporative loss compared to the low natural inflow results in unstable lake levels.

Lake Elsinore has a long history of water quality problems, the most severe of which is hypereutrophication, or the over-enrichment of the lake with the nutrients phosphorus and nitrogen. Elevated nutrient levels result in high algal productivity, leading to algal blooms that block sunlight to the water column and reduce photosynthesis of aquatic plants, creating low dissolved oxygen levels that result in fish kills. The majority of oxygen produced by algal respiration is lost to the atmosphere rather than being dissolved in lake water, and decay of floating mats of algae is a chemical process that further removes dissolved oxygen from the water column, exacerbating low oxygen levels experienced by the turbid water. The shallow lake depths and large surface area of Lake Elsinore allow water temperatures to increase dramatically during the summer months, and high water temperatures support lower levels of dissolved oxygen. These complex processes result in excessive oxygen depletion that adversely affects aquatic biota, including fish.

Nutrient levels are elevated in Lake Elsinore from a combination of natural and anthropogenic causes. Nutrients tend to build up in terminal lake bottoms, and Lake Elsinore is essentially the endpoint of a closed hydrologic system. Nutrient runoff from surrounding urban development, faulty septic systems, and dairy and agricultural operations contributes to the nutrient loading problem in Lake Elsinore (LESJWA, 2007). In addition, nutrient-rich sediment at the lake bottom is stirred up by the burrowing and bottom foraging behavior of introduced carp (LESJWA, 2007a; Dill & Cordone, 1997); and, under conditions of low dissolved oxygen, phosphorus trapped in suspended sediment becomes bio-available to algae.

Lake Elsinore is listed by the state of California as “impaired” per Section 303(d) of the Clean Water Act for failing to meet applicable water quality objectives, including dissolved oxygen (DO) levels. Measurements that are below state objectives are continually recorded throughout the water column in Lake Elsinore for the majority of the year. The Lake Elsinore and San Jacinto Watershed Authority (LESJWA) installed a Lake Mixing System (surface axial flow pump aeration system) in 2004 and have initiated the environmental review process for an Aeration Project (subsurface diffused air in-lake aeration system) to increase oxygen levels in Lake Elsinore (LESJWA, 2005, 2007b).

Pumped-storage electrical generation operations would involve the cycling of water between Lake Elsinore and a new upper reservoir, generating peak power with releases from the upper reservoir to Lake Elsinore and returning water to the upper reservoir for non-peak storage. This cycling operation would be accompanied by typical upper reservoir water-level fluctuations of about 40 feet on a daily basis and about 75 feet during the course of a full-week cycle. In Lake Elsinore (the lower reservoir), the typical daily water-level fluctuation would be one foot, with the lake level fluctuating about 1.7 feet during the course of a full-week cycle.

Environmental Impacts and Mitigation Measures

Table E.7.2-16 summarizes the water resource impacts of the LEAPS generation component.

Table E.7.2-16. Impacts Identified – Water

Impact No.	Description	Impact Significance
LEAPS Generation Component		
H-7	Accidental releases of contaminants from project facilities could degrade water quality	Class II
H-9	Project construction or operation would potentially impact local water supply	Class I
H-10	Project construction would deliver sediment resulting in increased turbidity	Class II
H-11	Project reservoir would capture runoff	Class I
H-12	Project operations could impact the quantity and quality of groundwater recharge	Class I
H-13	Project operations could change water quality parameters	Class III, IV
H-14	Project operations could degrade water quality in San Juan Creek	Class II
H-15	Project operations could result in dam or dike breach and a consequent loss of human life	Class I

Significant hydraulic modification has already occurred in Lake Elsinore; however, potential effects during construction include greater-than-normal lake-level draw downs to facilitate construction. This would be a short-term measure and the drawdown elevation would largely be dictated by the hydrologic conditions present at that time. About 5,500 acre-feet of water would be needed for the initial filling of the upper reservoir. The proponents propose to obtain this water from recycled water sources available to the EVMWD; therefore effects on local water supply would be negligible. Water use during construction is a short-term use, and the proponents would either purchase or produce the water needed. It is not anticipated that groundwater run-off during construction would be a significant source of makeup water into Lake Elsinore.

Construction of the intake/outlet structure would require work to be performed in the water. This work would be conducted within the confines of a cofferdam, which would limit the interface between the construction activities and lake water. Installation of the intake/outflow structure would require the removal of about 200,000 cubic yards of lake bed material which would be replaced with the steel and concrete structure. The structure would be backfilled and secured prior to removal of the cofferdam. Once the cofferdam was removed, the lake bed would be re-submerged and the construction process would end. As such, construction is not anticipated to disturb or re-suspend lakebed sediments.

Impact H-7: Accidental releases of contaminants from project facilities could degrade water quality (Class II)

Construction activities would require the storage and use of fuels, oils, lubricants, and other potentially hazardous liquids near the water resources. The release or spill of hazardous substances into waters or streams affected by construction or operation activities could have negative effects on water quality as well as terrestrial and aquatic resources. In general, Lake Elsinore is a hypereutrophic lake and listed by the state of California as “impaired” per Section 303(d) of the Clean Water Act for failing to meet applicable water quality objectives for nutrients, organic enrichment/low DO, sedimentation/siltation, and unknown toxicity. The release of additional hazardous substances would exacerbate this condition. This impact is considered significant; however, it could be mitigated to a less than significant level (Class II) through implementation of the Mitigation Measures and Forest Service 4(e) condition below.

Construction of the intake/outlet structures could potentially increase the amount of sediment that enters the water, which would affect turbidity. Project operation activities and the storage of oils, fuels, and lubricants have the potential to introduce hazardous substances into project waters. This impact would be significant; however, it could be mitigated to less than significant levels (Class II) through implementation of the Mitigation Measures and Forest Service 4(e) condition listed below.

USFS-7 Condition No. 7—Hazardous Substances Plan.

H-2b No storage of fuels and hazardous materials near sensitive water resources.

H-2c Proper disposal and clean-up of hazardous materials.

H-7a Develop Hazardous Substance Control and Emergency Response Plan for project operation.

H-2a Groundwater testing and treatment before disposal.

Impact H-9: Project construction or operation would potentially impact local water supply (Class I)

Dewatering (groundwater pumping for construction) would likely be necessary for construction of the tailrace tunnels and intake/outlet structure; however, the effect is likely to be localized and for a short duration until a shaft casing could be installed. Based on the aspects of project construction and the regional geologic setting, long-term effects on the local and regional groundwater (i.e., a lowering of the piezometric surface) are not anticipated for the proposed powerhouse and tailrace structure; however, this assessment could change based on the co-applicants’ proposed groundwater level monitoring and geotechnical studies prior to the start of construction (FERC, 2007) Excavation could destabilize artesian groundwater, should groundwater level be above the depth of excavation. Excavation for reservoir construction and the placement of a seepage collection system could destabilize localized artesian groundwater. Groundwater extent (depth to aquifer, hydrostatic pressures, etc.) has not been surveyed or characterized. Additionally, there are approximately 600 residents living downstream near the Ortega Highway–San Juan Creek crossing. The water source of these residents is dominated by groundwater supplies. (FERC, 2007) The effect on these water sources would be potentially significant and unavoidable (Class I). Nonetheless, the mitigation measures and conditions below would be required.

FERC-2 Environmental Measure 2—Lake Elsinore Lake Operating Plan. Develop and implement a revised lake operating plan for Lake Elsinore, addressing increased minimum lake levels, flood control implications, and water supply issues.

FERC-5 Environmental Measure 5—Upper Reservoir and Water Conduit Monitoring Program: Groundwater. Include specific provisions in the upper reservoir and water conduit moni-

toring program to explore the groundwater and characterize the aquifer, to consult on groundwater inflow criteria, and to monitor groundwater levels during construction and operation of the water conduits including the tunnels and penstocks that convey water between the upper reservoir and the powerhouse for 10 years or longer if necessary, specifying remedial actions if monitoring reveals changes in groundwater levels or seepage into the tunnels.

FERC-6 Environmental Measure 6—Environmental Monitoring Plan: Aquatic. Develop and implement a detailed plan specifying activities, locations, methods and schedules that the qualified environmental construction monitor will use to monitor construction in aquatic environments.

USFS-36 Condition No. 36—Groundwater Management Plan.

H-9b Compensate affected water supply. Should destabilization of artesian groundwater serving as water supply occur, the proponent shall compensate delivery of additional water supply in consultation with EVMWD.

Impact H-10: Project construction would deliver sediment resulting in increased turbidity (Class II)

Project construction could increase turbidity in area streams and Lake Elsinore through two primary pathways: (1) increased surface erosion and (2) in-water construction activities. The proposed construction activities would contribute to continued poor water quality in Lake Elsinore. Construction of the Proposed Project could affect temperature, DO, and nutrient cycling within Lake Elsinore and other affected streams. These impacts are considered significant; however, they could be mitigated to less than significant levels (Class II) through implementation of the Mitigation Measures and Forest Service 4(e) conditions below.

FERC-1 Environmental Measure 1—Erosion Control Plan.

FERC-3 Environmental Measure 3—Surface Water Resources Management Plan.

USFS-35 Condition No. 35—Surface Water Resources Management Plan.

H-1f Develop and implement construction Best Management Practices.

H-1h Compliance with NPDES regulations.

H-11 Construction on Forest Service land to be subject to an approved, site-specific SWPPP and Sediment Control Plan.

Impact H-11: Project reservoir would capture runoff (Class I)

Interception of rainfall by the uncovered reservoir would be expected to be minimal on a watershed level. It is estimated that precipitation over the upper reservoir at Decker Canyon could contribute as much as 135 acre-feet per year during an average year to the San Juan Creek Watershed. This amounts to about 1 percent of the average runoff as measured at the La Novia Street Bridge Gage approximately 17 miles downstream. Construction of the reservoir would preclude this captured water from flowing downstream into the San Juan Creek Watershed. This impact is considered significant particularly on a local level immediately downstream of the reservoir location (Class I). No mitigation is available for this impact.

Impact H-12: Project operations could impact the quantity and quality of groundwater recharge (Class I)

Installation of a liner system would maintain a separation between the reservoir water and the adjacent groundwater levels. Experience with liners of the type proposed shows that leakage or failure would be

unlikely. However, if the liner leaks or otherwise fails, there could be a release of water originating from Lake Elsinore into the groundwater that could migrate to the San Juan Creek. Such releases could potentially affect groundwater quantity in the San Juan Basin. Installation of a double liner system will minimize the effect of upper reservoir pool levels on adjacent groundwater resources. The collection system would ensure that spring flows would continue to flow into the San Juan Creek Basin (either as groundwater or surface water).

Groundwater recharge in the area directly under the upper reservoir would be eliminated unless additional water is imported. Concern about water quality effects merits careful attention to the source of such make-up water. The water conduits could affect groundwater levels. For example, if the native groundwater pressures exceed the tunnel pressures, native groundwater could seep into the tunnels and thereby lower the groundwater level if the water table lies above the penstock. Conversely, if pressure is greater inside the tunnel, water may seep into the native groundwater table and possibly raise the elevation. Because the tunnels would be lined with concrete, it is not anticipated that operation of the tunnels would have adverse effects (i.e., diversion of groundwater). Operation of an underground powerhouse at the proposed Santa Rosa site would have localized effects on groundwater flow patterns. The powerhouse would need to be isolated from groundwater flows by a combination of sealing and water control sumps. Groundwater may need to be pumped out of the powerhouse cavity and could potentially be redirected to Lake Elsinore at the surface (FERC, 2007). Though unlikely, impacts to groundwater would be significant and not mitigable should they occur (Class I). Nonetheless, the Forest Service Condition listed below would be required.

Mitigation Measures for Impact H-12: Project operations could impact the quantity and quality of groundwater recharge

USFS-36 Condition No. 36—Groundwater Management Plan.

H-12a Isolate underground powerhouse from groundwater flows. The applicant shall use a combination of sealing and water control sumps to isolate the powerhouse from underground flows. The applicant shall ensure that groundwater flow patterns at the proposed Santa Rosa site are not adversely affected.

Impact H-13: Project operations could change water quality parameters (Class III and IV)

Project operations would directly affect the diurnal fluctuation of Lake Elsinore. Currently, lake levels vary in Lake Elsinore on a seasonal basis. In the lower reservoir (Lake Elsinore), after implementation of the LEAPS alternative, the typical daily water-level fluctuation would be one foot, with the lake level fluctuating about 1.7 feet during the course of the full-week cycle.

Operation of the Proposed Project (the cycling of water between the upper reservoir and Lake Elsinore, the fluctuating shoreline, and the maintenance of facilities and transmission lines) could potentially affect multiple water quality parameters within Lake Elsinore and San Juan and San Mateo Creeks. Daily lake levels within Lake Elsinore are estimated to fluctuate between 1 foot and 1.7 feet as water is pumped to the upper reservoir and back and the volume of water within Lake Elsinore changes. Theoretically, changing water levels can cause shoreline soils to expand and contract, asserting a stress that eventually causes the soil structure to break down to the point of failure, resulting in erosion and sedimentation. As Lake Elsinore is already a heavily turbid lake, this unanticipated effect would be considered minimal (Class III). No mitigation is required.

Operation of the Proposed Project could affect the temperature, DO, and nutrient cycling occurring in Lake Elsinore. Water transferred and stored at the upper reservoir during nighttime hours could lower water temperatures beyond current observed trends in Lake Elsinore, while water returning to Lake

Elsinore could experience some warming in the generating mode. The pumping of water and operation of the turbines could aerate the water above existing levels benefiting water quality (Class IV), while discharges could disturb bottom sediments, increasing turbidity and could alter the nutrient cycling in the reservoir (Class III). Changing shoreline elevations could also stir up sediments, increasing turbidity and affecting nutrient cycling. Depending on other factors at the time of release, a large nutrient release could stimulate additional algal growth in Lake Elsinore. Transferring water from Lake Elsinore at night and returning it during daylight hours could reduce the temperature of the returning flow by up to 3°C (Elsinore Valley MWD and Nevada Hydro, 2004a). Anderson (2006) states that it is unclear whether the water discharged to the lake would be warmer, cooler or the same temperature as the water in the lake. Anderson (2006) surmises that the friction associated with moving the water through the generating units could slightly raise the temperature of the water while storage at higher elevation and transfer timing (at night) could result in slight decreases to the temperature; however, the magnitude of these changes is not stated. Given that the conduits would be underground where temperatures would be much cooler than the summer time air temperatures at the lake, any gains in temperatures due to friction would likely be negated by the surrounding conditions. These impacts would generally be considered less than significant (Class III). No mitigation is required.

Operation of the Proposed Project would increase the concentration of DO in waters returning to Lake Elsinore. The activity of transferring the water through the conduit, penstock pipes, and turbines in conjunction with a greater surface area to volume ratio within the upper reservoir would allow for a greater amount of oxygen to become dissolved in the existing stream waters than under current conditions. Maintaining oxygenated water throughout the water column prevents the nutrients stored within the sediments from being released into the water column, which reduces the amount available for use by algae thus improving water quality. Over time, as additional nutrients settle they become stored in the sediments as long as oxygenated conditions persist. Beneficial impacts to water quality are expected to be incremental (Class IV).

Pumped-storage electrical generation operations would involve the cycling of water between Lake Elsinore and a new upper reservoir. There is an expected beneficial increase in dissolved oxygen as a result of this daily water cycling. It is expected that, over time, project operations should provide a measurable benefit to the annual mean water quality by using temperature and oxygen concentration differences between the upper and lower reservoirs to promote mixing of the water column and control internal nutrient loading within Lake Elsinore; however, the proposed LEAPS Generation and Transmission Alternative alone is not expected to improve water quality to the point where water quality objectives could be met. This water quality effect would be incremental relative to the effects of the Lake Elsinore Stabilization and Enhancement Project, which includes the installation of a mechanical aeration system to improve water quality as discussed above.

Implementation of WQ-PME-6, Lake Elsinore Stabilization and Enhancement Project, would also include provisions for the importation of recycled wastewater to Lake Elsinore to stabilize lake levels. Because lake level stabilization is a necessary condition of LEAPS operation, a lake management fee paid by the applicants to the EVMWD would ensure importation of water and eliminate the occurrence of undesirable low water levels below 1,240 feet msl. According to Joint Watershed Authority (2005), dry lake conditions would be eliminated entirely, whereas, under current conditions, lake levels are below 1,225 feet msl (close to empty) 20 percent of the time.

Impact H-14: Project operations could degrade water quality in San Juan Creek (Class II)

The storage of low quality Lake Elsinore water in the upper reservoir within the San Juan Creek Watershed could negatively affect water quality in the San Juan Creek drainage. Spills or releases from the upper reservoir or leaks in the upper reservoir liner, membrane system, water conveyance system, or subterranean diversion structure that would allow the water from the upper reservoir to reach the San Juan Creek drainage have the potential to degrade water quality in the San Juan Creek Watershed (Class II), but could be mitigated through implementation of the measure below.

Mitigation Measure for Impact H-14: Project operations could degrade water quality in San Juan Creek

H-14a Develop and implement a water spill, release, and/or leak prevention plan. At least 60 days prior to construction of the upper reservoir, the applicant shall file with the CPUC and EVMWD a plan for protection of the San Juan Creek Watershed from any water spill, release, and/or leak. The plan shall be reviewed and approved by the CPUC and EVMWD prior to initiation of construction activities. At a minimum, the plan must require the Licensee to (1) maintain the project area sealed off from the San Juan Creek Watershed during construction and operation of the project; (2) to periodically test the upper reservoir for any leaks, releases, and/or spills; (3) to inform the CPUC and EVMWD immediately of the nature, time, date, location, and action taken for any spill affecting the San Juan Creek Watershed; and (4) establish a protocol for cleanup and monitoring any spill, release, and or leak that must be reviewed and approved by the CPUC and EVMWD.

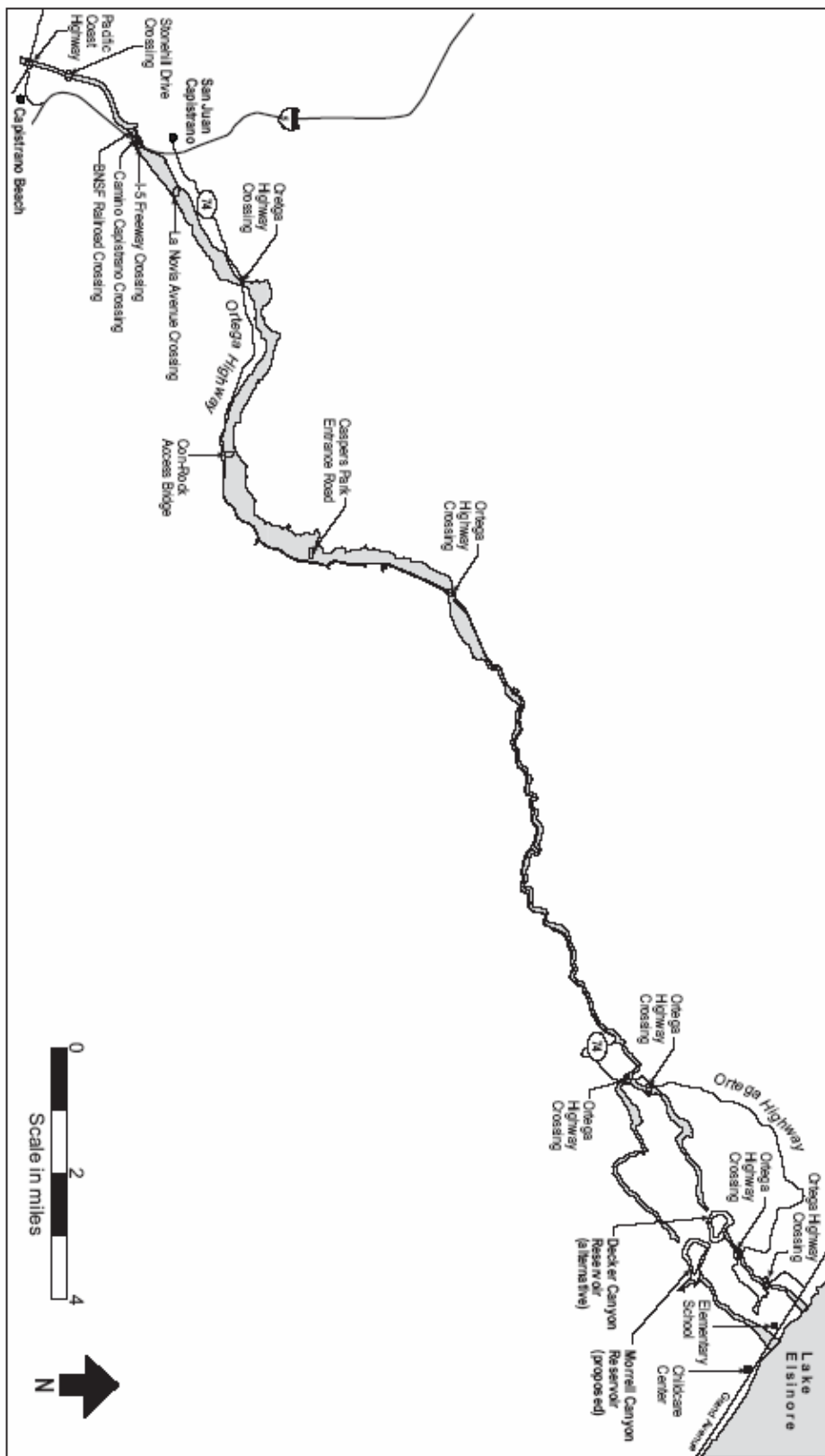
Impact H-15: Project operations could result in dam or dike breach and a consequent loss of human life (Class I)

Dam breach and dike failure is a public health and safety concern of the construction and operation of the upper reservoir. The proponents state that, because the precise location and configuration of the proposed upper reservoir has not been determined and cannot be entirely known pending the outcome of the Commission's licensing process, they have only undertaken dam break analyses for normal pool conditions and the preliminary design of the structures. The proponents note that an incremental hazard evaluation will be provided as part of the Emergency Action Plan, which would also examine potential inundation hazards associated with flood-flow conditions.

Because the proposed upper reservoir sites are located at the headwaters of San Juan Creek, roughly coincident with the drainage divide between that watershed and that of Lake Elsinore, a dam failure could discharge water into San Juan Creek, and a dike failure could discharge water toward Lake Elsinore. Mode of failure in the proponents' dam breach analyses were via a hypothetical piping failure; the hypothetical failure modes for the dike breach analyses included overtopping of the dike crest and internal erosion (piping) through the dike embankment materials. The preliminary inundation area for the project is depicted in Figure E.7.2.12-1. The Commission's Division of Dam Safety and Inspection's San Francisco Regional Office performed a Pre-License inspection and issued a report dated January 6, 2005. Paragraph A of the Pre-license Inspection Report discusses the downstream hazard potential of the project. The report notes that based on the dam break analyses included in the license application, a dam breach at the Decker Canyon upper reservoir site would generate a flood wave that would cause overbank flow along San Juan Creek for about 15 miles to the Pacific Ocean. The areas subject to flooding include campgrounds, residential and commercial buildings, and Ortega Highway (State Route 74) stream crossings. The study estimates that depths could be as high as 39 feet in the narrow canyon areas. A similar study was performed to estimate inundation toward Lake

Elsinore should a lower elevation dike fail. A dike breach would result in flooding, however, with less release of water. Structures and possibly residences in the City of Lake Elsinore would be inundated up to six feet. The report notes that observations made during the inspection confirm that the Decker Canyon upper reservoir would be classified as having a high downstream hazard potential. In accordance with the Federal Guidelines for Dam Safety–Hazard Potential Classification Systems for Dams (October 1998), dams assigned the high hazard potential are those for which failure or disoperation would probably cause loss of human life. This impact would not be mitigable (Class I).

Figure E.7.2.12-1. Extent of Inundation Resulting from Dam/Dike Break



Source: EVMWD and Nevada Hydro, 2004, as modified by FERC, 2007.

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E.7.2.13 Geology, Mineral Resources, and Soils

Impacts from the generation component of the LEAPS Generation and Transmission Alternative to geology, mineral resources, and soils are presented in the following section. Impacts related to the transmission component of this alternative are presented in Section E.7.1.13, above, and are not discussed here.

Environmental Setting

The majority of the hydroelectric facilities of this alternative would be located within the San Jacinto River Basin with other associated structures and transmission lines in adjacent watersheds. The San Jacinto River Basin is located in southern California, about 20 miles inland from the Pacific Ocean and covers more than 780 square miles of widely varying terrain. The river basin is bounded by north-south mountains: the Santa Ana Mountains (including the Elsinore Mountains, Santa Margarita, and the Santa Rosa Plateau) to the west and the more distant San Jacinto Mountains to the east (FERC, 2007). The LEAPS Generation and Transmission Alternative area spans the boundary between two geologic environments — an actively subsiding fault-bounded basin containing Lake Elsinore and a more stable mountain block underlain by minor metamorphic rocks and undivided granitic rocks of the Peninsular Ranges Batholith. Both geologic environments are a part of the Peninsular Ranges Geomorphic Province of Southern California (FERC, 2007).

The Elsinore Basin is located in the southeast part of the Los Angeles Basin. The Los Angeles Basin is a region of alluvial outwash, encompassing most of Los Angeles and Orange Counties, as well as western Riverside and San Bernardino Counties. The Los Angeles Basin is considered part of the Peninsular Ranges Geomorphic Province of Southern California, characterized by elongated ranges and fault-formed and alluvial valleys with a general northwesterly trend. The Elsinore Basin is a down-faulted (trough) about 8 miles long and between two and three miles wide. The long axis of the valley parallels the northwesterly regional structural trend, and rugged hills and mountains border the basin on all but the southeastern side. The lowest portion of the basin floor is a broad, relatively flat area known as “La Laguna,” which is partially occupied by Lake Elsinore. La Laguna forms the terminus for the San Jacinto River, which flows into the Elsinore Basin from the northeast. To the southwest are the steep slopes of the Elsinore Mountains. The northeastern edge of the basin is bordered by the Sedco and Cleveland Hills, part of the Temescal Mountains. The Glen Ivy fault parallels the base of the Cleveland Hills and marks the structural edge of the basin in this area; the Glen Ivy fault continues northwest at the base of the Santa Ana Mountains and is the principle segment of the Elsinore fault zone north of Elsinore. The southeastern end of the basin is formed by a low alluvial divide built up by streams draining the Elsinore Mountains (FERC, 2007).

The geology of the Elsinore Valley comprises essentially three major units. At the surface lies alluvium from a variety of sources. Underneath the surface alluvium is the sedimentary Pauba Formation, and under that lies the “basement rocks” of the Peninsular Ranges Batholith. The alluvial formation covers the lower portions of the valley and can be divided into alluvial fan deposits, floodplain deposits, and recent lacustrine deposits. Lake Elsinore is a structural depression formed within a graben along the Elsinore fault. Lake Elsinore is surrounded by a combination of predominantly igneous and metamorphic rocks. Lake Elsinore is constrained along its southern edge by the steep, deeply incised Elsinore Mountains. The Elsinore Mountains provide a local sediment source. Total sediment thickness underlying Lake Elsinore is estimated to be more than 3,000 feet. Two exploratory wells drilled at the east end of the lake to 1780 feet and 1800 feet encountered unconsolidated sediment described as mostly fine grained (EVMWD, 2007).

The Elsinore Mountains are a portion of the Santa Ana Mountain Range, which form the northernmost range of the Peninsular Ranges Geomorphic Province. The conduit and reservoir would be constructed within the Santa Ana Mountains. The Peninsular Ranges Province is characterized by a northwest-striking structural fabric (faulting and folding) influenced by the San Andreas fault system. The northern Peninsular Ranges Province is divided (in terms of physiography) into three major fault-bounded blocks: the Santa Ana, Perris, and San Jacinto. The westernmost of the three, the Santa Ana block, extends eastward from the coast to the Elsinore fault zone. Tertiary sedimentary rocks (Paleocene through Pliocene in age) lie under the western foothills portion of the Santa Ana block, and further east the highly faulted Santa Ana Mountains are comprised of a basement assemblage of Mesozoic metasedimentary and Cretaceous volcanic and batholithic rocks, which is overlain by a thick section of primarily upper Cretaceous marine rocks and Paleocene marine and non-marine rocks. The southern part of the Santa Ana Mountains opens into an expansive, nearly horizontal erosion surface that is partly covered with Miocene basalt flows (FERC, 2007).

The Decker Canyon reservoir site is located in the headwaters of San Juan Creek within the Cleveland National Forest boundary. San Juan Creek flows west toward the Pacific Ocean and is separate from the drainages on the east flank of the Elsinore Mountains. The Decker Canyon site is bounded by Morgan Hill on the south, a ridge to the north, and South Main Divide Road to the east. The rugged, mountainous terrain of the Santa Ana Mountains is characteristic of reservoir site. The geologic units at the Decker Canyon upper reservoir site are comprised of granitic bedrock, alluvium, and slopewash. The bedrock is typically light gray, medium- to coarse-grained, and moderately fractured. Weathering of the granitic rock is variable near the surface. Surface alluvium and thick accumulations of slopewash are largely absent. The erosion gullies into the side slopes and base of Decker Canyon show only a minor amount (less than 2 inches) of soil development overlying intact bedrock. No evidence of groundwater near the surface was noted during geologic reconnaissance (FERC, 2007).

The proposed penstock connecting the Decker Canyon upper reservoir site with the proposed powerhouse site would run through the eastern edge of the Elsinore Mountains. It is expected that the penstock would be excavated into granitic bedrock similar to that described for the upper reservoir. Because of the nature of such large expanses of bedrock and the characteristics of the Elsinore Mountains, faults, joints, fractures, and groundwater probably would be encountered during excavation of the penstock and tunnel system (FERC, 2007). The Decker Canyon reservoir would include a 240-foot-high dam, a dike 50 feet high, and a patrol road around the reservoir. Surface alluvium and accumulations of slopewash are largely absent from this upper reservoir site. Soil development is shallow (reportedly less than 2 inches) and overlies intact bedrock. The location and configurations of the proposed reservoir at Decker Canyon encompass the upper end of the creek in Decker Canyon. Therefore, because the Decker Canyon upper reservoir site is at the top of the watercourse, no stream bypass system would be required. It is presumed that a liner system for this site would require mechanical preparation of the hill slopes to accept the geosynthetic liner. Dam and dike construction would require excavation for foundations, and a perimeter patrol road would be built into the hillslope in areas where natural topography forms the side of the reservoir. The upper reservoir dam and dike would have a combined fill volume of approximately 3 million cubic yards and a total footprint of about 120 acres.

The proposed Santa Rosa powerhouse site is located at the base of the steep, east face of the Elsinore Mountains. The Santa Rosa powerhouse site is located in an area with surface alluvium. This material is a relatively young alluvial fan deposit of mostly gravel sized sediment. Because of the location at the base of a steep mountain side (a location heavily influenced by gravity-induced erosion from upslope), this site is expected to contain a substantial amount of larger cobble- and boulder-sized clasts as well. Geophysical survey data summarized by the proponents for the Ortega Oaks powerhouse site indicate

that 10 to 20 feet of loose alluvial soils are underlain by 20 to 50 feet of dense, unsaturated alluvial soils, which in turn are underlain by 70 to 90 feet of saturated alluvial soils and/or weathered bedrock. Crystalline bedrock was encountered at depths ranging from 120 to 145 feet below the ground surface. From this, FERC inferred in the LEAPS EIS that depth to groundwater is approximately 30 to 70 feet below the ground surface. Geophysical survey data for the proposed Santa Rosa powerhouse site indicate 10 to 30 feet of loose alluvial soils underlain by 60 to 125 feet of dense, unsaturated alluvial soils and/or weathered bedrock. Crystalline bedrock was encountered at depths ranging from 70 to 140 feet below the ground surface; therefore, from the data the proponents infer that groundwater is not present at the site (FERC, 2007).

Lake Elsinore water surface elevations have historically experienced significant fluctuations due to periods of flooding followed by prolonged dry periods. Lake Elsinore is a historically ephemeral lake, with the main sources of water being direct natural runoff from the surrounding mountains and drainage from the San Jacinto River. The proposed tailrace tunnel would extend eastward from the powerhouse site. The surficial geology of this area is characterized by a transition from the alluvial fans found at the toe of the Elsinore Mountains out to the floodplain and lacustrine sediments of La Laguna. The tailrace tunnel would exit the powerhouse, which is expected to be founded on granitic bedrock, and head east toward Lake Elsinore. Leaving the bedrock, the tunnel would likely be excavated through loose to dense alluvium (saturated and unsaturated) and weathered bedrock. Between the powerhouse site and Lake Elsinore are portions of the active Elsinore Fault Zone. The Willard fault is located near the base of the Elsinore Mountains and runs roughly under or between the proposed Santa Rosa powerhouse site and Lake Elsinore (Figure E.7.2-1). The Wildomar fault is mapped within the limits of Lake Elsinore; however, its exact location is unknown. FERC suspects that this fault crosses the alignment of the tailrace tunnel. Because the intake structure is located within the sediment of Lake Elsinore, it is expected that a portion of the tailrace tunnel would be constructed in soft or loose saturated alluvium and/or lacustrine sedimentary deposits (FERC, 2007).

Environmental Impacts and Mitigation Measures

Table E.7.2-17 summarizes the geology, mineral resources, and soils impacts of the LEAPS generation component.

Table E.7.2-17. Impacts Identified – Geology, Mineral Resources and Soils

Impact No.	Description	Impact Significance
LEAPS Generation Component		
G-1	Erosion would be triggered or accelerated due to construction activities.	Class III
G-4	Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure.	Class I
G-7	Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall.	Class I
G-10	Project construction would result in geologic waste material	Class II

Impact G-1: Erosion would be triggered or accelerated due to construction activities (Class III)

The clearing of vegetation at the Lake Elsinore Project area would potentially produce erosion by disturbing the soil and removing the stabilizing vegetation. Construction of a dam and dike at Decker Canyon would use material from within the reservoir footprint to achieve a balance of excavation and

fill material. Vegetation removal, excavation and grading during construction would loosen soil or remove stabilizing vegetation and expose areas of loose soil. These areas, if not properly stabilized during construction, would potentially be subject to increased soil loss and erosion by wind and storm-water runoff. However, in accordance with the Clean Water Act, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented, including Best Management Practices (BMPs), in order to minimize construction impacts on surface and groundwater quality. The SWPPP would be prepared once the proposed action is approved and after final design of the Proposed Project is complete. This would result in a less than significant impact (Class III). No mitigation is required.

Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure (Class I)

The proposed Santa Rosa underground powerhouse is centered on the elevation 1,420 feet msl ground surface contour, which would place it between the lowest surface expression of the Willard fault strands and Lake Elsinore, and the series of fault strands would be crossed by the high pressure tunnel(s). Though unlikely, damage to this project structure could result in electrical supply reliability constraints if fault movement damages the powerhouse or the underground components.

Faults near the upper reservoir site are mapped and indicated as inactive. The Wildomar fault is classified as active. The latest USGS mapping shows its possible position beneath Lake Elsinore as being a short distance from the southwestern shore. The potential lateral displacement of this fault in a magnitude 7 to 7.5 earthquake as measured on the Richter scale is estimated to be in the order of 5 to 16 feet (Berger, 1997). The tailrace structure for the proposed powerhouse site would likely cross this fault. The direction of the Willard fault is approximately parallel to the longitudinal axes of the powerhouse cavern, the transformer gallery, and the surge chamber (shaft). An active fault or extensive adjacent shear zone could not be tolerated in this excavation/facility, and would be considered a significant, unavoidable impact (Class I). Because of the lateral extent (upstream-downstream) of this facility, positioning it to avoid the Willard fault zone may be extremely difficult, possibly requiring it to be moved deeper into the Elsinore Mountains or closer to the lake. The former move would affect access, and the latter move would raise a concern as to the adequacy of the rock cover (FERC, 2007). A currently unknown depth of overburden would separate the project structures from the rupture surface of the Wildomar fault. However, a displacement of the magnitude envisioned would undoubtedly be accompanied by substantial disturbance of the overlying materials. Crossing this fault would likely result in serious damage to project facilities in the event of large displacements. The mitigation presented below would be required but would not reduce the impact to a level that is less than significant (Class I).

Mitigation Measure for Impact G-4: Project would expose people or structures to potential substantial adverse effects as a result of seismically induced groundshaking and/or ground failure

G-4b Conduct geotechnical investigations for liquefaction.

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class I)

Slope instability including landslides, earth flows, and debris flows during project operation has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy project components. Faulting in the Lake Elsinore area has been relatively well documented. The Willard fault zone has been tentatively classified as active; however, the position of the fault zone is

uncertain. Genterra Consultants (2003) indicate that the (single) fault lies between the proposed powerhouse and Lake Elsinore, and would be crossed by the tailrace tunnel(s). However, the description of the fault zone indicates that several fault strands are involved, and that surface expressions occur at elevation 1,450 feet msl (above mean sea level), about elevation 1,700 feet msl, elevation 1,850 feet msl, and elevation 2,100 feet msl.

It is very unlikely that any of the activities related to construction of this alternative would induce seismic instability and result in a seismic event. This includes the effects of blasting for tunnels, penstocks, and powerhouses and the effects of groundwater disturbance. However, the adverse effects of a seismic event on project construction activities would be potentially substantial depending on the component of the project being worked on. These effects may include damage to project infrastructure or construction-related equipment, which in turn could cause injury or loss of life of construction crews (Class I). Adherence to OSHA standards for workplace safety would mitigate impacts to workers and result in less than significant impact (Class III; FERC, 2007). The potential impact to the project infrastructure and construction equipment would not be fully mitigated (Class I). The condition and mitigation measure below would be required but would not reduce the impact to a less than significant level (Class I).

Impact G-7: Project would expose people or structures to potential substantial adverse effects as a result of landslides, earthflows, debris flows, and/or rockfall (Class I)

USFS-31 Condition No. 31—Ground Disturbing Activities. Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a collection agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.

G-6a Conduct geotechnical surveys for landslides and protect against slope instability.

Impact G-10: Project construction would result in geologic waste material (Class II)

Excavation materials from the shaft, tunnel, and powerhouse cavern would be disposed of off site. On-site and off-site borrow of geologic fill material would not be necessary for the construction the Santa Rosa powerhouse site; therefore, off-site disposal would be required. This is considered a significant impact due to the large quantity of geologic material involved in project excavations (Class II). Measure FERC-21 would be required.

Mitigation Measures for Impact G-10: Project construction would result in geologic waste material

FERC-21 Environmental Measure 21—Balance of Excavation and Fill. Achieve the balance of excavation and fill material at the upper reservoir site (through additional excavation) and dispose of other excavation materials from the construction of project facilities (except the upper reservoir) off site.

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E.7.2.14 Socioeconomics, Public Services, and Utilities

Environmental Setting

LEAPS generation facilities include Lake Elsinore lower reservoir, Decker Canyon upper reservoir, Santa Rosa Powerhouse, and water conduits including power shafts, power tunnel, penstocks, and tailrace tunnels. All of these facilities would be located in Riverside County, the fourth largest county in California. The environmental setting for Generation and Transmission Alternative is the same as that described in Section E.7.1.14 (LEAPS Transmission-Only Alternative), with the addition of information regarding public services and utilities described here. All of the impacts presented in that section for transmission would also occur, in addition to the generation impacts described below.

Public Services and Utilities. Construction for utility purposes in developed areas, especially underground construction such as that associated with the proposed powerhouse and tailrace canal, can disrupt existing stormwater drainage systems or put them at risk. A County-maintained storm drain facility is located at the proposed Santa Rosa powerhouse construction laydown area, and the proponents have indicated that project construction would potentially adversely affect one or more Riverside County Flood Control District facilities, such as the Ortega debris basin. In its comments on the Draft EIS, Riverside County indicated that a major portion of the LEAPS project is located within Flood Control District's preliminary Lakeland Village Master Drainage Plan boundary and the proposed alignment for the powerhouse and the inlet/outlet structure may be in potential conflict with one of its proposed facilities. The proponents propose additional consultation with Flood Control District and indicate that the proponents will formulate detailed plans to ensure that the LEAPS Project does not adversely affect existing county facilities and that project-related drainage is fully mitigated both during construction and during the project's operational life. Consultation with Flood Control District would address both existing and proposed Flood Control District facilities (FERC, 2007).

In its April 28, 2005, letter to the Commission, Riverside County states that any work that involves Riverside County Flood Control District rights-of-way, easements, or facilities would require an encroachment permit from the Riverside County Flood Control District. Additionally, the Riverside County indicates that any facility construction within a road right-of-way that would potentially affect Riverside County Flood Control District storm drains should be coordinated with the Riverside County Flood Control District (FERC, 2007).

The proposed Santa Rosa powerhouse and associated inlet/outlet structure would potentially affect the existing storm drain system and would potentially conflict with proposed district drainage facilities, both from runoff associated with new impervious surfaces and from the laydown area. The proponents' proposal to consult with the district and prepare a drainage plan would help prevent adverse construction-related effects on flood control and drainage facilities associated with the Santa Rosa powerhouse site (FERC, 2007).

Environmental Impacts and Mitigation Measures

Table E.7.2-18 summarizes the socioeconomic impacts of the LEAPS generation component.

Table E.7.2-18. Impacts Identified – Socioeconomics

Impact No.	Description	Impact Significance
LEAPS Generation Component		
S-1	Project construction and/or transmission line presence would cause a change in revenue for businesses, tribes, or governments	Class I,II,IV
S-2	Construction would disrupt the existing utility systems or cause a collocation accident	Class II
S-3	Project construction and operation would increase the need for public services and facilities	Class III
S-1CA	Labor force requirements would create a substantial demand for labor or a change in local employment	Class IV

Impact S-1: Project construction would cause a change in revenue for businesses (Class I, II, and IV)

Loss of Business Revenue. Project construction and operations would potentially reduce or eliminate employment and earnings associated with activities that would be precluded by the presence of the project (FERC, 2007). The increase in employment and earnings associated with the continuing presence of project features are expected to have some negative effects on the local economy as well. The proposed powerhouse site, once devoted to the powerhouse and substation, would not be available to support other businesses or residential construction that might have occurred in the absence of project development. The proponents propose to purchase certain properties to help offset this effect. At the construction staging area associated with the proposed Santa Rosa powerhouse site, the proponents propose to purchase the 12-unit Santa Rosa Mountain Villa property and possibly other properties as well, returning them to productive reuse after the construction period is complete (FERC, 2007). There is a potential for some residential and/or business displacement due to the transmission line, and the proponents propose to purchase certain properties to help offset this effect. The proponents have identified potentially affected properties and property owners, but at the time of writing have not yet identified which specific properties might need to be acquired (FERC, 2007). Although the proponents have stated in the EIS that they would purchase any properties directly affected, the properties have not been identified and so these unknown effects that would potentially result in a total loss of businesses and revenues are conservatively estimated to be significant and unmitigable (Class I).

Loss of revenue to other local businesses not directly affected would potentially result from degradation of views, presence of construction equipment and activity, vehicular or pedestrian access restrictions, land use and noise effects, or health and safety concerns (such as EMF). These issues are analyzed in this document in Sections E.7.2.3 (Visual Resources), E.7.2.4 (Land Use), E.7.2.8 (Noise), E.7.2.9 (Traffic/Transportation), and E.7.2.10 (Public Health and Safety) and include associated mitigation measures. Coupled with implementation of the Forest Service 4(e) Conditions 37, impacts to business revenues would be reduced to a less than significant level (Class II).

Economic Benefit. Employment of construction personnel would potentially benefit local businesses and the regional economy through increased expenditure of wages for goods and services (Class IV). Personnel for construction, operation and maintenance would be drawn from local populations in Riverside and San Diego Counties, creating new temporary and permanent employment in these counties. A limited number of construction personnel may require temporary housing, likely in local hotels, and

would be expected to purchase food, beverages, and other commodities, fueling the local economy (FERC, 2007).

Mitigation Measure for Impact S-1: Project construction would cause a change in revenue for businesses

USFS-37 Condition No. 37—Scenery Conservation Plan. (Full text presented in Section E.7.1.3, Visual Resources)

Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident (Class II)

There would be substantial ground disturbance during construction of the underground pumped storage facility, water conduits, and the underground segment of the transmission line that would potentially accidentally damage one or more of existing utilities along the transmission routes or at the pumped storage site.

Some service disruptions during construction would potentially be unavoidable at a few locations along the routes. These disruptions would potentially occur while the transmission line and vaults are installed in the trench and the interrupted utility is reconnected around the new transmission line. As described above, intentional service interruption during construction would potentially be unavoidable and without notification of the public would significantly hinder activities in the surrounding areas. These impacts are considered potentially significant, but can be mitigated to less than significant levels (Class II) with the implementation of Mitigation Measure S-2a (Notification of utility service interruption).

Under Section 1, Chapter 3.1, “Protection of Underground Infrastructure,” Article 2 of California Government Code 4216-4216.9, the proponents would be required to contact a regional notification center at least two days prior to excavation of any subsurface installation. This action would cause Underground Service Alert to notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area. The location of all underground electric, water, gas, cable or telecommunication lines within the vicinity of the substation site would be marked. Notification and marking the locations of existing utilities would allow construction activities to avoid existing lines and would thereby minimize the potential for a collocation accident. In addition, implementation of Mitigation Measures S-2a and S-2b would reduce this impact to less than significant (Class II).

Mitigation Measures for Impact S-2: Construction would disrupt the existing utility systems or cause a collocation accident

S-2a Notification of utility service interruption.

S-2b Protection of underground utilities.

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class III)

Water and Sewer. About 5,500 acre-feet of water would be needed for the initial filling of the upper reservoir. The proponents propose to obtain this water from recycled water sources available to the EVMWD; therefore effects on local water supply would be negligible. Water use during construction is a short-term use, and the proponents would purchase the water needed for dust control and other activities. Impacts to water services and facilities would be less than significant (Class III).

Solid Waste. Overall, the LEAPS Generation and Transmission Alternative would achieve a balance between excavation and fill, thereby avoiding the need to haul materials to or from the LEAPS Project site. An exception to the excavation and fill balance would be in the case of an embankment type dam requiring an impervious core requiring low-permeability clay or clay-like material. The proponents have identified the Alberhill area located about 10 miles northwest of the dam site as a likely source of clay; alternatively, the low-permeability material would potentially be manufactured on site, requiring the import of bentonite to mix with on-site soils.

Riverside County has seven permitted and active solid waste landfills including: Badlands Sanitary Landfill, Lamb Canyon Sanitary Landfill, Oasis Sanitary Landfill, Desert Center Landfill, Blythe Sanitary Landfill, Mecca Landfill and El Sobrante Landfill (CIWMB, 2007). The following seven landfills accommodate San Diego's waste disposal needs: Ramona Landfill, Borrego Springs Landfill, Otay Landfill, West Miramar Sanitary Landfill, Sycamore Sanitary Landfill, San Onofre Landfill, and Las Pulgas Landfill. Due to the number and capacity of landfills serving the project area, capacity for materials generated from construction of the LEAPS Alternative would be available. Because the exact amount of material recycling is unknown, the total amount of waste requiring landfill disposal is unknown. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills. Therefore, construction waste would not substantially affect the remaining capacities of local landfills to serve local demands. Although impacts to solid waste facilities would not be significant (Class III) and no mitigation is required, to further reduce adverse effects of the cumulative volume of waste from all of the individual links, Mitigation Measure S-3a (Recycle construction waste) would be recommended for implementation to ensure that maximum recycling activities would occur.

Mitigation Measures for Impact S-3: Project construction and operation would increase the need for public services and facilities

S-2a Notification of utility service interruption.

S-2b Protection of underground utilities.

Impact S-1CA: Labor force requirements would create a substantial demand for labor or a change in local employment (Class IV)

Employment associated with the proposed hydroelectric facilities is expected to equal about 2,460 work years, or about 550 full-time equivalent jobs per year over the 4.5-year construction period. EVMWD and Nevada Hydro estimate that construction requirements by year are 385 full-time equivalent jobs in year one (15.7 percent of the total construction-period employment), 535 in year two (21.7 percent), 515 in year three (20.9 percent), 585 in year four (23.8 percent), and 440 in year five (17.9 percent). This would equal 2,460 work-years of employment over the construction period, or an average of 546 full-time equivalent jobs per year for 4.5 years. Roughly 55 percent of the jobs would be for skilled trades, 30 percent for general labor, and 15 percent for supervisory and support staff (EVMWD and Nevada Hydro, 2004). EVMWD and Nevada Hydro estimate payroll for the construction workers associated with the LEAPS hydroelectric generation facilities to be \$126.1 million over the 4.5-year construction period, ranging from a low of \$18.6 million in year one to a high of \$31.2 million in year four (FERC, 2007).

Riverside County has been and is projected to remain one of the fastest growing counties in California. In 2000, the 602,856 people employed in Riverside County included 55,751 (9.2 percent) in the construction sector, while the City of Lake Elsinore's employed population of 11,352 people included 1,415 (12.4 percent) in construction. Given the large construction labor pool currently existing in the

county, it is expected that the existing area wide workforce would be sufficient to accommodate project-related construction needs. Only a limited number of specialty construction contractors, such as earth boring machine operators and support personnel, might need to relocate to the project area from elsewhere during the construction period. With very few construction personnel needing to relocate to the project area, there would be no substantial in-migration of people, no excessive demand for rental housing, little or no increased demand for permanent housing, and little or no increased demand for government facilities or services associated with the construction workforce (FERC, 2007).

The project-related construction employment and payroll would have a positive short-term effect on the local economy, although the effect would be small in relative terms because of the overall size of the economy. The 553 full-time equivalent jobs on an average annual basis associated with project construction would equal about one-tenth of one percent of Riverside County's 602,856 employment level in 2002. The effect of the project-related payroll of \$127.5 million would be comparable to employment; that is, positive (Class IV) but relatively small compared to the size of the current economy (FERC, 2007).

Impact S-3: Project construction and operation would increase the need for public services and facilities (Class II and III)

The water level of Lake Elsinore would have similar daily and weekly water-level fluctuations during pumping. Implementation of the proposed Lake Elsinore Stabilization and Enhancement Project would also include provisions for the importation of recycled wastewater to Lake Elsinore to stabilize lake levels. Because lake level stabilization is a necessary condition of LEAPS operation, a lake management fee paid by the applicants to the EVMWD would ensure importation of up to approximately 15,500 acre feet of water and eliminate the occurrence of undesirable low water levels below 1,240 feet msl. According to Joint Watershed Authority (2005), dry lake conditions would be eliminated entirely, whereas, under current conditions, lake levels are below 1,225 feet msl (close to empty) 20 percent of the time.

The proposed Santa Rosa powerhouse and associated inlet/outlet structure would potentially affect the existing storm drain system if any materials other than storm water or authorized non-storm water were discharged and would potentially conflict with proposed District drainage facilities, both from runoff associated with new impervious surfaces and from the staging area (FERC, 2007). This impact would be local and in the drainageways immediately downstream of the powerhouse and associated facilities. Effects would diminish to negligible in the downstream direction as overall watershed size increases. However, local increases in runoff would potentially be substantial, resulting in local offsite erosion which would occur in the area immediately downstream of the powerhouse and associated facilities and would potentially impact the capacity of District drainage facilities (Class II). Therefore, as discussed under Impact H-5 in Section D.12 and E.7.12 this impact would be significant without mitigation. Mitigation Measure H-5a, which provides additional methods to reduce runoff and runoff impacts, would reduce impacts to capacities at the district's drainage facilities to less than significant (Class II). Coupled with the proponents' proposal to consult with the district and prepare a drainage plan would help prevent adverse construction-related effects on flood control and drainage facilities associated with the Santa Rosa powerhouse site, this impact would be reduced to a less than significant level.

Mitigation Measure for Impact S-3: Project construction and operation would increase the need for public services and facilities

H-5a Install substation runoff control.

Impact S-1CA: Labor force requirements would create a substantial demand for labor or a change in local employment (Class IV)

About 20 employees would be needed to manage, operate, and maintain the pumped storage hydroelectric facilities. The total staff would include two management personnel, seven operating staff, and 11 maintenance personnel. Additional contractors and independent labor would be hired to fulfill specific functions, such as qualified monitors to conduct water quality monitoring and groundskeepers, arborists, and horticulturalists to maintain the project landscaping. The proponents indicate that locally available independent firms, consultants, and contractors would be employed to perform these and other functions. Because of the small size of the operations work force compared to the size of the local economy, there would be no substantial in-migration of people and little or no increased demand for rental housing, permanent housing, or government facilities or services associated with the operations workforce. The estimated payroll for the 20 regular project employees would be about \$1.0 million annually, which, compared to the construction phase, would have a relatively small but positive long-term effect (Class IV) on the local economy (FERC, 2007).

E.7.2.15 Fuels and Fire Management

Wildfire impacts created from the generation components of the LEAPS Generation and Transmission Alternative are presented in the following section. Wildfire Impacts from the transmission components are discussed in the LEAPS Transmission-Only Alternative presented in Section E.7.1.15, above.

Environmental Setting

The generation facilities for the LEAPS Generation and Transmission Alternative are located primarily on Cleveland National Forest land on the eastern slope of the Elsinore Mountains in the Lake Elsinore Fireshed (refer to discussion in Section E.7.1.15). The CNF encompasses a large portion of the fireshed (44%), which is primarily composed of dense chaparral vegetation. Surrounding the fuel-laden CNF wildlands to the east and west are sprawling residential developments which create an extensive WUI. The highly flammable chaparral combined with the human influence at the WUI creates an elevated ignition potential and places more assets at risk when fires start. The Lake Elsinore Fireshed experienced 3,169 wildfire ignitions between 1993 and 2006. The predominant identified cause of ignitions in this fireshed is equipment use (19%), reflecting the high level of residential development in the area. According to the 50-year wildfire history, an average of 22% or 21,873 acres burned per decade in the Lake Elsinore Fireshed with the 1980 Indian Fire burning the largest area (26,367 acres). The Santa Ana winds create severe to extreme fire weather in this fireshed from early fall through spring.

Environmental Impacts and Mitigation Measures

Table E.7.2-19 summarizes the fire and fuels management impacts of the LEAPS generation component.

Table E.7.2-19. Impacts Identified – Fire and Fuels Management

Impact No.	Description	Impact Significance
LEAPS Generation Component		
F-1	Construction and/or maintenance activities would significantly increase the probability of a wildfire.	Class I
F-4	Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread.	Class II

Wildfire impacts created by the generation components of the LEAPS Generation and Transmission Alternative are presented below along with measures to mitigate these impacts to a level that is less than significant, when applicable. Impact conclusions summarize the main results. Due to the large scale of the LEAPS Generation and Transmission Alternative and the very high fire risk in Riverside County, several of these impacts are not mitigable to a level that is less than significant. Even with implementation of the Applicant Proposed Protection, Mitigation, and Enhancement Measures listed in Table E.7.2-1, none of the potential wildfire impacts are reduced to a less than significant levels. The reason for this is that the measures are either not specific enough, do not contain enough information, or are not up to date. Therefore, other measures are provided below to reduce the level of significance where applicable.

Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire (Class I)

Construction activities associated with the generation component of the LEAPS Generation and Transmission Alternative would include, but not be limited to, use of heavy equipment for pre-construction vegetation removal, site grading, and excavation. Additional heavy equipment, vehicles and tools would be used for the construction of staging areas and access roads. The use of construction equipment along with the personnel required to construct the transmission line introduces the potential for a variety of wildfire ignition sources to surrounding vegetation fuels or combustible materials associated with project construction. For the construction of the Decker Canyon Dam, drilling and blasting will be required the equipment and dynamite used are also potential ignition sources. Construction-related ignitions at the generation project site in the Lake Elsinore Fireshed have the potential to escape initial attack containment and become catastrophic fires. The areas with heavy fire fuels, steep topography, and exposure to Santa Ana winds would have a higher burn probability and a higher potential for an ignition to escape.

The generation component of the LEAPS Generation and Transmission Alternative construction activities in the Lake Elsinore Fireshed could ignite a wildfire and result in impacts to communities and natural resources. Adjacent to the proposed generation project sites, there are sprawling residential developments surrounded by fuel-laden wildlands, which is an existing high wildfire risk WUI. Due to the high population density in the Interface WUI along Lake Elsinore, wildfires have an extremely high potential to have devastating effects on adjacent developments, placing more assets at risk.

Facility maintenance activities would include the periodic use of vehicles and presence of personnel for inspections, and could also include the use of heavy equipment for repairs. These activities would be far less intensive than construction activities; however, they would recur periodically over the life of the project, supplying an ongoing source of ignitions for 50 years or more.

The Midpoint Substation, Santa Rosa Powerhouse aboveground structures, and all other structures at the generation project site must have defensible space cleared of all flammable vegetation in accordance with California PRC 4291-Reduction of Fire Hazards around Buildings. However, the high-risk construction activities associated with project construction over a 5-year period pose a significant risk of wildfire ignition in this extremely high fire risk environment. This is considered a significant impact that can be partially mitigated, though not to less than significant levels (Class I), through implementation of the mitigation measures described below.

Mitigation Measures for Impact F-1: Construction and/or maintenance activities would significantly increase the probability of a wildfire

- F-1a Develop and implement a Construction Fire Prevention Plan.**
- F-1b(LE) Finalize and implement SDG&E 2006 Draft Fire Plan for Electric Standard Practice.**
(modify to apply to another proponent if needed)
- F-1c Ensure coordination for emergency fire suppression.**
- F-1d Remove hazards from the work area.**
- F-1e Contribute to defensible space grants fund.**

Impact F-2: Presence of the overhead transmission line would increase the probability of a wildfire (No Impact)

No overhead transmission line would be associated with the generation component of the LEAPS Generation and Transmission Alternative, so accidental ignitions due to an overhead line would not occur (No Impact).

Impact F-3: Presence of the overhead transmission line would reduce the effectiveness of firefighting (No Impact)

As there would be no linear aboveground structures associated with the generation components of this alternative, there would be no resultant impacts to firefighting efforts (No Impact).

Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread (Class II)

The construction and maintenance activities associated with the LEAPS Generation and Transmission Alternative create the potential for the introduction and spread of non-native, invasive plants. Non-native plants are often spread by human and vehicle vectors in areas of large-scale soil disturbance and importation. These actions along with the opening of the vegetation canopy through the clearing of trees and shrubs involved with the construction and maintenance of the LEAPS Generation and Transmission Alternative will contribute to the introduction and proliferation of non-native, invasive plants. Certain invasive plants, like cheatgrass, medusa head and Saharan mustard, can contribute to changes in wildfire frequency, timing and spread (Cal-IPC, 2007). Cheatgrass and medusa head, for example, dry out earlier in the season than native grasses creating fine fuels that are easily ignited. These fine fuels contribute to wildfires igniting earlier in the year and an increased level of fire recurrence. In addition, non-native grasslands have a 'spotting' effect during a wildfire, where embers from these grasslands are blown ahead of the fire line, contributing to an increased rate of fire spread. Invasive annual grasses also influence fire spread by creating a fine fuel continuum between patchy, perennial shrubs allowing wildfires to expand further into otherwise sparsely vegetated wildlands (USGS, 2007). Saharan mustard creates dense stands of dry vegetation in desert scrub and coastal sage scrub communities which increases the fire fuels in these otherwise low fire risk areas (Cal-IPC, 2007). The introduction and spread of specific invasive plants within the LEAPS Generation and Transmission Alternative project area will adversely influence fire behavior by increasing the fuel load, fire frequency and fire spread.

The introduction of non-native plants with an increased ignition potential and rate of wildfire spread is considered a significant impact (Class II) that can be mitigated by following the prevention and management protocol outlined in Mitigation Measure B-3a, Prepare and Implement a Weed Control Plan. The Weed Control Plan requires pre-construction and long-term weed surveys and implementation of control methods that require consultation and approval of the County Agriculture Commissioner and appropriate land-holding public agencies. Invasive weeds that influence wildfire behavior are considered a high control priority (such as cheatgrass [*Bromus tectorum*], Saharan mustard [*Brassica tournefortii*] and medusa head [*Taeniatherum caput-medusae*]) along with the priority species determined by the County Agriculture Commissioner and the California Invasive Plant Council (Cal-IPC, 2007). This measure also requires that proper actions are taken to prevent the introduction of invasive plants through materials and equipment used for the construction and maintenance of the LEAPS Generation and Transmission Alternative project.

Mitigation Measure for Impact F-4: Project activities would introduce non-native plants, which would contribute to an increased ignition potential and rate of fire spread

B-3a Prepare and implement a Weed Control Plan.

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E.7.3 Mitigation Monitoring, Compliance, and Reporting Table

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-38. Condition No. 38—Habitat Mitigation Plan. Within 1 year from license issuance or prior to any ground disturbing activities, and before starting any activities the Forest Service determines to be of a land-disturbing nature on National Forest System land, the Licensee shall file with the Commission habitat mitigation plan approved by the Forest Service. This plan must identify requirements for construction and mitigation measures to meet Forest Service habitat objectives and standards. Where project features create unavoidable effects that are inconsistent with CNF Land and Resource Management Plan Habitat Objectives, additional activities shall be performed to offset the direct effects of project construction.</p> <p>The replacement in kind of lost habitat would be most appropriately located within the project area, but if opportunities are not fully available there, then alternatively and in order of priority, to be located elsewhere within the Elsinore "Place" (as identified by the LRMP), the Trabuco Ranger District, or the Cleveland NF. Replacement habitat must be manageable by the Forest Service. The plan also must include dates for accomplishing these objectives and standards and must identify needs for and timing of any additional studies necessary. The plan must consist of the following minimum mitigation ratios for permanent loss of habitat:</p> <ul style="list-style-type: none"> • 3:1 for riparian oak woodland • 2:1 for habitats that are sensitive or support listed species • 2:1 for coastal sage scrub • 2:1 for grassland • 1:1 for chaparral
Location	All project locations within National Forest System Land
Monitoring / Reporting Action	The Licensee shall file with the Commission a habitat mitigation plan approved by the Forest Service.
Effectiveness Criteria	Habitat within the National Forest System is protected and/or habitat loss is mitigated through replacement of in kind habitat.
Responsible Agency	National Forest System, Commission
Timing	Prior to and during construction.
MITIGATION MEASURE	<p>FERC-12. Environmental Measure 12—Habitat Mitigation Plan. Prepare a habitat mitigation plan in consultation with the USDA Forest Service, Interior, CDFG, and Riverside County to identify appropriate mitigation of habitat losses.</p>
Location	Along entire project route
Monitoring / Reporting Action	Applicant to a habitat mitigation plan in consultation with the USDA Forest Service, Interior, CDFG, and Riverside County.
Effectiveness Criteria	Habitat impacts are mitigated.
Responsible Agency	CPUC, USDA Forest Service, Interior, CDFG, Riverside County
Timing	Prior to and during construction.
MITIGATION MEASURE	<p>B-1a(LE). Provide restoration/compensation for affected sensitive vegetation communities. Mitigation Measure B-1a(LE) is identical to Mitigation Measure B-1a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The remainder of the mitigation shall be implemented as is. See Table D.2-7 for compensation ratios.</p>
Location	All areas disturbed by construction activities.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Monitoring / Reporting Action	Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. Lead agencies biological monitor shall confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	Lead Agencies
Timing	Prior to, during and after construction.
MITIGATION MEASURE	B-1c(LE). Conduct biological monitoring. Mitigation Measure B-1c(LE) is identical to Mitigation Measure B-1c for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The remainder of the mitigation shall be implemented as is.
Location	Along entire project route.
Monitoring / Reporting Action	Lead Agencies biological monitor shall oversee monitoring and ensure compliance with APMs and mitigation measures.
Effectiveness Criteria	Successful avoidance of unforeseen impacts and compliance with APMs and mitigation measures.
Responsible Agency	Lead Agencies and other agencies with jurisdiction over the project.
Timing	Prior to and during construction.
MITIGATION MEASURE	USFS-15. Condition No. 15—Erosion Control Plan. During planning and before any new construction or non-routine maintenance projects with the potential for causing erosion and/or stream sedimentation on or affecting National Forest System Lands, the Licensee shall file with the Commission an Erosion Control Measures Plan that is approved by the Forest Service. The Plan shall include measures to control erosion, stream sedimentation, dust, and soil mass movement attributable to the project. The plan shall be based on actual-site geological, soil, and groundwater conditions and shall include: <ul style="list-style-type: none"> • A description of the actual site conditions • Detailed descriptions, design drawings, and specific topographic locations of all control measures • Measures to divert runoff away from disturbed land surfaces • Measures to collect and filter runoff over disturbed land surfaces, including sediment ponds at the diversion and powerhouse sites • Revegetating disturbed areas in accordance with current direction on use of native plants and locality of plant and seed sources • Measures to dissipate energy and prevent erosion and, • A monitoring and maintenance schedule.
Location	Forest Service Land
Monitoring / Reporting Action	Applicant shall file with the Commission an Erosion Control Measures Plan that is approved by the Forest Service.
Effectiveness Criteria	Compliance with approved Erosion Control Measures Plan.
Responsible Agency	Commission and U.S. Forest Service.
Timing	Prior to and during construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-35. Condition No. 35—Surface Water Resources Management Plan. The Licensee shall within 6 months after license issuance file with the Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee's activities. The purpose of the plan is to protect groundwater-related surface water and other groundwater-dependent resources. At a minimum the plan shall:</p> <ol style="list-style-type: none"> 1. Develop in consultation with and approved by Forest Service technical specialists and their consultants an inventory of springs and other water courses within 1 mile of Morrell and Decker canyon and their related riparian areas. The inventory shall include water chemistry and physical analysis in addition to monthly and annual hydrographs. Riparian areas shall be delineated and inventoried. Inventories shall include flora and fauna specific to each water source and shall also include special indicator species (i.e. spring snails), as required by the Forest Service technical specialists, which describe the overall health of the system. 2. Develop and implement in consultation with and approved by Forest Service technical specialists and their consultants a riparian vegetation and surface water monitoring plan addressing springs and other surface water courses in the canyon selected for the storage portion of the Pumped Storage Project and their associated riparian areas. Baseline data prior to initiation of the project shall be obtained for both water quantity and quality because project activities could alter groundwater levels and quality, with subsequent alteration of surface water dynamics. The surface water monitoring should include intermittent as well as any perennial systems, and should be done no less frequently than monthly. Surface water monitoring stations shall be established at locations (e.g., at bedrock outcroppings) that would be unlikely to become unusable due to sedimentation or erosion. Riparian vegetation monitoring shall include quantifying extent of riparian vegetation associated with springs, streams, and other riparian areas. The monitoring plan shall be in effect upon approval for pre-construction so that baseline data can be established and shall continue for the entire duration of the project while in construction, and for the post construction period as long as project related impacts to groundwater and/or surface waters are anticipated by the Forest Service technical specialists and their consultants.
Location	All project areas within National Forest Service lands.
Monitoring / Reporting Action	Applicant shall file with the Commission a Water Resources Management Plan that is approved by the Forest Service.
Effectiveness Criteria	Compliance with approved Water Resources Management Plan.
Responsible Agency	Commission and National Forest Service
Timing	Prior to and during construction.
MITIGATION MEASURE	<p>B-2a(LE). Provide restoration/compensation for affected jurisdictional areas. Mitigation Measure B-2a(LE) is identical to Mitigation Measure B-2a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The remainder of the mitigation shall be implemented as is. See Table D.2-7 for compensation ratios.</p>
Location	All locations with impacts to jurisdictional areas.
Monitoring / Reporting Action	Lead agencies and wetland permitting agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans. Lead agencies biological monitor to confirm that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Habitat restoration plans are implemented and meet success criteria. Long-term habitat management is provided for all mitigation sites.
Responsible Agency	Lead agencies and wetland permitting agencies
Timing	Prior to, during, and after construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-29. Condition No. 29—Annual Employee Awareness Training. The licensee shall, beginning the first full calendar year after license issuance, provide annual employee awareness training in coordination with the Forest Service. The goal of the training shall be to familiarize the licensee's maintenance and operations staff with local Forest Service issues. Topics to be covered in this training include local resource issues, special status species, invasive weeds, procedures for reporting to the Forest Service, and Forest Service orders that pertain to the CNF lands in the vicinity of the project.</p> <p>Information on special status species and invasive weeds and their locations in the project area shall be provided to licensee's field personnel.</p>
Location	Entire project within National Forest Service Lands.
Monitoring / Reporting Action	Applicant will provide annual employee awareness training in coordination with Forest Service.
Effectiveness Criteria	The licensee's maintenance and operations staff will be familiar with local Forest Service issues.
Responsible Agency	Forest Service
Timing	Annually after the first full calendar year after license issuance.
MITIGATION MEASURE	<p>USFS-33. Condition No. 33—Vegetation and Invasive Weed Management Plans. Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission Vegetation and Invasive Weed Management Plan approved by the Forest Service. Invasive weeds will be those weeds identified in the California Department Food and Agriculture (CDFA) code, and other non-native species of concern identified by the Forest Service and other resource agencies. The plan will address both aquatic and terrestrial invasive weeds within the project boundary and adjacent to project features directly affecting National Forest lands including recreation facilities, roads, and distribution and transmission lines.</p> <p>1. The Invasive Weed Plan will include and address the following elements:</p> <ul style="list-style-type: none"> • Inventory and mapping of new populations of invasive weeds using a Forest Service compatible database and GIS software. The Invasive weed GIS data layer will be updated annually and shared with other resource agencies. • Weed risk assessment. • Action and/or strategies to prevent and control spread of known populations or introductions of new populations, such as public education and signing, vehicle/equipment wash stations, certified weed-free hay or straw for all construction or restoration needs and use an approved mix of plant species native to the CNF for restoration or erosion control purposes. Formulate an Integrated Pest Management approach for invasive on consideration of pest-host relationships). • Assure that project staff is aware of the current location of invasive weeds and how to identify the invasive weeds likely to occur in the project area. • Development of a schedule for control of all known A, B, Q (CDFA) and selected other invasive weed species, designated by resource agencies. • On-going monitoring of known populations of invasive weeds for the life of the license in locations tied to Project actions or effects, such as road maintenance, at project facilities, O&M activities, recreational areas, new construction sites, etc. to evaluate the effectiveness of re-vegetation and invasive weed control measures. • Avoid use of gravel and fill from known weed infested borrow pits. <p>New infestations of invasive and noxious weeds shall be controlled within 1 month of detection. At specific sites where other resource objectives need to be met (e.g. recreational use) all classes of invasive weeds may be required to be treated.</p> <p>Monitoring will be done in conjunction with other project maintenance and resource surveys, so as not to require separate travel and personnel. Monitoring information, in database and GIS formats, will be provided to the Forest Service as part of the annual consultation on affected National Forest resources (Condition No. 5). To assist with this monitoring requirement, training in invasive plant identification will be provided to Project employees and contractors by the Forest Service.</p>

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

	<p>Licensee shall restore/revegetate areas where treatment has eliminated invasive weeds in an effort to eliminate the reintroduction of invasive weed species. Project-induced ground disturbing activities shall be monitored annually for the first 3 years after disturbance to detect and map new populations of Invasive weeds.</p> <p>2. The Vegetation Management plan shall include and/or address the following elements:</p> <ul style="list-style-type: none"> • Hazard tree removal and trimming • Power line/transmission line clearing to comply with electrical safety and fire clearance requirements • Vegetation management for native habitat and biodiversity improvement • Revegetation of disturbed sites (including plant palette, planting methods, plant densities, propagation materials, and plant maintenance) • Soil fertility and moisture analysis, soil grading, soil amendments, soil protection and erosion control, including use of certified weed free straw • Use only clean, locally collected, weed free seed • Irrigation amounts, methods, and schedule • Pest treatment, monitoring, and prevention methods and schedule.
Location	Entire project within National Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall file with the Commission Vegetation and Invasive Weed Management Plan approved by the Forest Serviced.
Effectiveness Criteria	Compliance with approved Vegetation and Invasive Weed Management.
Responsible Agency	Commission and National Forest Service.
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	FERC-9. Environmental Measure 9—Invasive Weed Management Plan. Develop and implement a vegetation and invasive weed management plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas during construction and over the term of any license issued for the project.
Location	Along entire project
Monitoring / Reporting Action	Applicant to develop and implement a vegetation and invasive weed management plant.
Effectiveness Criteria	Noxious weeds and exotic plants of concern will be prevented and controlled.
Responsible Agency	CPUC
Timing	During construction and operation of the project.
MITIGATION MEASURE	FERC-14. Environmental Measure 14—Employee Awareness Training. Develop and implement an annual employee awareness training program regarding special status plants and animals.
Location	Along entire project.
Monitoring / Reporting Action	Develop and implement annual employee awareness training program regarding special status plants and animals.
Effectiveness Criteria	Employees are aware of special status plants and animals.
Responsible Agency	CPUC
Timing	Annually.
MITIGATION MEASURE	B-3a(LE). Prepare and implement a Weed Control Plan. Mitigation Measure B-3a(LE) is identical to Mitigation Measure B-3a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies," State Parks, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The remainder of the mitigation shall be implemented as is.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Location	Along entire project.
Monitoring / Reporting Action	Lead Agencies biological monitor to confirm preparation and implementation of a weed control plan.
Effectiveness Criteria	Weed control plan prepared and successfully implemented.
Responsible Agency	Lead Agencies
Timing	Prior to, during and after construction.
MITIGATION MEASURE	B-15a. Permanently close access roads along the transmission alignment. Monitor and manage the road closures to assure there is no public access to prevent an increase in disturbance to mountain lions and to prevent the introduction and spread of non-native plant species.
Location	Along entire project.
Monitoring / Reporting Action	Monitor and manage road closures to assure no public access.
Effectiveness Criteria	Mountain lions are minimally disturbed and non-native plants are not introduced or spread.
Responsible Agency	CPUC
Timing	Prior to and during any road closures.
MITIGATION MEASURE	B-4a(LE). Erosion Control Plan. A plan including the requirements defined in USFS-15 shall also be developed for non-Forest Service lands.
Location	Along entire project.
Monitoring / Reporting Action	Applicant shall file with the Commission an Erosion Control Measures Plan that is approved by the Forest Service.
Effectiveness Criteria	Compliance with the Erosion Control Measures Plan.
Responsible Agency	Commission
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	USFS-30. Condition No. 30—Special Status Species. The Licensee shall, beginning the first full calendar year after license issuance, in consultation with the Forest Service, annually review the current list of special status plant and wildlife species (species that are, Forest Service Sensitive, CNF Watch List, or U.S. Fish and Wildlife Service Federally listed) that might occur on National Forest System Lands in the project area directly affected by project operations. When a species is added to one or more of the lists, the Forest Service, in consultation with the Licensee, shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on such National Forest System Lands. For such newly added species, if the Forest Service determines that the species is likely to occur on such National Forest System Lands, the Licensee shall develop and implement a study plan in consultation with the Forest Service to assess the effects of the project on the species. The Licensee shall prepare a report on the study including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to the Forest Service for review and approval. The Licensee shall file the report, including evidence of consultation, with the Commission and shall implement those resource management measures required by the Commission.
Location	Along entire project within Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall, in consultation with the Forest Service, review the current list of special status plant and wildlife species that might occur on National Forest System Lands in the project area directly affected by project operations. The Licensee shall develop and implement a study plan in consultation with the Forest Service to assess the effects of the project on any newly added species.
Effectiveness Criteria	Newly special status plants or wildlife species will be studied and a report that includes resource protection will be written and complied with.
Responsible Agency	Commission and Forest Service

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Timing	Annually beginning the first full calendar year after license issuance.
MITIGATION MEASURE	FERC-15. Environmental Measure 15—Consult with USFWS. Consult with USFWS during the process of developing final design drawings on measures to protect fish and wildlife resources.
Location	Along entire project.
Monitoring / Reporting Action	The Licensee shall consult with the USFWS to develop final design drawings on measures to protect fish and wildlife resources.
Effectiveness Criteria	Compliance with measures to protect fish and wildlife resources.
Responsible Agency	Commission and Forest Service
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	B-5a(LE). Conduct rare plant surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-5a(LE) is identical to Mitigation Measure B-5a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project".
Location	Along entire project.
Monitoring / Reporting Action	Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. Lead Agencies biological monitor shall oversee surveys and monitoring and ensure compliance with APMs and mitigation measures, and confirm that habitat restoration plans are implemented.
Effectiveness Criteria	Successful avoidance or restoration/relocation of sensitive plants, purchase of appropriate mitigation lands, and provision of long-term habitat management for all mitigation sites.
Responsible Agency	Lead Agencies
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	B-7a(LE). Cover all steep-walled trenches or excavations used during construction to prevent the entrapment of wildlife (e.g., reptiles and small mammals). Mitigation Measure B-7a(LE) is identical to Mitigation Measure B-7a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project".
Location	Along entire project.
Monitoring / Reporting Action	Lead Agencies biological monitor shall ensure compliance with APMs and mitigation measures.
Effectiveness Criteria	Steep-walled trenches or excavations are covered at all times except when being actively utilized, or exclusion fencing is installed around the trench or excavation.
Responsible Agency	Lead Agencies
Timing	During construction.
MITIGATION MEASURE	FERC-11. Environmental Measure 11—Special Status Species Surveys. Conduct additional pre-construction special status plant and animal surveys at transmission line tower sites and along transmission alignment access roads to ensure compliance with Western Riverside County Multi-species Habitat Conservation Plan (Multi-Species HCP).
Location	Along entire project.
Monitoring / Reporting Action	Conduct pre-construction special status plant and animal surveys at transmission line towers sites and along access roads.
Effectiveness Criteria	Ensure compliance with Western Riverside county Multi-species Habitat Conservation Plan.
Responsible Agency	Lead Agencies
Timing	Prior to and during construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	B-7i(LE). Conduct quino checkerspot butterfly surveys and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7i(LE) is identical to Mitigation Measure B-7i for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project", and CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The applicant shall provide compensation for temporary and permanent loss of critical habitat at a ratio of 2:1. The total required mitigation shall include off-site purchase and preservation of 16 acres of QCB critical habitat or other habitat acceptable to USFWS. The remainder of the mitigation shall be implemented as is applicable.
Location	Where suitable quino checkerspot butterfly habitat occurs.
Monitoring / Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and quino checkerspot avoidance/minimization/mitigation measures. If required, Lead Agencies shall approve habitat acquisition plans and long-term management plans.
Effectiveness Criteria	Successful avoidance of impacts to the quino checkerspot or impacts as allowed by the USFWS, and if necessary, implementation of mitigation land acquisition.
Responsible Agency	Lead Agencies
Timing	Prior to and during construction.
MITIGATION MEASURE	B-7k(LE). Conduct Stephens' kangaroo rat surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7k(LE) is identical to Mitigation Measure B-7k for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". For the Lake-Pendleton 500 kV New Transmission Line, applicant shall provide 7.6 acres of on-site restoration and 8.4 acres of acquisition and preservation of SKR occupied habitat within or contiguous with the Lake Mathews-Estelle Mountain Core Reserve for impacts to the Lake Mathews-Estelle Mountain Core Reserve.
Location	Areas where the Stephens' kangaroo rat occurs or has potential to occur.
Monitoring / Reporting Action	Lead Agencies biological monitor shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Successful avoidance of occupied habitat or mitigation for such impacts (such as purchase of mitigation land).
Responsible Agency	Lead Agencies
Timing	Prior to, during and after construction.
MITIGATION MEASURE	B-17a. Pay the Stephens' kangaroo rat fee assessment per the current Riverside County rate. The applicant shall provide funding for impacts to the SKR Fee Assessment Area.
Location	Areas where the Stephens' kangaroo rat occurs or has potential to occur.
Monitoring / Reporting Action	The applicant shall provide funding for impacts to the SKR Fee Assessment Area.
Effectiveness Criteria	Successful avoidance of occupied habitat or mitigation for such impacts (such as purchase of mitigation land).
Responsible Agency	Lead Agencies
Timing	Prior to, during and after construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	B-7I(LE). Conduct coastal California gnatcatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7I(LE) is identical to Mitigation Measure B-7I for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The applicant shall provide compensation for the permanent loss of gnatcatcher critical habitat at a ratio of 2:1 through acquisition and preservation of gnatcatcher critical habitat or other habitat acceptable to USFWS. The applicant shall also provide on-site restoration of all and temporary loss disturbance of critical habitat at a ratio of 1:1. The mitigation shall include off-site purchase and preservation of gnatcatcher critical habitat or other habitat acceptable to USFWS. The remainder of the mitigation shall be implemented as is applicable.
Location	Occupied gnatcatcher habitat.
Monitoring / Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to coastal California gnatcatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	Lead Agencies
Timing	Prior to, during and after construction.
MITIGATION MEASURE	B-8a(LE). Conduct pre-construction surveys and monitoring for breeding birds. Mitigation Measure B-8a(LE) is identical to Mitigation Measure B-8a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies", and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project". CPUC and BLM shall be replaced with "Lead Agencies," and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The remainder of the mitigation shall be implemented as is.
Location	Entire project area.
Monitoring / Reporting Action	Lead Agencies biological monitor shall oversee surveys and monitoring to ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds.
Responsible Agency	Lead Agencies
Timing	Prior to and during construction.
MITIGATION MEASURE	USFS-34. Condition No. 34—Wildlife Management. The licensee shall, within one year after license issuance, implement the following raptor/avian safety measures on National Forest System lands or on areas directly affecting National Forest System lands to maintain and enhance existing native wildlife species potentially affected by the project: <ul style="list-style-type: none"> • All power lines, power stations, and other facilities on or affecting National Forest System lands shall be constructed to conform with the "Suggested Practices for Raptor Protection on Power Lines" by the Avian Power Line Interaction Committee (1996), including marking the power lines themselves if they are adjacent to Lake Elsinore or in a flyway where bird strikes may occur.
Location	Entire project area on National Forest System Lands or on areas directly affecting National Forest System lands.
Monitoring / Reporting Action	The licensee shall implement the above raptor/avian safety measures.
Effectiveness Criteria	Compliance with the raptor/avian safety measures.
Responsible Agency	National Forest System

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Timing	Throughout life of project.
MITIGATION MEASURE	FERC-26. Environmental Measure 26—Avian Protection. Ensure all transmission facilities conform to APLIC et al. (1996) guidelines, including power lines to reduce risks of bird strikes. The co-applicants should conform to the April 2005 avian protection plan guidelines.
Location	Entire project area.
Monitoring / Reporting Action	Ensure transmission facilities conform with APLIC et al. (1996) guidelines. The co-applicants should conform to the April 2005 avian protection plan guidelines.
Effectiveness Criteria	Compliance with the above mentioned guidelines.
Responsible Agency	CPUC
Timing	Throughout life of project.
MITIGATION MEASURE	B-10a(LE). Utilize collision-reducing techniques in installation of transmission lines. Mitigation Measure B-10a(LE) is identical to Mitigation Measure B-10a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies," State Parks, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." CPUC and BLM shall be replaced with "Lead Agencies," State Parks, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The area requiring markers for the Lake-Pendleton 500 kV New Transmission Line includes where the transmission line would cross Temescal Wash near Lee Lake, Cow Canyon, Horsethief Canyon, McVicker Canyon, Leach Canyon, Los Alamos Canyon, and Tenaja, and San Mateo Creeks. The remainder of the mitigation shall be implemented as is.
Location	Highly utilized avian flight paths
Monitoring / Reporting Action	Lead Agencies biological monitor shall ensure installation of markers. Lead Agencies shall ensure that the applicant funds and implements a study to document bird mortalities.
Effectiveness Criteria	Markers installed, bird mortality study implemented, and corrective measures taken.
Responsible Agency	Lead Agencies
Timing	During and after construction.
MITIGATION MEASURE	B-12a(LE). Conduct maintenance activities outside the general avian breeding season. Mitigation Measure B-12a(LE) is identical to Mitigation Measure B-12a for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with "Lead Agencies," State Parks, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." CPUC and BLM shall be replaced with "Lead Agencies," State Parks, and/or Wildlife Agencies shall be replaced with "other agencies with jurisdiction over the project." The remainder of the mitigation shall be implemented as is.
Location	Entire project area.
Monitoring / Reporting Action	A qualified biologist shall conduct surveys and monitoring, and ensure compliance with APMs and the mitigation.
Effectiveness Criteria	Successful avoidance/minimization of impacts to nesting birds and prevention of damage to burrows or dens.
Responsible Agency	Lead Agencies
Timing	Prior to and during maintenance (post construction).
MITIGATION MEASURE	B-15b. Develop and implement an Invasive Weed Management Plan. Develop and implement a vegetation and invasive weed management plan to prevent and control noxious weeds and exotic plants of concern in project-affected areas during construction and over the term of any license issued for the project. The management plan shall include a pre-construction weed inventory; specific weed abatement methods, practices, and treatment timing; and long-term measures to control the introduction and spread of noxious weeds.
Location	Entire project area.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Monitoring / Reporting Action	A qualified biologist shall develop a vegetation and invasive weed management plan that will be implemented along entire project area.
Effectiveness Criteria	Noxious weeds and exotic plants of concern will be prevented and controlled.
Responsible Agency	Lead Agencies
Timing	Prior to and during maintenance (post construction).
MITIGATION MEASURE	B-7e(LE). Conduct least Bell’s vireo and southwestern willow flycatcher surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7e(LE) is identical to Mitigation Measure B-7e for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is where applicable.
Location	Areas where the vireo or flycatcher occur or have potential to occur.
Monitoring / Reporting Action	Lead Agencies biological monitor shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to nesting vireos and flycatchers are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	Lead Agencies
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	B-7j. Conduct arroyo toad surveys, and implement appropriate avoidance/minimization/compensation strategies. Mitigation Measure B-7j(LE) is identical to Mitigation Measure B-7j for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies”, and State Parks, USDA Forest Service, USFWS, CDFG, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project”.
Location	Areas where the arroyo toad occurs or has potential to occur.
Monitoring / Reporting Action	A qualified biologist shall oversee surveys and ensure compliance with APMs and avoidance/minimization/mitigation measures. Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation.
Effectiveness Criteria	Impacts to arroyo toads are avoided/minimized/mitigated. Habitat restoration plans are implemented and meet success criteria, and long-term habitat management is provided for all mitigation sites.
Responsible Agency	Lead Agencies
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	B-1b(LE). Implement appropriate avoidance/minimization/compensation strategies for vernal pools and fairy shrimp habitat. Mitigation Measure B-1b(LE) is identical to Mitigation Measure B-1b for the SRPL Proposed Project with the exception that CPUC and BLM shall be replaced with “Lead Agencies,” State Parks, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” CPUC and BLM shall be replaced with “Lead Agencies,” and State Parks, USDA Forest Service, and/or Wildlife Agencies shall be replaced with “other agencies with jurisdiction over the project.” The remainder of the mitigation shall be implemented as is.
Location	All locations near vernal pools and water holding basins with potential to support fairy shrimp for which negative protocol surveys have not been conducted.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Monitoring / Reporting Action	Lead Agencies shall approve habitat restoration plans, habitat acquisition plans, and long-term habitat management plans, and ensure their implementation. Lead Agencies biological monitor shall: oversee construction monitoring to ensure vernal pool impacts are avoided or minimized, and ensure that proposed habitat restoration mitigation plans are implemented.
Effectiveness Criteria	Project will avoid or minimize direct indirect impacts to vernal pools fairy shrimp habitat; habitat restoration plans are implemented and meet success criteria; and long-term habitat management is provided for all mitigation sites.
Responsible Agency	Lead Agencies
Timing	Prior to, during, and after construction.

MITIGATION MEASURE	<p>USFS-37. Condition No. 37—Scenery Conservation Plan. Within one year after license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service. The purpose of this Scenery Conservation Plan is to identify actions that would minimize the project's disturbance to the naturally established scenery. While implementation of this plan is not expected to achieve the Scenic Integrity Objectives of the Cleveland National Forest LMP in many areas, it would enable achievement of the highest scenic integrity possible.</p> <p>The Forest's "High" Scenic Integrity Objective is applicable to almost the entire project area. This objective is to maintain a natural appearing condition, and to design landscape alterations so they remain visually unnoticed from sensitive public viewpoints. These viewpoints include the South Main Divide Road, Ortega Highway, Grand Avenue, Lake Elsinore and nearby communities, other nearby communities including LaCresta, Wildomar, Rancho Capistrano, Interstate 15, Morgan Trail, San Mateo Canyon Wilderness, and Wildomar Road viewpoints including the OHV recreation area, and road segments near Los Alamos Canyon and Tenaja Trailhead.</p> <p>In order to achieve the greatest consistency with the Forest's High Scenic Integrity Objective, the project shall integrate the following design recommendations into the Scenery Conservation Plan:</p> <ul style="list-style-type: none"> • Power Lines and Support Towers: Transmission lines shall be non-specular (non-reflective) and neutral in coloration. To appear as visually transparent as possible within the natural landscape pattern, power lines, and support towers shall be custom-colored to harmonize with the natural vegetation and sky. Towers shall be designed to minimize their visual prominence and their contrast with the natural landscape patterns. They shall be surfaced with a flat, non-reflective finish. Towers beyond 0.75 miles shall visually recede into the natural appearing landscape. Support towers within the "foreground" (approximately 0.75 miles) of sensitive viewpoints shall typically be of monopole design offering a simple, clean and less industrial appearance. Support towers viewed beyond approximately 0.75 miles from sensitive viewpoints shall typically be of a more open, steel lattice design presenting less visual mass, allowing the natural scenery to be viewed through its more open structure. Selection of support tower design along the alignment shall consider both foreground and background sensitive views, as well as the tower's nearby landscape appearance. Vegetation and ground clearing at the foot of each tower, and between towers, would be limited to the clearing necessary to comply with electrical safety requirements. Mitigation, such as placement of a dark colored vegetation barrier/matting, shall be incorporated to reduce the visual contrast of vegetation clearing. • Reservoir: Conceal the unnatural views into the upper storage reservoir that may be visible from South Main Divide and Ortega Highway, nearby recreation areas, trails and wilderness. The reservoir shall be surrounded by an earth berm with irregular form and profile to reflect the local topography. This landform shall be planted with local species native to the area, to blend with the natural appearing landscape. Security fencing shall be colored to blend with, and be screened by, planted native vegetation. • Roads: New temporary roads (maximum 15% ground slope) or roads needing reconstruction/expansion shall be configured to minimize the creation of cut/fill slopes, and where such slopes are created, they shall be immediately treated to minimize their level of scenery disturbance. These treatments may include construction of structural elements designed to blend with the adjacent natural scenery, or revegetation with native species. • Penstock: Penstocks shall be located in underground tunnels and any associated ground dis-
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Table E.7.3-1. Mitigation Monitoring Program – LEAPS

	<p>turbance shall be reshaped to natural appearing contours and revegetated with native species.</p> <ul style="list-style-type: none"> • Structures: All structures and structural elements constructed as part of the project shall be designed, located, shaped, textured, colored and/or screened as necessary to minimize their visual contrast. Structures must blend with and complement the adjacent natural landscape appearance. <p>The Licensee shall provide photorealistic visual simulations of the project features and scenery mitigation measures. These simulations shall demonstrate the effectiveness of the project in achieving LMP Scenic Integrity Objectives for the Elsinore Place as viewed from sensitive viewpoints. These simulations provide information necessary for the Forest Service to approve final project designs. Simulations shall support project refinement of location, design, color and other scenery considerations of the proposed power lines and poles, upper reservoir, and powerhouse. Simulations shall use high quality photography to effectively portray potential scenery effects of the proposed facilities across the project's full geographic range, as seen from most of the sensitive views listed above. Appropriate lighting and atmospheric clarity within the photographs are needed to accurately simulate the potential effects. Where project features create unavoidable scenery effects that are inconsistent with CNF Scenic Integrity Objectives, additional scenery enhancement activities approved by the Forest Service shall be performed in the nearest suitable areas to offset those effects.</p>
Location	All project areas within the National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall file with the Commission a Scenery Conservation Plan that is approved by the Forest Service.
Effectiveness Criteria	Implement the Scenery Conservation Plan to enable the highest scenic integrity possible.
Responsible Agency	National Forest Service
Timing	Within one year after license issuance, or prior to any ground disturbing activities
MITIGATION MEASURE	FERC-20. Environmental Measure 20—Scenery Conservation Plan. Prepare and implement a scenery conservation plan to achieve the greatest consistency possible with the High Scenic Integrity Objectives of the Cleveland National Forest Land Management Plan.
Location	Project areas within National Forest Service Land.
Monitoring / Reporting Action	Prepare and implement a scenery conservation plan.
Effectiveness Criteria	Project will achieve the greatest consistency possible with the High Scenic Integrity Objectives of the Cleveland National Forest Land Management Plan.
Responsible Agency	National Forest Service.
Timing	Prior to and during construction.
MITIGATION MEASURE	V-S-14a. Upper Reservoir Revegetation—Newly planted vegetation (per Mitigation Measure USFS-37) shall be fertilized, irrigated, and maintained by the Applicant. Vegetation survival shall be guaranteed by the Applicant for the life of the LEAPS project. Upon abandonment of the reservoir, dam, pumping facility, the Applicant shall restore the landscape to near-natural conditions, as directed by the CNF. The Applicant shall provide a bond to the CNF sufficient for removal of facilities and restoration of the landscape.
Location	Project areas within National Forest Service Land.
Monitoring / Reporting Action	Applicant shall fertilize, irrigate, and maintain newly planted areas.
Effectiveness Criteria	Project will achieve the greatest consistency possible with the High Scenic Integrity Objectives of the Cleveland National Forest Land Management Plan.
Responsible Agency	National Forest Service.
Timing	During life of project.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS 1. Condition No. 1—Requirement to Obtain a Forest Service Special-Use Authorization. The Licensee shall secure a special-use authorization from the Forest Service for the occupancy and use of National Forest System lands. The licensee shall obtain the executed authorization before beginning ground-disturbing activities on National Forest System lands.</p> <p>Ground disturbing activities on or affecting National Forest Service Lands may proceed only after the Licensee has filed the required development plans, provided any additional documentation required for the Authorized Officer to complete a site specific environmental analysis, and obtained approval for the activity from the Authorized Officer. In no case shall ground-disturbing activities authorized by the license and special-use authorization begin sooner than 60 days following the date the licensee files the Forest Service special-use authorization with the Commission, unless the Commission prescribes a different commencement schedule.</p> <p>In the event there is a conflict between any provision of the license and Forest Service special-use authorization, the special-use authorization shall prevail to the extent that the Forest Service, in consultation with the Commission, deems necessary to protect and utilize National Forest System resources.</p>
Location	Project areas within or affecting National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall secure a special-use authorization from the Forest Service for the occupancy and use of National Forest System lands.
Effectiveness Criteria	Licensee will have a special-use authorization prior to construction.
Responsible Agency	National Forest Service.
Timing	Prior to construction.
MITIGATION MEASURE	<p>USFS 3. Condition No. 3—Forest Service Approval of Final Design. Before any new construction of the project occurs on National Forest System lands, the Licensee shall obtain prior written approval of the Forest Service for all final design plans for Project components, which the Forest Service deems as affecting or potentially affecting National Forest System resources. The Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein and in the Special Use Permit. As part of such written approval, the Forest Service may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the project is either compatible with on-the-ground conditions or approved by the Forest Service based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by the Forest Service, the Commission, or the Licensee to be a substantial change, the Licensee shall follow the procedures of Article 2 of the license. Any changes to the license made for any reason pursuant to Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.</p>
Location	Project areas within or affecting National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall obtain prior written approval of the Forest Service for all final design plans for Project components, which the Forest Service deems as affecting or potentially affecting National Forest System resources.
Effectiveness Criteria	Licensee will have written approval of the Forest Service prior to start of project.
Responsible Agency	National Forest Service.
Timing	Prior to construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	USFS 4. Condition No. 4—Approval of Changes. Notwithstanding any Commission approval or license provisions to make changes to the project when such changes directly affect National Forest System lands, the Licensee shall obtain written approval from the Forest Service prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from the Forest Service, and at least 60 days prior to initiating any such changes or departure, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of the Forest Service for such changes. The Licensee shall file an exact copy of this report with the Forest Service at the same time it is filed with the Commission. This article does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this license, nor shall it affect the Licensee's obligation to comply with Commission requirements.
Location	Project areas within or affecting National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall obtain written approval from the Forest Service prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters, or any departure from the requirements of any approved exhibits filed with the Commission.
Effectiveness Criteria	Licensee will have written approval of the Forest Service to make changes to project features or facilities, or any departure from the requirements of any approved exhibits filed with the Commission.
Responsible Agency	National Forest Service.
Timing	Prior to modification of any project features or facilities.
MITIGATION MEASURE	L-1h. Consult with Department of the Navy. During construction and operation of the project transmission line upgrade, the Applicant shall consult with the Department of the Navy to ensure that construction activities do not interfere with military activities at MCB Camp Pendleton.
Location	Project areas affecting the MCB Camp Pendleton area.
Monitoring / Reporting Action	The Licensee shall consult with the Department of the Navy to ensure that construction activities do not interfere with military activities.
Effectiveness Criteria	Project construction and operation will not interfere with military activities.
Responsible Agency	Department of the Navy
Timing	Prior to construction and during operation of project facilities.
MITIGATION MEASURE	USFS 5. Condition No. 5—Consultation. Each year between February 15 and April 15, the Licensee shall consult with the Forest Service with regard to measures needed to ensure protection and utilization of the National Forest resources affected by the project. Within 60 days following such consultation, the Licensee shall file with the Commission evidence of the consultation with any recommendations made by the Forest Service. The Forest Service reserves the right, after notice and opportunity for comment, to require changes in the project and its operation through revision of the 4(e) conditions that require measures necessary to accomplish protection and utilization of National Forest resources. When Forest Service section 4(e) conditions require the Licensee to file a plan with the Commission that is approved by the Forest Service, the Licensee shall provide the Forest Service a minimum of 60 days to review and approve the plan before filing with the Commission. Upon Commission approval, the Licensee shall implement Forest Service required and approved plans.
Location	Project areas within or affecting National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall consult with the Forest service with regard to measures needed to ensure protection and utilization of the National Forest resources affected by the project. Licensee shall file with the Commission evidence of such consultation with recommendations from Forest Service. The Licensee shall provide the Forest Service a minimum of 60 days to review and approve the plan before filing with the Commission. Upon Commission approval, the Licensee shall implement Forest Service required and approved plans.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Effectiveness Criteria	Forest Service is consulted on the protection and utilization of Forest Service resources. Consultation is recorded and filed with the Commission.
Responsible Agency	Forest Department.
Timing	Annually between February 15 and April 15.
MITIGATION MEASURE	USFS 6. Condition No. 6—Surrender of License or Transfer of Ownership. Prior to any surrender of this license, the Licensee shall provide assurance acceptable to the Forest Service that Licensee shall restore any project area directly affecting National Forest System lands to a condition satisfactory to the Forest Service upon or after surrender of the license, as appropriate. The restoration plan shall identify the measures to be taken to restore National Forest System lands and shall include adequate financial mechanisms to ensure performance of the restoration measures. In the event of any transfer of the license or sale of the project, the Licensee shall assure, in a manner satisfactory to the Forest Service, that the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by the Forest Service to assist in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by the Forest Service, to estimate the potential costs associated with surrender and restoration of any Project area directly affecting National Forest System lands to Forest Service specifications. In addition, the Forest Service may require the Licensee to pay for an independent audit of the transferee to assist the Forest Service in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.
Location	National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall provide assurance acceptable to the Forest Service that Licensee shall restore any project area directly affecting National Forest System lands to a condition satisfactory to the Forest Service upon or after surrender of the license, as appropriate. The Licensee shall assure, in a manner satisfactory to the Forest Service, that the Licensee or transferee will provide for the costs of surrender and restoration.
Effectiveness Criteria	Forest Service land is restored to a condition satisfactory to the Forest Service upon or after surrender of license. Licensee will provide for the costs of surrender and restoration.
Responsible Agency	Forest Department.
Timing	Prior to any surrender of the License.
MITIGATION MEASURE	USFS 16. Condition No. 16—Valid Claims and Existing Rights. This license is subject to all valid rights and claims of third parties. The United States is not liable to the Licensee for the exercise of any such right or claim.
Location	National Forest Service Land.
Monitoring / Reporting Action	Ensure the license is subject to all valid rights and claims of third parties.
Effectiveness Criteria	The United States is not liable to the Licensee for exercise of any such right or claim.
Responsible Agency	Forest Department.
Timing	Prior, during and after any surrender of the License.
MITIGATION MEASURE	USFS 17. Condition No. 17—Compliance with Regulations. The Licensee shall comply with the regulations of the Department of Agriculture for activities on NFS lands, and all applicable federal, state, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting NFS lands, to the extent those laws, ordinances, or regulations are not preempted by federal law.
Location	National Forest Service Land.
Monitoring / Reporting Action	Licensee shall comply with the regulations of the Department of Agriculture for activities on NFS lands, and all applicable federal, state, county, and municipal laws, ordinances, or regulations.
Effectiveness Criteria	Regulations of Department of Agriculture and applicable federal, state, county, and municipal laws, ordinances or regulations are complied with.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Responsible Agency	Forest Department.
Timing	Prior to, during and after any surrender of the License.
MITIGATION MEASURE	USFS 18. Condition No. 18—Protection of United States Property. The Licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with the license.
Location	National Forest Service Land.
Monitoring / Reporting Action	Licensee shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with the license
Effectiveness Criteria	Land and property of the United States will be protected from damage.
Responsible Agency	Forest Department.
Timing	Prior, during and after, any surrender of the License.
MITIGATION MEASURE	USFS 20. Condition No. 20—Surveys, Land Corners. The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on National Forest System lands are destroyed by an act or omission of the Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of the Forest Service. Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.
Location	National Forest Service Land.
Monitoring / Reporting Action	Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. Should land markers or monuments be destroyed by an act or omission of the Licensee, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of the Forest Service.
Effectiveness Criteria	Land markers and/or monuments are not harmed.
Responsible Agency	Forest Department.
Timing	Prior, during and after, any surrender of the License.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-21. Condition No. 21—Damage to Land, Property, and Interests of the United States. The Licensee has an affirmative duty to protect the land, property and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license.</p> <p>The Licensee is liable for all damages, costs and expenses associated with damage to the land, property and interests of the United States occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license, including but not limited to damages, costs and expenses resulting from fire. Such damages, costs and expenses shall include, but not be limited to:</p> <ul style="list-style-type: none"> • Fire suppression costs • Rehabilitation and restoration costs • Value of lost resources • Abatement costs • Investigative and administrative expenses • Attorneys' fees <p>The Licensee's liability under this condition shall not extend to acts or omissions of parties outside of the Licensee's control. Licensee's contractors or employees of contractors are not considered parties outside the Licensee's control. Damages will be determined by the value of the resources lost or impaired, as determined by the Forest Service. The basis for damages will be provided to the Licensee. The licensee shall accept transaction registers certified by the appropriate Forest Service official as evidence of costs and expenses. The Licensee shall have an opportunity to review the basis for the Forest Service's damages, costs and expenses, and to meet and confer with the Forest Service to resolve any questions or disputes regarding such damages, costs and expenses. After the opportunity for review, the Licensee shall promptly pay to the United States such damages, costs and expenses upon written demand by the United States.</p>
Location	National Forest Service Land.
Monitoring / Reporting Action	The Licensee has an affirmative duty to protect the land, property and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Licensee is liable for all for all damages, costs and expenses associated with damage to the land, property and interests of the United States from Licensee's work.
Effectiveness Criteria	Licensee is responsible for protecting land, properties and interests of the United States and liable for any damages to said properties.
Responsible Agency	Forest Department.
Timing	Prior, during and after, any surrender of the License.
MITIGATION MEASURE	<p>USFS-13. Condition No. 13—Safety during Project Construction. Sixty days prior to ground-disturbing activity related to new project construction on or affecting National Forest System Lands, the Licensee shall file a Safety During Construction Plan with the Commission that is approved by the Forest Service that identifies potential hazard areas and measures necessary to protect public safety. Areas to consider include construction activities near public roads, trails and recreation area and facilities.</p> <p>The Licensee shall perform daily (or on a schedule otherwise agreed to by the Forest Service in writing) inspections of Licensee's construction operations on or affecting National Forest System while construction is in progress. The Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to the Forest Service on a schedule agreed to by the Forest Service. The inspections must specifically include fire plan compliance, public safety, and environmental protection. The Licensee shall act immediately to correct any items found to need correction to be in compliance with the license.</p>
Location	National Forest Service Land.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Monitoring / Reporting Action	The Licensee shall file a Safety During Construction Plan with the Commission that is approved by the Forest Service. The Licensee shall perform daily (or on a schedule otherwise agreed to by the Forest Service in writing) inspections of Licensee's construction operations on or affecting National Forest System while construction is in progress.
Effectiveness Criteria	Safety During Construction Plan is implemented.
Responsible Agency	Forest Department.
Timing	Sixty days prior to ground-disturbing activity.
MITIGATION MEASURE	L-1h. Relocate Butterfield Elementary Visual and Performing Arts School. In coordination with the Lake Elsinore Unified School District, the proponent shall relocate the Butterfield Elementary Visual and Performing Arts School to an acceptable temporary location for the duration of construction of the Santa Rosa Powerhouse, Midpoint Substation, and water conduits within 1,000 feet of the school. Relocation site and plans shall be subject to approval of the district.
Location	Within the Lake Elsinore Unified School District.
Monitoring / Reporting Action	The Licensee shall relocate the Butterfield Elementary Visual and Performing Arts School in coordination with the Lake Elsinore Unified School District.
Effectiveness Criteria	The Butterfield Elementary School will be located to an acceptable, temporary location.
Responsible Agency	CPUC
Timing	Prior, during, and after construction.
MITIGATION MEASURE	USFS-23. Condition No. 23—Crossings. Except as otherwise authorized, the Licensee shall maintain existing crossings as required by the Forest Service for all roads and trails that intersect the right-of-way occupied by linear project facilities (power lines, penstock, ditch, and pipeline) on or affecting National Forest System lands.
Location	National Forest Service Land.
Monitoring / Reporting Action	The Licensee shall maintain existing crossings as required by the Forest Service for all roads and trails that intersect the right-of-way occupied by linear project facilities
Effectiveness Criteria	Roads and trails shall be maintained.
Responsible Agency	Forest Department.
Timing	Prior, during, and after construction.
MITIGATION MEASURE	FERC EM-25. Environmental Measure 25. Revise the draft HPMP in consultation with the SHPO, Tribes, U.S. Bureau of Indian Affairs (BIA), the Lake Elsinore Historical Society, and the USFS and file a final HPMP for Commission approval within 1 year of any license issuance.
Location	Along entire project areas.
Monitoring / Reporting Action	The Licensee shall revise the draft HPMP in consultation with the SHPO, Tribes, U.S. Bureau of Indian Affairs (BIA), the Lake Elsinore Historical Society, and the USFS and file a final HPMP for Commission approval.
Effectiveness Criteria	Revised HPMP is filed with the Commission.
Responsible Agency	Commission
Timing	Within 1 year of any license issuance.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-28. Condition No. 28—Heritage Resources Management Plan. The Licensee shall file with the Commission, within one year following license issuance, or prior to any ground disturbing activities, a Heritage Resources Management Plan (HRMP), approved by the Forest Service, for the purpose of protecting and interpreting heritage resources on National Forest System lands. The HRMP is tiered to a Programmatic Agreement, to which the Forest Service will be a signatory, as defined by 36 CFR 800, and implements regulations of the National Historic Preservation Act. The Licensee shall consult with the State Historic Preservation Officer, Native American Tribes, Forest Service, and other applicable agencies and communities during the preparation of the Plan. The HRMP shall accurately define the area of potential effects, including effects of implementing Section 4(e) conditions, Native American traditional cultural values, and Project-induced recreational impacts to archaeological properties on or affecting National Forest System lands. The HRMP shall also provide measures to mitigate the identified impacts, including a monitoring program, a patrolling program, and management protocols for the ongoing protection of archaeological properties.</p> <p>If, prior to or during ground-disturbing activities or as a result of project operations, items of potential cultural, historical, archaeological, or paleontological value are reported or discovered, or a known deposit of such items is disturbed on National Forest System lands, the Licensee shall immediately cease work in the area affected. The Licensee shall then: (1) consult with the California State Historic Preservation Officer (SHPO) and the Forest Service about the discovery; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the National Register of Historic Places; (3) base the site-specific plan on recommendations of the SHPO, the Forest Service, and Secretary of the Interior’s Standards and guidelines for Archaeology and Historic Preservation; (4) file the site specific plan for Commission approval, together with the written comments of the SHPO and the Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by the Commission that the requirements have been fulfilled.</p> <p>Upon Commission approval, the Licensee shall implement the plan.</p>
Location	In Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall file with the Commission, within one year following license issuance, or prior to any ground disturbing activities, a Heritage Resources Management Plan (HRMP), approved by the Forest Service, for the purpose of protecting and interpreting heritage resources on National Forest System lands.
Effectiveness Criteria	Forest Service will approve the applicant’s HPMP that is filed with the Commission.
Responsible Agency	Commission, Forest Service
Timing	Prior to and during construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-26. Condition No. 26—Road and Traffic Management Plan. Within one year of license issuance or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for management of all Forest Service and unclassified roads required by the licensee to access the project area on National Forest System Lands. The Project Road and Traffic Management Plan shall include:</p> <ul style="list-style-type: none"> • Identification of all Forest Service roads and unclassified roads on National Forest System Lands needed for project access, including road numbers. • A map of all Forest Service roads and unclassified roads on National Forest System land used for project access, including digital spatial data accurate to within 40 feet, identifying each road by Forest Service essential for review road number. • A description of each Forest Service road segment and unclassified roads on National Forest System land needed for project access including: <ol style="list-style-type: none"> 1. Termini 2. Length 3. Purpose and use 4. Party responsible for maintenance 5. Level of maintenance 6. Structures accessed 7. Location and status of gates and barricades, if any 8. Land status of road segment including ownership and right-of-way or easement 9. Instrument of authorization for road use 10. Assessment of road condition and licensee reconstruction needs 11. Rehabilitation of temporary access disturbance 12. Temporary access locations will be gated to prevent unauthorized public vehicle access • Provisions for the licensee to consult with the Forest Service in advance of performing any road construction, realignment, maintenance, or closure involving Forest Service roads, or roads authorized by the Forest Service. • The Licensee will be required to upgrade Forest Service roads if necessary to accommodate the proposed use. • The Licensee shall cooperate with Forest Service on the preparation of a condition survey and a proposed maintenance plan subject to Forest Service approval annually; beginning the first full-year after the Road and Traffic Management Plan has been approved. • The Licensee shall use non-Forest Service roads on or affecting National Forest System lands in accordance with applicable state, county, city, and/or local authority standards. The Licensee will furnish documentation and evidence of their coordination with other road management entities. The Licensee is responsible for securing any necessary easements or right-of-way for roads on private land if Forest Service easements are not available or assignable. • The Road and Traffic Management Plan shall identify the licensee’s responsibility for road maintenance and repair costs commensurate with the licensee’s use and project-induced use. The Road and Traffic Management Plan shall specify road maintenance and management standards; that provide for traffic safety, minimize erosion and damage to natural resources, and that are acceptable to the Forest Service. • Licensee shall be responsible for any new construction, realignment, closure, or other road management actions proposed by the licensee in the future, subject to Forest Service standards in effect at the time, including related studies, analyses or reviews required by Forest Service. <p>Upon Commission approval, the Licensee shall implement the plan.</p>
Location	Along entire project areas within Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall file with the Commission a plan approved by the Forest Service for management of all Forest Service and unclassified roads required by the licensee to access the project area on National Forest System Lands.
Effectiveness Criteria	The approved Road and Traffic Management Plan is filed and implemented.
Responsible Agency	Forest Service and Commission

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Timing	Within 1 year of any license issuance or prior to any ground disturbing activities.
MITIGATION MEASURE	FERC-22. Environmental Measure 22—Traffic Management Plan: Forest. Include in the proposed road and traffic management plan applicable to National Forest System lands provisions addressing road construction, realignment, maintenance, use, and closure and identifying the proponents' responsibility for road maintenance and repair costs.
Location	Along entire project areas within the National Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall include in the proposed road and traffic management plan applicable to National Forest System lands provisions addressing road construction, realignment, maintenance, use, and closure and identifying the proponents' responsibility for road maintenance and repair costs.
Effectiveness Criteria	The approved Road and Traffic Management Plan is filed and implemented.
Responsible Agency	Commission, National Forest Service
Timing	Within 1 year of any license issuance or prior to any ground disturbing activities.
MITIGATION MEASURE	FERC-23. Environmental Measure 23—Traffic Management Plan: Non-Forest. Include in the proposed road and traffic management plan applicable on non-National Forest System lands provisions addressing road construction, realignment, maintenance, use, and closure, as well as land management policies and practices associated with project-related roads during both construction and operations.
Location	Along entire project areas.
Monitoring / Reporting Action	The Licensee shall include in the proposed road and traffic management plan applicable on non-National Forest System lands provisions addressing road construction, realignment, maintenance, use, and closure, as well as land management policies and practices associated with project-related roads during both construction and operations.
Effectiveness Criteria	The approved Road and Traffic Management Plan is filed and implemented.
Responsible Agency	Commission
Timing	Within 1 year of any license issuance or prior to any ground disturbing activities.
MITIGATION MEASURE	T-9b. Add traffic lanes on Grand Avenue. The proponent shall do one of the following in coordination with the City of Lake Elsinore: (1) add a second left turn lane to the Ortega Highway intersection approach to address the high number of left turns on to Ortega Highway from Grand Avenue, or (2) add a through lane on Grand Avenue (for a total of two) in both directions, at the Grand/Ortega intersection.
Location	Along Grand Avenue/Ortega Highway intersection.
Monitoring / Reporting Action	Ensure either (1) add a second left turn lane to the Ortega Highway intersection approach to address the high number of left turns on to Ortega Highway from Grand Avenue, or (2) add a through lane on Grand Avenue (for a total of two) in both directions, at the Grand/Ortega intersection (FERC, 2007).
Effectiveness Criteria	One of the above mentioned actions has been implemented.
Responsible Agency	Commission
Timing	Prior to construction.
MITIGATION MEASURE	P-6a. Develop list of approved herbicides. The project proponent shall develop a list of herbicides to be used for construction, operation, and maintenance of the project ROW in consultation with USFWS and USFS (on Forest System lands). This list shall be subject to agency approval at least 60 days prior to construction.
Location	Along entire project areas.
Monitoring / Reporting Action	Proponent will have a list of herbicides that was compiled with consultation of the USFWS and USFS.
Effectiveness Criteria	An herbicide list has been compiled with consultation.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Responsible Agency	Commission
Timing	At least 60 days prior to construction.
MITIGATION MEASURE	P-6b. Update and follow Sempra’s Physical and Climatic Target Area Evaluation Form. The project proponent shall update Sempra’s Physical and Climatic Target Area Evaluation Form to contain current contact information, and all personnel shall follow the steps laid out in the Form during all stages of project construction and operation.
Location	Along entire project areas.
Monitoring / Reporting Action	Proponent will update and implement Sempra’s Physical and Climatic Target Area Evaluation Form.
Effectiveness Criteria	An updated version of Sempra’s Physical and Climatic Target Area Evaluation Form is implemented.
Responsible Agency	Commission
Timing	Prior and during construction and operation.
MITIGATION MEASURE	USFS-7. Condition No. 7—Hazardous Substances Plan. Within one year of license issuance, or prior to any ground disturbing activities, the Licensee shall file with the Commission a plan approved by the Forest Service for hazardous substances storage, spill prevention, and spill clean-up for Project facilities on or directly affecting National Forest System Lands. In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, the Licensee shall notify the Forest Service, and the Forest Service shall make a determination whether a plan approved by the Forest Service for oil and hazardous substances storage and spill prevention and clean-up is needed. At a minimum, the plan must require the Licensee to (1) maintain in the project area, or at an alternative location approved by the Forest Service, a cache of spill clean-up equipment suitable to contain any spill from the project; (2) to periodically inform the Forest Service of the location of the spill clean-up equipment on National Forest System lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; (3) to inform the Forest Service immediately of the nature, time, date, location, and action taken for any spill affecting National Forest System lands, and Licensee adjoining property when such spill could reasonably be expected to affect National Forest System lands, and (4) provide annually to the Forest Service a list of Licensee project contacts
Location	Along entire project areas.
Monitoring / Reporting Action	Proponent will compile and implement a Hazardous Substance Plan with the approval of the Forest Service.
Effectiveness Criteria	A Hazardous Substance Plan will be implemented.
Responsible Agency	National Forest Service
Timing	Within one year of license issuance, or prior to any ground disturbing activities.
MITIGATION MEASURE	FERC-1. Environmental Measure 1—Erosion Control Plan. Include specific provisions in the proposed erosion control plan that applies erosion control measures and BMPs to all construction locations, including the upper reservoir, drainage and flood control locations, penstock tunnels, powerhouse, tailrace, inlet/outlet structure, transmission lines, and all associated construction laydown areas and temporary on-site borrow areas for all subsequent ground disturbing activities over the term of any license issued for the project.
Location	Along entire project areas.
Monitoring / Reporting Action	Proponent will compile and implement an Erosion Control Plan that applies erosion control measures and BMPs.
Effectiveness Criteria	An Erosion Control Plan will be implemented.
Responsible Agency	Commission
Timing	Prior and during construction and operation.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	FERC-3. Environmental Measure 3—Surface Water Resources Management Plan. Develop and implement a surface water resources management plan to control and monitor project-related effects on water resources that support riparian vegetation on National Forest System lands.
Location	Along entire project areas.
Monitoring / Reporting Action	Proponent will develop and implement a Surface Water Resources Management Plan.
Effectiveness Criteria	A Surface Water Resources Management Plan will be implemented.
Responsible Agency	Commission
Timing	Prior and during construction and operation.
MITIGATION MEASURE	USFS-35. Condition No. 35—Surface Water Resources Management Plan. The Licensee shall within 6 months after license issuance file with the Commission a Water Resources Management Plan that is approved by the Forest Service, for the purpose of controlling and monitoring the project-related effects to water resources on National Forest System lands, which are related to the Licensee’s activities. The purpose of the plan is to protect groundwater-related surface water and other groundwater-dependent resources. At a minimum the plan shall: <ul style="list-style-type: none"> • Develop in consultation with and approved by Forest Service technical specialists and their consultants an inventory of springs and other water courses within 1 mile of Morrell and Decker Canyons and their related riparian areas. The inventory shall include water chemistry and physical analysis in addition to monthly and annual hydrographs. Riparian areas shall be delineated and inventoried. Inventories shall include flora and fauna specific to each water source and shall also include special indicator species (i.e., spring snails), as required by the Forest Service technical specialists, which describe the overall health of the system. • Develop and implement in consultation with and approved by Forest Service technical specialists and their consultants a riparian vegetation and surface water monitoring plan addressing springs and other surface water courses in the canyon selected for the storage portion of the Pumped Storage Project and their associated riparian areas. Baseline data prior to initiation of the project shall be obtained for both water quantity and quality because project activities could alter groundwater levels and quality, with subsequent alteration of surface water dynamics. The surface water monitoring should include intermittent as well as any perennial systems, and should be done no less frequently than monthly. Surface water monitoring stations shall be established at locations (e.g., at bedrock outcroppings) that would be unlikely to become unusable due to sedimentation or erosion. Riparian vegetation monitoring shall include quantifying extent of riparian vegetation associated with springs, streams, and other riparian areas. The monitoring plan shall be in effect upon approval for pre-construction so that baseline data can be established and shall continue for the entire duration of the project while in construction, and for the post construction period as long as project related impacts to groundwater and/or surface waters are anticipated by the Forest Service technical specialists and their consultants.
Location	Along project areas within the Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall file with the Commission a Water Resources Management Plan that is approved by the Forest Service.
Effectiveness Criteria	A Water Resources Management Plan will be implemented.
Responsible Agency	Commission
Timing	Within 6 months after license issuance.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	<p>USFS-36. Condition No. 36—Groundwater Management Plan. Within one year of license issuance the Licensee shall file with the Commission a plan approved by the Forest Service for the management of groundwater and the associated surface waters on or affecting National Forest System lands. The purpose of the plan shall be to reduce the potential for groundwater extraction or contamination and related effects to surface water resources. At a minimum, the Groundwater Management Plan shall:</p> <ul style="list-style-type: none"> • Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater exploration and aquifer characterization plan which includes the use of existing data as well as installation of additional exploration boreholes and monitoring wells, aquifer testing (which includes water quality) and geophysics as deemed necessary to determine baseline data, construction monitoring data and post construction monitoring data for the area potentially impacted by the project. • Groundwater inflow criteria for tunneling will be established by the Forest Service in consultation with the proponents. Inflow criteria will be approved by the forest service prior to construction. • Develop and implement, in consultation with and approved by the Forest Service, a plan to monitor and control groundwater levels and tunnel inflows for the duration of the construction of the penstocks and tunnels and for a minimum of 10 years post construction unless it can be determined that construction-related impacts no longer exist. This plan may include, but is not limited to, the development and use of a groundwater model as well as the installation and use of in-tunnel piezometers, monitoring wells, and seepage collars (or other means to control longitudinal flows along the tunnel). • Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater testing and monitoring program for the lined reservoir which will detect seepage from the reservoir into the groundwater and riparian areas. This monitoring program will remain in place for the life of the permit project. • Develop in consultation with and approved by the Forest Service technical specialists and their consultants a groundwater testing and monitoring program for the tunnel (unless a final impervious liner is installed prior to commissioning) which will detect seepage from the tunnel liner into the groundwater and riparian areas. <p>This monitoring program will remain in place for the life of the permit project.</p>
Location	Along project areas within the Forest Service Lands.
Monitoring / Reporting Action	The Licensee shall file with the Commission a Groundwater Management Plan that is approved by the Forest Service.
Effectiveness Criteria	A Groundwater Management Plan will be implemented.
Responsible Agency	Commission
Timing	Within one year of license issuance.
MITIGATION MEASURE	<p>H-3b. Minimize impacts from road construction. To the extent possible, BMPs and sound road design practices that are cognizant of road construction effects shall be carried out to mitigate partly for the inherent effects of road construction on groundwater. In certain situations, there is no cost-effective alternative or mitigation for the adverse effects of hillslope road cuts on local groundwater. Transmission towers shall be installed via helicopter in areas with slopes greater than 15 percent to minimize the potential effects of road cuts on groundwater.</p>
Location	Along all project areas.
Monitoring / Reporting Action	Monitor will ensure BMPs and sound road design practices are carried out. Transmission towers shall be installed via helicopter in areas with slopes greater than 15 percent to minimize the potential effects of road cuts on groundwater.
Effectiveness Criteria	BMPs and sound roads will be implemented.
Responsible Agency	Commission
Timing	Prior to and during construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	G-1e. Minimize road construction. Any temporary roads developed for the project would be removed, recontoured, and revegetated following construction except where the USFS authorizes continued use of the roads for transmission line maintenance, eliminating long-term impacts from temporary roads.
Location	Along all project areas.
Monitoring / Reporting Action	Monitor will ensure road construction is minimized and temporary roads are removed, recontoured and revegetated.
Effectiveness Criteria	Road construction is minimal and removed after construction.
Responsible Agency	Commission
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	FERC-7. Environmental Measure 7—Entrainment Monitoring. Conduct entrainment monitoring for 1 year and once every 5 years over the term of any license issued to the project to determine the extent of fish entrainment and mortality at the Lake Elsinore intake/outlet structures and provide the monitoring results to CDFG, FWS, the State Water Board, and the Joint Watershed Authority, and, based on the results of entrainment monitoring, develop and implement a plan to mitigate for entrainment losses through measures, such as enhancing nearshore fish habitat or stocking fish, that would aid in establishment of naturally sustaining population of desirable sport fish.
Location	Along Lake Elsinore
Monitoring / Reporting Action	Conduct entrainment monitoring for 1 year and once every 5 years. Ensure plan is developed based on monitoring. Implement plan.
Effectiveness Criteria	Implement plan to ensure fish stock based on entrainment monitoring.
Responsible Agency	Commission
Timing	For 1 year and once every 5 years for life of project.
MITIGATION MEASURE	FERC-17. Environmental Measure 17—Recreation Development Plan. Consult with the USFS to develop and implement a recreation development facility plan for a day-use recreation facility at the construction laydown area used during the construction of the upper reservoir on National Forest System lands or for an alternative use and/or location.
Location	Along entire project area.
Monitoring / Reporting Action	Design a Recreation Development Plan with the consultation of the USFS.
Effectiveness Criteria	Implement Recreation Development Plan.
Responsible Agency	Commission
Timing	Prior to and during construction.
MITIGATION MEASURE	FERC-18. Environmental Measure 18—Recreation Plan. Develop and implement a recreation plan that provides for transferring of cleared land off National Forest System lands to a local entity and developing recreational facilities at the powerhouse location and operation and maintenance (O&M) funding sufficient to operate the facilities.
Location	Along entire project area.
Monitoring / Reporting Action	Design a Recreation Plan with the consultation of the USFS.
Effectiveness Criteria	Implement Recreation Plan.
Responsible Agency	Commission
Timing	Prior to and during construction.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	FERC-19. Environmental Measure 19—Lakebed Sediment Toxicity Plan. Develop and implement a plan to determine the toxicity of sediments in Lake Elsinore lakebed that would be disturbed by construction of the intake/outlet structure and to provide for appropriate handling and disposal if toxins are identified in the lakebed sediment prior to beginning construction of the intake/outlet structure in Lake Elsinore.
Location	Along the Lake Elsinore lakebed.
Monitoring / Reporting Action	Develop and implement a plan to determine the toxicity of sediments in Lake Elsinore lakebed provide for appropriate handling and disposal if toxins are identified in the lakebed sediment.
Effectiveness Criteria	Implement Lakebed Sediment Toxicity Plan.
Responsible Agency	Commission
Timing	Prior to and during construction.
MITIGATION MEASURE	P-9a. Notify residents and recreational users of rotenone use. At least 30 days prior to application of rotenone, the proponent shall post signs at all lakeshore recreation areas and shall publish notices in local newspapers, informing the public of the timing of planned rotenone application. The notice shall provide information on lake closure and potential health effects. In addition, the proponent shall patrol the lake at all recreation sites during the closure to ensure that no recreation takes place during the period of rotenone exposure.
Location	Along the Lake Elsinore lakebed.
Monitoring / Reporting Action	Residents and recreational users are notified of rotenone use. Patrol the lake at recreation sites during closure.
Effectiveness Criteria	Residents and recreational users are aware of use of rotenone and potential health effects.
Responsible Agency	Commission
Timing	At least 30 days prior to application of rotenone.
MITIGATION MEASURE	USFS-22. Condition No. 22—Risks and Hazards. As part of the occupancy and use of the project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting NFS lands that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on National Forest System lands shall be performed after consultation with the Forest Service. In emergency situations, the Licensee shall notify the Forest Service of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not the Forest Service is notified or provides consultation; the Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.
Location	Along project areas on or directly affecting NFS lands.
Monitoring / Reporting Action	The Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting NFS lands that would affect the improvements, resources, or pose a risk of injury to individuals.
Effectiveness Criteria	Hazardous conditions are observed and non-emergency actions are performed after consultation with the Forest Service; emergency actions are notified to the Forest Service no later than 48 hours after the event.
Responsible Agency	Forest Service
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	FERC-2. Environmental Measure 2—Lake Elsinore Lake Operating Plan. Develop and implement a revised lake operating plan for Lake Elsinore, addressing increased minimum lake levels, flood control implications, and water supply issues.
Location	Along Lake Elsinore.
Monitoring / Reporting Action	Develop and implement a revised lake operating plan for Lake Elsinore.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Effectiveness Criteria	Lake Elsinore Lake Operation Plan is implemented.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction and during operation.
MITIGATION MEASURE	FERC-5. Environmental Measure 5—Upper Reservoir and Water Conduit Monitoring Program: Groundwater. Include specific provisions in the upper reservoir and water conduit monitoring program to explore the groundwater and characterize the aquifer, to consult on groundwater inflow criteria, and to monitor groundwater levels during construction and operation of the water conduits including the tunnels and penstocks that convey water between the upper reservoir and the powerhouse for 10 years or longer if necessary, specifying remedial actions if monitoring reveals changes in groundwater levels or seepage into the tunnels.
Location	Along the upper reservoir.
Monitoring / Reporting Action	Develop and implement an upper reservoir and water conduit monitoring program.
Effectiveness Criteria	Upper Reservoir and Water Conduit Monitoring Program is implemented.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction and during operation.
MITIGATION MEASURE	FERC-6. Environmental Measure 6—Environmental Monitoring Plan: Aquatic. Develop and implement a detailed plan specifying activities, locations, methods and schedules that the qualified environmental construction monitor will use to monitor construction in aquatic environments.
Location	Along aquatic environments.
Monitoring / Reporting Action	Develop and implement a detailed plan specifying activities, locations, methods, and schedules that will be used to monitor construction in aquatic environments.
Effectiveness Criteria	Environmental Monitoring Plan: Aquatic is implemented.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	H-9b. Compensate affected water supply. Should destabilization of artesian groundwater serving as water supply occur, the proponent shall compensate delivery of additional water supply in consultation with EVMWD.
Location	Along entire project area.
Monitoring / Reporting Action	Compensate delivery of additional water supply in consultation with the EVMWD.
Effectiveness Criteria	Water supply is compensated.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction.
MITIGATION MEASURE	H-12a. Isolate underground powerhouse from groundwater flows. The applicant shall use a combination of sealing and water control sumps to isolate the powerhouse from underground flows. The applicant shall ensure that groundwater flow patterns at the proposed Santa Rosa site are not adversely affected.
Location	Along the Santa Rosa site.
Monitoring / Reporting Action	The applicant shall use a combination of sealing and water control sumps to isolate the powerhouse from underground flows.
Effectiveness Criteria	Ensure groundwater flow patterns are not adversely affected.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction, during operation.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

MITIGATION MEASURE	H-12a. Isolate underground powerhouse from groundwater flows. The applicant shall use a combination of sealing and water control sumps to isolate the powerhouse from underground flows. The applicant shall ensure that groundwater flow patterns at the proposed Santa Rosa site are not adversely affected.
Location	Along the Santa Rosa site.
Monitoring / Reporting Action	The applicant shall use a combination of sealing and water control sumps to isolate the powerhouse from underground flows.
Effectiveness Criteria	Ensure groundwater flow patterns are not adversely affected.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction, during operation.
MITIGATION MEASURE	H-14a. Develop and implement a water spill, release, and/or leak prevention plan. At least 60 days prior to construction of the upper reservoir, the applicant shall file with the CPUC and EVMWD a plan for protection of the San Juan Creek Watershed from any water spill, release, and/or leak. The plan shall be reviewed and approved by the CPUC and EVMWD prior to initiation of construction activities. At a minimum, the plan must require the Licensee to (1) maintain the project area sealed off from the San Juan Creek Watershed during construction and operation of the project; (2) to periodically test the upper reservoir for any leaks, releases, and/or spills; (3) to inform the CPUC and EVMWD immediately of the nature, time, date, location, and action taken for any spill affecting the San Juan Creek Watershed; and (4) establish a protocol for cleanup and monitoring any spill, release, and or leak that must be reviewed and approved by the CPUC and EVMWD.
Location	Along the San Juan Creek Watershed, at the upper reservoir.
Monitoring / Reporting Action	The applicant shall develop a water spill, release, and/or leak prevention plan.
Effectiveness Criteria	A water spill, release, and/or leak prevention plan will be implemented and water from the upper reservoir will not spill, release, and/or leak into the San Juan Creek Watershed.
Responsible Agency	CPUC
Timing	Prior to, during, and after construction, during operation.
MITIGATION MEASURE	USFS-31. Condition No. 31—Ground Disturbing Activities. Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion. If the licensee proposes new activities to the Commission not previously addressed in the Commission's NEPA analysis processes, the licensee, in consultation with the Forest Service, shall determine the scope of work, and the potential project related effects and whether additional information is required to proceed with the planned ground disturbing activity. The licensee shall enter into a collection agreement with the Forest Service under which the licensee shall fund the Forest Service staff time required for staff activities related to the analysis, documentation and administration of the proposed activities.
Location	The project areas within the National Forest Service lands.
Monitoring / Reporting Action	Ground disturbing activities may proceed only after appropriate NEPA analysis and documentation completion.
Effectiveness Criteria	Ground disturbing activities will occur only with appropriate NEPA analysis and documentation.
Responsible Agency	CPUC
Timing	Prior to construction.
MITIGATION MEASURE	FERC-21. Environmental Measure 21—Balance of Excavation and Fill. Achieve the balance of excavation and fill material at the upper reservoir site (through additional excavation) and dispose of other excavation materials from the construction of project facilities (except the upper reservoir) off site.
Location	Along the upper reservoir.

Table E.7.3-1. Mitigation Monitoring Program – LEAPS

Monitoring / Reporting Action	Achieve the balance of excavation and fill material at the upper reservoir site (through additional excavation) and dispose of other excavation materials from the construction of project facilities (except the upper reservoir) off site
Effectiveness Criteria	An appropriate balance of excavation and fill material will be used at the upper reservoir site.
Responsible Agency	CPUC
Timing	Prior to construction and during construction.
MITIGATION MEASURE	FERC-13 Environmental Measure 13 – Consult with USFS. Consult with the USFS annually to review the list of special status species and survey new areas as needed.
Location	Along the entire route within USFS Lands.
Monitoring / Reporting Action	Consult with USFS to review list of special status species and survey new areas.
Effectiveness Criteria	Special status species will be updated and new areas will be surveyed.
Responsible Agency	USFS
Timing	Annually
MITIGATION MEASURE	FERC-15 Environmental Measure 15 – Consult with USFWS. Consult with FWS during the process of developing final design drawings on measures to protect fish and wildlife resources.
Location	Along the entire route
Monitoring / Reporting Action	Consult with FWS during development of final design drawing.
Effectiveness Criteria	Fish and wildlife resources are protected.
Responsible Agency	FWS
Timing	Prior to construction.

E.7.4 References

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