D. Environmental Analysis

D.1 Introduction to Environmental Analysis

This Supplemental Environmental Impact Report (SEIR) analyzes the environmental impacts associated with the expansion of the Colorado River Substation and the associated telecommunications and water requirements. This section is organized as follows:

- Section D.2, Biological Resources
- Section D.3, Cultural Resources
- Section D.4, Water Resources
- Section D.5, Socioeconomics and Utilities
- Section D.6, Greenhouse Gas

Connected Actions. Each of the sections above considers the impacts of the specific project components that would affect that resource. In addition, each of these sections presents a summary of the impacts that would result from the two solar projects that would connect with the Colorado River Substation (Blythe Solar Power Project and GSEP). As discussed in Section B.4, the substation is being constructed only to interconnect renewable generation and the generation could require transmission access via this substation.

Alternatives. Also within each issue area, the impacts of the following six alternative substation locations are evaluated:

- Partial Avoidance Alternative
- Avoidance Alternative #1
- Avoidance Alternative #2
- Avoidance Alternative #3
- Southern Alternative
- No Project Alternative

The primary impact differences between the proposed CRS site and the alternative sites result from shifting the substation site to minimize impacts to an active sand transport corridor (see discussion in Section D.2) and/or differences in land ownership (i.e., private versus public [BLM] land). For the expanded substation, the peak construction activities, site access, and land uses would be the same and the five site locations are in close geographic proximity.

D.1.1 Project Components Analyzed in This Supplemental EIR

As described in detail in Section B, this SEIR considers the following major project components:

- The expansion of the Colorado River Substation,
- The addition of linear facilities to support telecommunications, and
- The proposed use of groundwater at the substation during construction and operation.

Each of these components, and the impact analysis presented for each component, is described below.

Substation Expansion

The Colorado River Substation (CRS) was originally analyzed for each issue area in the Devers–Palo Verde No. 2 Transmission Project Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) as the Midpoint-Desert Southwest (DSW) Substation. The DSW Substation was part of the Desert Southwest Transmission Project Alternative (CPUC, 2006). The CPUC approved the DPV2 Project on January 25, 2007 in Decision D.07-01-040 and certified the EIR as being in compliance with the requirements of CEQA.

On May 14, 2008, SCE filed a Petition for Modification (PFM) of the existing Certificate for Public Convenience and Necessity (CPCN) approved per Decision D.07-01-040. SCE requested that the CPUC authorize SCE to construct DPV2 facilities in only the California portion of DPV2 and the Midpoint Substation near Blythe, California. The CPUC approved SCE's PFM on November 20, 2009 in Decision D.09-11-007.

In November 2010, Southern California Edison (SCE) submitted an application for a Permit to Construct (PTC) the Colorado River Substation Expansion Project (A.10-11-005), which includes the following modified project components:

- 45-acre substation expansion (the original substation was 44 acres and the new substation would be almost 90 acres [1,600 feet by 2,400 feet]);
- 220 kV generation-tie line connections into the CRS by constructing the final span of conductors from the interconnecting generators' final transmission line structures to the substation dead-end rack.
- 33 kV distribution line construction for station light and power (15 to 20 new wood poles for 2,500 feet; 1,000 feet of underground distribution line; and a graded access road extending north);
- Improvements to the access road from Willey Well Road (compaction, paving, widening from 13 feet to 30 feet for 4.7 miles);
- Telecommunications facilities installation, including optical ground wire (OPGW) strung on the generators' gen-tie lines to terminate inside the CRS. SCE would install the last span of OPGW between the switch rack and the interconnecting generators' first transmission line structures outside the CRS, and would make the final terminations to associated communications equipment installed inside the CRS.
- Telecommunications facilities installation, including approximately 5.6 miles of optical ground wire (OPGW) and approximately 13.6 miles of All-Dielectric Self-Supporting (ADSS) fiber optic cable. The telecommunication lines would extend from the CRS, one to the southeast (southeast telecom line) and the second to the north and east (northern telecom line).

The proposed CRS would ultimately be a 4480 MVA 500/220 kV substation, but it would be equipped initially as a 2240 MVA 500/220 kV substation. The CRS would be located in a remote location and approximately 1,500 feet by 2,200 feet would be surrounded by a wall with two gates.

D.1.2 Impact Analysis of the CRS Expansion

As stated in CEQA Guidelines Section 15163(b), "[t]he supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised." For most environmental disciplines, the impacts of the expanded substation project would not be substantially different from those of the original substation, as explained in Section A.2.2. All relevant mitigation measures from the DPV2 Final EIR/EIS would apply to construction of the substation. Because substation expan-

sion would not result in effects that are "substantially more severe than shown in the previous [DPV2] EIR" [CEQA guidelines §15162(a)(3)(B)], these impacts are not addressed in detail in the discussion of CRS expansion.

Substation Expansion

The only resource areas for which detailed environmental analysis of the substation expansion is presented are biological resources, cultural resources, water resources, socioeconomics and utilities, and greenhouse gases. These resource areas are those that would be most affected by the more extensive ground disturbance required for the expanded substation and by the installation and operation of the telecommunication linear facilities. Therefore, the following disciplines are not addressed in the discussion of impacts of the CRS expansion:

- Visual Resources
- Land Use
- Wilderness and Recreation
- Agriculture
- Geology, Mineral Resources and Soils
- Noise
- Transportation and Traffic
- Public Health and Safety
- Air Quality

Telecommunications Facilities

The proposed telecommunication linear facilities consist of two fiber optic lines, one connecting the CRS and the Blythe Service Center (BSC; southeast line) and the other connecting the CRS and the Buck Substation (northern line). The southeast line would total approximately 14 miles and would be installed primarily on existing structures, but would require approximately 100 new wood poles to be installed along an existing patrol road. The 5.6-mile northern line would be installed on the same poles as the 33 kV line extension (distribution power line extension) that would be extended to the CRS (from the north). The telecom line would then be installed on existing poles along an existing access road to the Buck Substation. Several locations would be installed in underground conduit along the existing roadways. This would not require new poles or additional ground disturbance to previously undisturbed areas.

Impact Analysis of the Telecommunications Facilities. The impacts of telecommunication facilities to support the 500 kV transmission line and the substation were evaluated in the DPV2 EIR/EIS. Facilities were defined in Section B.3.6 of the Final EIR/EIS. The specific types and locations of these facilities have been modified, as described in Section B.3.2 of this SEIR (Telecommunications Facilities), but the types of facilities and construction methods would be similar to those originally described.

This SEIR presents site-specific impact analysis for the telecommunications facilities for biological and cultural resources. These resource areas are those where surveys are required to define site-specific resource impacts and mitigation measures. SCE has completed surveys for biological and cultural resources; the survey results and impact analysis are presented in Sections D.2 and D.3.

For the remaining environmental disciplines, the impacts associated with construction of these facilities are minor and would be less than significant. All relevant mitigation measures from the Final EIR/EIS would apply to construction of these facilities. These telecommunications facilities would not result in effects that are "substantially more severe than shown in the previous [DPV2] EIR" [CEQA guidelines §15162(a)(3)(B)]. The following disciplines are not discussed further for impacts related to telecommunications facilities:

- Visual Resources
- Land Use
- Wilderness and Recreation
- Agriculture
- Geology, Mineral Resources and Soils
- Noise
- Transportation and Traffic
- Public Health and Safety
- Air Quality

Water Supply at the Colorado River Substation

The CRS Expansion Project would use more groundwater than the previously approved project. SCE has proposed to construct and operate a groundwater well and a temporary water storage tank at the CRS site, in order to meet temporary water demand for soil conditioning and dust control, and long-term water demand for lavatory purposes (non-potable water).

Impact Analysis of Water Supply Issues. Most environmental issue areas are not affected by water supply issues; however, there is the potential for new or increased impacts to the groundwater basin and/or water supply for other users. Therefore, this SEIR discusses potential impacts to the following environmental disciplines resulting from the expanded use of groundwater at the CRS:

- Hydrology and Water Resources (see Section D.4); and
- Socioeconomics, which includes public services and utilities (see Section D.5).

Connected Actions

As described above, there are two solar power projects that have approved interconnections into the expanded Colorado River Substation. Because these gen-tie lines would be constructed on the approved routes only if the substation expansion is approved, this SEIR also includes a summary of the solar project impacts. For the disciplines that are fully analyzed in Sections D.2 through D.6 (Biological Resources, Cultural Resources, Hydrology and Water Resources, and Greenhouse Gas Emission), the connected action summaries are presented as a sub-section within the Proposed Project analysis. For the other environmental disciplines not analyzed in this SEIR for the substation expansion, the connected action summaries are presented in Section D.7.

D.2 Biological Resources

D.2.1 Environmental Setting for the Proposed Project

The regional environmental setting of the CRS, telecommunication linear facilities, and vicinity has been described in the following documents:

- DPV2 Final EIR/EIS – Midpoint Substation, Section D.2.2.5 and Midpoint Substation to Cactus City Rest Area, Section D.2.2.6;
- Genesis Solar Energy Project (GSEP) EIS, Sections 3.18 and 3.23;
- Blythe Solar Power Project (BSPP) EIS, Sections 3.18 and 3.23;
- GSEP Revised Staff Assessment, Section D.2 and Revised Staff Assessment Supplement, Appendix A – Transmission System Engineering;
- BSPP Supplemental Staff Assessment – Reasonably Foreseeable Developments and Appendix A – Transmission System Engineering; and
- DPV2 Telecommunication System Route Biological Review (Appendix 9).

These documents are incorporated by reference, as described in Section A.5.2.

New biological resource data has been collected at the proposed CRS site and vicinity since publication of the DPV2 EIR/EIS, including:

- Comprehensive botanical and wildlife (including protocol desert tortoise) surveys conducted in spring 2010 by AECOM for interconnection of the BSPP to the CRS;
- Botanical surveys conducted in fall 2010 by Aspen Environmental Group;
- Comprehensive botanical and wildlife surveys of the telecommunication route(s) conducted for SCE from 2007 to 2010 (CH2M Hill, 2010). These surveys included general reconnaissance (2007, 2008, 2009, 2010), focused surveys for several special-status species (2008, 2010), vegetation mapping (2008, 2009, 2010), and protocol surveys for desert tortoise (2008).
- Investigations by geomorphologists into Aeolian sand transport in the Chuckwalla Valley (e.g., ESA PWA, 2011, which is included as Appendix 3 in this SEIR).

The following sections present a ~~brief~~ description of the environmental setting of the proposed CRS expansion area and telecommunication linear facilities routes ~~only~~ as required to expand on the analysis of impacts in Section D.2.4 of the 2006 Final EIR/EIS for DPV2. For example, impacts of the proposed activities to specific biological resources adequately addressed in other environmental documents, including the DPV2 EIR/EIS, that would not result in effects that are "substantially more severe than shown in the previous [DPV2] EIR" [CEQA guidelines §15162 (a)(3)(B)] need not be analyzed. Biological resources present within the proposed project area that have been adequately analyzed in other documents per the aforementioned criteria [CEQA guidelines §15162 (a)(3)(B)] are presented in this environmental setting for disclosure purposes and to support the conclusion that impacts to these resources would not be substantially more severe than shown in the DPV2 EIR/EIS. These resources include desert tortoise, burrowing owl, loggerhead shrike, LeConte's thrasher, and American badger.

Plant Communities and Common Wildlife

The Proposed Project area is located at the foot of an alluvial fan that drains from north to south, close to the axis of the Chuckwalla Valley. The proposed CRS expansion area is located entirely within stabilized

and partially stabilized sand dunes. This series of sand dunes are part of the Chuckwalla sand transport corridor (Muhs et al., 2003). This corridor trends from west to east across the site, before losing definition approximately 3.5 miles east of the site; Figure D-1 shows the location and extent of the sand corridor. Refer also to Appendix 3, Geomorphic Assessment and Sand Transport Impacts Analysis of the Colorado River Substation. Stabilized and partially stabilized desert dunes are accumulations in the desert which are stabilized or partially stabilized by evergreen and/or deciduous shrubs and scattered, low grasses. These dunes are typically lower than active dune systems and retain water just below the sand surface, which allows deep-rooted, perennial vegetation to survive during longer drought periods. Dominant plant species associated with this community include four-wing saltbush (*Atriplex canescens*), desert croton (*Croton californicus*), and Colorado desert buckwheat (*Eriogonum deserticola*). Stabilized and partially stabilized desert dunes are considered sensitive by BLM per the Northern and Eastern Colorado Management (NECO) Plan (BLM CCD, 2002). Stabilized and partially stabilized desert dunes are also considered sensitive because they provide habitat for special-status species, such as the Mojave fringe-toed lizard and rare annual plants. Special status-species are discussed, below.

Sonoran creosote bush scrub occurs adjacent to the stabilized and partially stabilized sand dunes. This vegetation community occurs on well-drained, secondary soils of slopes, fans, and valleys and is the basic creosote scrub community of the Colorado Desert (Holland, 1986). Within this community, soils are generally sandy-loams with scattered areas of fine gravel. The dominant plant species are creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), white ratany (*Krameria grayi*), and cheesebush (*Hymenoclea salsola*). This vegetation community itself if not considered sensitive, but may provide suitable breeding and foraging habitat for special-status species, including desert tortoise and desert kit fox.

These vegetation communities have relatively limited plant species diversity and are structurally monotypic, which limit the wildlife species. However, sand dunes provide habitat for rare and endemic animals. Special status-species are discussed below. Common reptile species expected to occur include common collared lizard (*Crotaphytus collaris*), desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), red coachwhip snake (*Masticophis flagellum*), and speckled rattlesnake (*Crotalus mitchellii*). Common bird species expected to occur include black-throated sparrow (*Amphispiza bilineata*), verdin (*Auriparus flaviceps*), Gila woodpecker (*Melanerpes uropygialis*), Gambel's quail (*Callipepla gambelii*), and common raven (*Corvus corax*). Common mammal species likely to occur in desert scrub habitat include coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), and desert pocket mouse (*Chaetodipus penicillatus*).

The proposed telecommunications linear facilities are located on the Palo Verde Mesa at the eastern end of the Chuckwalla Valley, between the McCoy Mountains to the north and Mule Mountains to the south. Elevations along the telecommunication route range from about 480 feet above sea level on the western edge to about 230 feet in the agricultural fields. The Palo Verde Mesa is generally flat and characterized by locally extensive expanses of sand dunes and low sandy hummocks. Most drainages and channels in the project area are oriented north-south, and most are relatively small and shallow.

The predominant vegetation type identified along the northern telecommunication line is creosote bush (*Larrea tridentata*) scrub. Creosote bush and white bursage (*Ambrosia dumosa*) dominate the plant assemblage throughout the area, although in the larger dune fields, big galleta (*Pleuraphis rigida*) and birdcage evening primrose (*Oenothera deltoides*) largely replace the bursage. Partially stabilized desert dunes occur along the northern route leading directly into CRS. Desert dune habitat consists of open sand dunes with occasional woody shrubs and a variety of annual and perennial herbs adapted to existing in shifting sands. The southeastern telecom line comprises partially stabilized desert dune as it exits CRS, transitions to

Figure D-1. Sand Transport Corridors
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creosote bush, then traverses agricultural and developed areas until it ties in to the BSC. A complete discussion of vegetation types located ~~mapped~~ along the telecommunication routes can be found in the *DPV2 Telecommunication System Route Biological Review*, which has been included in the Final Supplemental EIR as a new Appendix 9 (CH2MHill, 2010).

Special-status Species

Special-status species identified in or adjacent to the Proposed Project area are: Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii;* CRPR[1] 2.2), ribbed cryptantha (*Cryptantha costata*; CRPR 4.3), winged cryptantha (*Cryptantha holoptera*; CRPR 4.3), Harwood's eriastrum (*Eriastrum harwoodii*; BLM Sensitive, CRPR 1B.2), Mojave fringe-toed lizard (*Uma scoparia;* California Species of Special Concern, BLM Sensitive), desert kit fox (*Vulpes macrotis arsipus),* desert tortoise (*Gopherus agassizii*; State Threatened, Federally Threatened), American badger (*Taxidea taxus;* California Species of Special Concern), Cooper's hawk (*Accipiter cooperii*; California Species of Special Concern), ferruginous hawk (*Buteo regalis*; BLM Sensitive), burrowing owl (*Athene cunicularia hypugaea;* California Species of Special Concern, BLM Sensitive), northern harrier (*Circus cyaneus;* California Species of Special Concern), loggerhead shrike (*Lanius ludovicianus;* California Species of Special Concern), Le Conte's thrasher (*Toxostoma lecontei*; BLM Sensitive), and Swainson's hawk (*Buteo swainsoni*; State Threatened) (AECOM, 2010; CH2M Hill, 2010).

The flora of the California deserts has not been well documented, due to its vast extent, many remote or inaccessible areas, and the short and undependable growing seasons for many species. Records of special-status species occurrences are sparse in the available data sources. Therefore, it is difficult to predict accurately what special-status plants have potential to occur in this region. For example, Abrams' spurge (*Chamaesyce abramsiana;* CRPR 2.1), flat-seeded spurge (*Chamaesyce platysperma;* BLM Sensitive, CRPR 1B.2), and lobed ground cherry (*Physalis lobata;* CRPR 2.3) were undetected during spring surveys, but could occur in the project area and adjacent sandfield or bajada habitat. These three species are also considered in this supplement.

Late-season botanical surveys of the CRS conducted by Aspen Environmental Group on November 15, 2010 found plants on the site to be dead or dormant. There was no evidence that summer or autumn rains, if any, had been sufficient to induce germination among late-season species.

Life history characteristics and impacts to the majority of the species identified in the project area were described in the DPV2 EIR/EIS and are therefore not included in this Supplemental EIR [per CEQA Guidelines 15162 §(a)(3)(B)]. The environmental setting for only those species for which an impact analysis is warranted is presented below. Potential for occurrence (i.e., present, high, moderate, low, not likely to occur) is assigned consistent with the criteria presented in Section D.2.1.1.3 of the DPV2 EIR/EIS.

- **Harwood's milk-vetch (***Astragalus insularis* var. *harwoodii;* CRPR 2.2) is a perennial herb found in desert dunes and sandy or gravelly desert scrub from about sea level to 2,300 feet elevation. It flowers between January and May (CNPS, 2010). Like most desert species, its above-ground growth and flowering season vary from year to year, depending on the amount and timing of seasonal rainfall. In California, Harwood's milk-vetch is known from Imperial, Riverside, and San Diego Counties (CNPS, 2010). It also occurs in Arizona and Mexico (CNPS, 2010). Harwood's milk-vetch was determined to be present within the 200-foot buffer along the northern telecommunication route near the CRS (CH2MHill, 2010).

[1] CDFG has changed references to CNPS List to California Rare Plant Rank (CRPR) to clarify that CDFG plays an active and authoritative role in the ranking process. See September 2010 CNDDB newsletter: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_News_Sep_2010.pdf.

- **Ribbed cryptantha** (*Cryptantha costata*; CRPR 4.3) typically occurs in loose friable soils in the eastern Mojave and Sonoran deserts in Imperial, Riverside, San Diego, and San Bernardino Counties and into Arizona and south to Baja California, Mexico (CNPS, 2010). It commonly occurs in stabilized and partially stabilized desert dunes and sandy areas of Sonoran and Mojavean desert creosote bush scrub.

  Ribbed cryptantha was observed during spring 2010 botanical surveys as a generally continuous population throughout the stabilized and partially stabilized desert dunes south of Interstate 10, including the CRS expansion area. The population size encompassing the Proposed Project area is estimated in the tens of millions (AECOM, 2010). This species was also determined to be present within the 200-foot buffer along the northern and southeastern telecommunication routes near the CRS (CH2MHill, 2010).

- **Winged cryptantha** (*Cryptantha holoptera*; CRPR 4.3) is a spring-blooming annual that occurs in Mojavean and Sonoran desert scrub habitats from 300 feet to approximately 5,000 feet above mean sea level in California, Arizona, and Nevada (CNPS, 201). One occurrence was detected approximately 0.2 miles north of the proposed CRS expansion area (AECOM, 2010).

- **Harwood's eriastrum** (*Eriastrum harwoodii*; BLM Sensitive, CRPR 1B.2) is a spring-blooming annual currently known from only 14 documented locations. It is a California endemic with a global range restricted to San Diego, Riverside, and San Bernardino Counties, typically in sand dunes associated with the margins around dry lakes such as Dale, Cadiz, and Soda lakes (CNPS, 2010). Spring 2010 surveys identified approximately 2,100 plants in the sand dunes encompassing the CRS expansion area and extending east (AECOM, 2010).

- **Abrams' spurge** (*Chamaesyce abramsiana;* CRPR 2.1) is a hot-season annual herb that spreads in mats on the ground. It is found in "sandy flats" (Koutnik, 1993), and its habitat has been described more completely as including playas, alluvial flats, and broad sandy washes (Shreve and Wiggins, 1964; Felger, 2000). None of the published habitat descriptions or Consortium of California Herbaria (2010) data records mention Aeolian (wind-blown) sands. Its elevational range is from below sea level to 3700 ft. elevation (Consortium of California Herbaria (2010); its flowering season is generally between July and November (Kearney and Peebles, 1960; Shreve and Wiggins, 1964). Its geographic range is northern Sonora and Baja California (Mexico), western Arizona, and southeastern California. Late-season botanical surveys on the site did not detect Abrams' spurge. Due to the plant's occurrence on desert alluvial soils and rather than Aeolian sands, there is only a low potential for its occurrence in the project area.

- **Flat-seeded spurge** (*Chamaesyce platysperma;* BLM Sensitive, CRPR 1B.2) has only been recorded at a few locations in the United States; one at Superstition Mountain in Imperial County; two in the Coachella Valley in Riverside County, one in Little Blair Valley in Anza Borrego State Park, and one unverified report near Old Woman Springs in San Bernardino County (Kerney and Peebles, 1951; Shreve and Wiggins, 1964; Consortium of California Herbaria, 2010; CNPS, 2010; CNDDB, 2010). California references (Munz, 1974; Koutnik, 1993) describe its habitat as "sandy soil." Felger (2000) found that it is abundant in shifting windblown sand in the Gran Desierto of Sonora, Mexico. The California locations represent the margin of this plant's geographic range in the southwestern deserts. Flat-seeded spurge has been collected in California in February, April, and September, but most specimens have been documented in fall or winter, indicating that late-season germination, probably in response to sporadic rainfall, is more common than spring germination. Late-season botanical surveys on the site did not detect flat-seeded spurge. However, there was little evidence of any late-season plant growth, so it is not possible to conclude whether a seed bank is present. This analysis assumes that this species has moderate to high potential to occur in the Proposed Project area.

- **Lobed ground-cherry** (*Physalis lobata;* CRPR 2.3) is a spreading perennial herb growing from a thick, deep rootstock. It occurs in the midwestern and southwestern states, from western Kansas, and western Texas, through New Mexico, Arizona, Sonora (Mexico), to the eastern Mojave Desert in California (Correll & Johnston, 1979; Hickman, 1993; CNDDB, 2010). In California, several collections have been made during spring (April and May) and others have been made in autumn (September and November). Its above-ground growth (including flowers) apparently follows rainfall, either in spring or late fall. There are several known occurrences in California (Consortium of California Herbaria, 2010), mostly in the East Mojave National Monument and Joshua Tree National Park. In the Sonoran Desert, it reportedly occurs in sandy washes and dry open ground (Shreve & Wiggins, 1964). In the Gran Desierto region of Sonora (Mexico) it occurs in "poorly drained clayish silty soils" and on sandy bajada soils (Felger, 2000). At least one California collection was from a dry lake margin (CNDDB, 2010). These published habitat descriptions and the Consortium of California Herbaria (2010) data records do not mention Aeolian sands. Specimens collected to date in California have been from sites between about 1,500 and 2,600 feet in elevation, though it is known from lower elevations elsewhere in its range. Late-season botanical surveys on the site did not detect lobed ground-cherry. Due to the plant's occurrence on desert alluvial soils rather than Aeolian sands, there is only a low potential for its occurrence in the Proposed Project area.

- **Mojave fringe-toed lizard** (*Uma scoparia;* California Species of Special Concern, BLM Sensitive) is endemic to southern California and a small area of western Arizona, (Hollingsworth and Beaman, 1999). The Mojave fringe-toed lizard (MFTL) is generally restricted to fine, loose, Aeolian sand in arid, sparsely vegetated habitats and is associated with creosote bush scrub throughout much of its range (Norris, 1958; Turner et al., 1984; Jennings and Hayes, 1994). Habitat preferences are more closely tied to the landform than to the vegetation community, and Sonoran creosote bush scrub with an active sand layer can also support this species. The distribution of Mojave fringe-toed lizards is naturally fragmented because of its obligate habitat specificity to loose sand, which is a patchy habitat type (Murphy et al., 2006). Many local populations of this species are quite small, with small patches of sand supporting small populations of lizards. This fragmented pattern of distribution leaves the species vulnerable to local extirpations from additional habitat disturbance and fragmentation (Murphy et al., 2006). Environmental changes that stabilize sand, affect sand sources, or block sand movement corridors will also affect this species (Turner et al., 1984; Jennings and Hayes, 1994).

  The entirety of the proposed CRS project area and the northern and southeastern telecommunication routes as they exit the CRS support suitable and occupied MFTL habitat. Proposed access road improvements are also in suitable and occupied MFTL sand dune habitat proximate to the CRS and extending approximately 4.7 miles west to Wiley Well Road. More than 130 MFTL were observed within the CRS expansion area and one-mile buffer as well as throughout surveyed areas of the dune habitat extending east toward the BSPP (AECOM, 2010). MFTL was observed in Sonoran creosote bush scrub near the project area in areas of wind-blown sand from the adjacent dunes. These were incidental observations recorded during desert tortoise surveys; MFTL-focused surveys were not conducted.

- **Desert tortoise** (*Gopherus agassizii*; federally threatened, State threatened) occurs within the Mojave Desert region of Nevada, southern California, and the southwest corner of Utah and the Sonoran Desert region of Arizona and northern Mexico. Range wide, occupied habitats include desert alluvial fans, washes, canyon bottoms, rocky hillsides, and other steep terrain. Tortoises are most common in desert scrub, desert wash, and Joshua tree habitats, but occur in almost every desert habitat except on the most precipitous slopes. Friable soils, such as sand and fine gravel, are an important habitat component, particularly for burrow excavation and nesting. The presence of soil suitable for digging burrows is a limiting factor to desert tortoise distribution (USFWS, 1994a).

Desert tortoise populations have declined for several reasons, each of which tends to be exacerbated by the others and most of which are associated with human land uses and other human activities. Most threats identified in the 1980s as the basis for state and federal listing continue to affect tortoise populations today (USFWS, 2008). Habitat degradation and loss due to land use conversion, grazing, mining, energy development, and highway construction and expansion have all contributed to declining numbers and fragmentation of desert tortoise populations. Off-road vehicle use causes direct mortality from vehicle collision or crushed burrows and destruction of habitat. Desert tortoises are also vulnerable to vehicle collisions on roads and highways. Drought, habitat degradation, and associated weed invasion decrease nutrients available to desert tortoises in their food; this makes them susceptible to upper respiratory tract disease, and possibly other diseases, which can be fatal and is transmittable among populations (Jacobson, 1992). Tortoises also are vulnerable to predation by ravens, coyotes, and domestic and feral dogs. Infrastructure development and urbanization creates perch sites and food and water sources for ravens, and increases numbers of dogs, all of which elevate predation pressure on juvenile tortoises. Other threats include illegal collecting, vandalism, livestock grazing, feral burros, non-native plants, changes to natural fire regimes, and environmental contaminants (USFWS, 1994b). Habitat fragmentation and development can isolate tortoise populations, further increasing risk of disease and reducing genetic diversity. This range of threats can kill or indirectly affect desert tortoises and their habitat, but little is known about the relative contribution each threat makes to tortoise demography (Boarman, 2002; USFWS, 2008a). Current recovery planning focuses on expanding the knowledge of individual threats and places emphasis on understanding their multiple and combined effects on tortoise populations.

The USFWS published the Desert Tortoise (Mojave Population) Recovery Plan in 1994 and published a Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise in 2008. The project site is located within the Eastern Colorado Recovery Unit (USFWS, 1994a), which would be merged with the adjacent Northern Colorado Recovery Unit upon finalization of the draft revised recovery plan. The new recovery unit will be referred to as the Colorado Desert Recovery Unit (USFWS, 2008). Within this recovery unit desert tortoises are found primarily in "well-developed washes, desert pavements, piedmonts, and rocky slopes characterized by relatively species-rich succulent scrub, creosote bush scrub, and blue palo verde-ironwood-smoke tree communities" (USFWS, 1994a). Habitat within this recovery unit was described as being in excellent condition despite declines in tortoise densities over the past several decades; disturbance was estimated at less than 1.3 percent throughout (USFWS, 2005).

Protocol surveys for desert tortoise were conducted in spring 2010 of the proposed substation site and 1-mile surrounding area. Tortoise sign was not observed within the proposed substation site, but the following signs were observed within the 1-mile survey buffer: 2 burrows (Class 4) 0.4 miles northeast and southwest of the CRS; bone fragments (Class 5, not mineralized) 1 mile north and northeast of the CRS; and a bone fragment (Class 5, mineralized) 1 mile south of the CRS. Desert tortoise sign, including carcasses and active burrows, was observed in both the northern and the southeastern line routes (CH2MHill, 2010), and suitable habitat is abundant. The proposed project area, including substation, access roads, and telecom routes, is within BLM-designated Category 3 desert tortoise habitat.

- **Swainson's hawk** (*Buteo swainsoni*; State Threatened) was once one of the most common birds of prey in the grasslands of California and nested in the majority of the lowland areas of the state. Currently, its nesting range is primarily restricted to portions of the Sacramento and San Joaquin valleys, northeast California, and the Western Mojave, including the Antelope Valley (Bloom, 1980). The Swainson's hawk requires large amounts of foraging habitat, preferably grassland or pasture habitats. Its preferred prey includes voles (*Microtus* spp.), gophers, birds, and insects such as grasshoppers (Estep, 1989). It

has adapted to the use of some croplands, particularly alfalfa, as well as grain, tomatoes, and beets (Estep, 1989). Crops such as cotton, corn, rice, orchards, and vineyards are not suitable because they either lack suitable prey, or prey is unavailable to the hawks due to crop structure. Swainson's hawks often establish territories in riparian systems adjacent to suitable foraging habitats as well as utilizing lone trees or groves of trees in agricultural fields.

Swainson's hawks are not known to nest east of Victorville, and the project area likely only supports wintering or migrating individuals. Three Swainson's hawk occurrences were mapped adjacent to the CRS in the *DPV2 Telecommunication Route Biological Review,* which has been included in the Final Supplemental EIR as a new Appendix 9 (CH2MHill, 2010), but this species was not discussed in the report and it is unknown whether these occurrences were located during project surveys or if they are historical records. For the purposes of this analysis, it is assumed that wintering or migrating Swainson's hawks utilize the Proposed Project area for foraging.

- **Burrowing owl** is a small, terrestrial owl of open country. Burrowing owls favor flat, open annual or perennial grassland or gentle slopes and sparse shrub or tree cover (Clark and Plumpton, 2005). They use the burrows of ground squirrels and other rodents for shelter and nesting (Martin, 1973). Burrowing owls are semi-colonial nesters, and group size contributes significantly to site constancy by breeding burrowing owls (Haug et al., 1993). The nesting season, as recognized by the California Burrowing Owl Consortium (CBOC, 1993), runs from 1 February through 31 August. In the California Desert, burrowing owls generally occur at low densities in scattered populations, but they can be found in much higher densities near agricultural lands where rodent and insect prey tend to be more abundant (Gervais et al., 2008). Suitable foraging habitat occurs throughout the fiber optic routes, especially where agricultural lands are widespread. Burrowing owls were found to be abundant in portions of the fiber optic routes (CH2MHill, 2010). In 2009 two burrowing owls with an active burrow were identified 0.4 mile southeast of the CRS. In 2010, only a burrow with sign was observed 0.5 mile east of the CRS. No burrowing owls or their sign were observed within the CRS expansion area; however, live birds and their sign were observed east of the gen-tie at the edge of the Stabilized and Partially-Stabilized Sand Dunes. An active burrow with birds was observed approximately 0.70-mi from the CRS expansion area. Although no sign was observed within the CRS expansion area, survey results indicate that burrowing owls are present in low densities within the vicinity of the CRS expansion area.

- **Northern harrier** (*Circus cyaneus;* California Species of Special Concern) is a medium-sized raptor that breeds throughout North America and Eurasia. It breeds the farthest north and is the most broadly distributed of all harrier. It is a long-distance migrant throughout much of its range (Macwhirter and Bildstein, 1996). It winters from southern Canada south to Panama. Northern harriers winter in the southern California deserts, but breeds farther north. It forages widely over a variety of open habitats, and the entire project area contains suitable habitat. Three northern harrier occurrences were mapped along the telecommunication route in the *DPV2 Telecommunication Route Biological Review,* which has been included in the Final Supplemental EIR as a new Appendix 9 (CH2MHill, 2010), but this species was not discussed in the report and it is unknown whether these occurrences were located during project surveys or if they are historical records. For the purposes of this analysis, it is assumed that wintering or migrating northern harriers utilize the Proposed Project area for foraging.

- **Loggerhead shrikes** (*Lanius ludovicianus*; California Species of Special Concern) are uncommon residents throughout most of the southern portion of their range, including southern California. Loggerhead shrikes are found in lowland, open habitats where suitable perches are present (e.g., trees or shrubs or, where these are absent, fence posts or other substitutes). Typical habitats include creosote bush or sagebrush shrublands other desert habitats, grasslands, chaparral and riparian area

margins, croplands, and areas characterized by open scattered trees and shrubs. In general, loggerhead shrikes prey upon large insects, small birds, amphibians, reptiles, and small rodents, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding (Yosef, 1996). Three loggerhead shrike occurrences were mapped near the CRS and northern fiber optic line (CH2MHill, 2010), but this species was not discussed in the report and it is unknown whether these occurrences were located during project surveys or if they are historical records. It is assumed that loggerhead shrikes utilize the Proposed Project area for foraging and breeding.

- **Le Conte's thrasher** *(Toxostoma lecontei;* BLM Sensitive*)* inhabits some of the hottest and driest habitats in the arid southwest, including the deserts of southeastern California where it occurs year-round. Its preferred habitats include sparse desert scrub, alkali desert scrub, and desert succulent scrub. Habitats generally are on gentle to rolling slopes associated with dry desert washes, such as found in the project area. Nests are typically placed in prickly vegetation such as cacti or thorny shrubs (Sheppard, 1996). Le Conte's thrasher was frequently encountered during the 2008 surveys of the telecommunication linear facilities and was typically associated with major washes that support taller vegetation (CH2MHill, 2010). The species likely nests in the project area along the telecom routes, but the 2008 surveys were conducted during the non-breeding season and no nest sites have been identified. Le Conte's thrasher was not identified within one mile of the CRS.
- **American badgers** (*Taxidea taxus;* California Species of Special Concern*)* are found in open shrubland, forest, and herbaceous habitats with friable soils. In the southwest, badgers are typically associated with creosote bush and sagebrush shrublands. Badgers are fossorial, digging large burrows in dry, friable soils and will use multiple dens/cover burrows within their home range. Badger home range sizes are dependent upon prey availability and other habitat characteristics. In general, home ranges are several hundred acres in size, though they would likely be larger in the Colorado Desert due to low prey densities. A badger skull and an inactive den were detected during surveys of the telecommunication route (CH2MHill, 2010), and suitable desert scrub habitat is present in much of the project area.
- **Desert kit fox** (*Vulpes macrotis arsipus*; protected under California Code of Regulations Title 14 Section 460*)* is a permanent resident of arid regions of southern California. The species is uncommon or rare. Kit fox occur in open desert, on creosote bush flats, and among sand dunes. Seventy-five percent of sightings are in areas with less than 20 percent vegetation cover. Kit fox occur in association with their prey base which is primarily cottontail rabbits, ground squirrels, kangaroo rats and various species of insects, lizards, or birds (Zeiner et al., 1990). Dens are established in open, level areas with loose-textured, sandy and loamy soils and provide essential cover for shelter, escape, cover, and reproduction. Take, including catch and capture, of desert kit fox is prohibited under California Code of Regulations Title 14 Section 460.

  Three kit fox complexes were identified approximately one mile from the Proposed Project area; two occur northeast of the project area and one occurs west of the project area (AECOM, 2010). The entire project area is suitable habitat for desert kit fox.

D.2.2 Applicable Regulations, Plans, and Standards

All federal and State (California only) regulations, plans, and standards relevant to biological resources as described in Section D.2.4 of the 2006 Final EIR/EIS for DPV2 are applicable to this Supplemental EIR.

D.2.3 Approach to Impact Assessment

Significance Criteria

The significance criteria presented in the DPV2 Final EIR/EIS are also used in this analysis and are presented below (CPUC, 2006). The Proposed Project would have a significant impact to biological resources, if it would:

- Have a substantial adverse effect on a riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS.
- Have an adverse effect, either directly, through habitat modifications, or through introduction of non-native species, on any species listed as endangered, threatened, or proposed or critical habitat for these species.
- Have a substantial adverse effect, either directly, through habitat modification, or through introduction of non-native species, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG, BLM or USFWS.
- Have a substantial adverse effect on federally protected water quality or wetlands as defined by Sections 401 and 404 of the Clean Water Act, respectively (including, but not limited to riparian, marsh, vernal pool, and desert wash) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with local policies or ordinances protecting biological resources, such as a tree or cactus preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or State HCP.

Applicant Proposed Measures and Previously Approved Mitigation Measures

As described in Section B.4 of this SEIR, Applicant Proposed Measures (APMs) were presented in Tables B-10 through B-18 in Section B.5 of the Final EIR/EIS, and they also apply to the proposed CRS expansion and telecommunication facilities. Similarly, the mitigation measures presented in the Final EIR/EIS for the DPV2 project would also apply to the CRS expansion and telecommunication linear facilities, as appropriate.

Note: Mitigation measures modified from those presented in the Final EIR/EIS are presented with inserted text underlined, deleted text in ~~strikeout~~, and "(rev)" after the measure number. These measures supersede the original measures presented in the Final EIR/EIS. New mitigation measures presented in this SEIR (and not included in the Final EIR/EIS) are underlined in their entirety. Changes made to text excerpted from the DPV2 Final EIR/EIS (2006) are shown with double underline and ~~double strikeout~~.

Method of Analysis

The California Environmental Quality Act (CEQA) Guidelines define "direct" impacts as those impacts that result from the project and occur at the same time and place. Indirect impacts are caused by the project and can occur later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts are related to the construction and/or operation of the project and related effects to natural systems (CEQA Guidelines §15358). Significance of impacts is determined by whether the Proposed Proj-

ect meets the criteria listed above. Compliance with applicable laws, ordinances, regulations, and standards as well as guidelines adopted by resource agencies is also considered.

This section analyzes the potential for direct and indirect impacts of construction and operation of the Proposed Project to biological resources and provides mitigation, as necessary, to reduce the severity of potentially significant adverse impacts. This analysis is based on a review of environmental analyses and survey results pertaining to the biological resources of the project area and vicinity, including recently prepared environmental review documents that are incorporated by reference, as described in Section A.4.2.

Certain potential impacts of the proposed CRS expansion would not be "substantially more severe" than the significant impacts of construction and operation of the original 44-acre CRS (Midpoint Substation) that were analyzed in the DPV2 EIR/EIS; therefore, these impacts do not require further analysis [CEQA guidelines §15162 (a)(3)(B)]. However, impacts to certain rare plants, Mojave fringe-toed lizard, and desert kit fox were not considered during analysis of the CRS in the DPV2 EIR/EIS or other CEQA review document (e.g., BSPP and/or GSEP Staff Assessments), and therefore, require analysis in this Supplemental EIR. In addition, the telecommunication linear facilities routes were not analyzed in the previous CEQA review documents, and impacts related to this portion of the Proposed Project are also addressed.

The large number of utility-scale solar generation projects proposed in the Mojave and Sonoran deserts has led to the need to complete detailed investigation into the ecology of desert dune species, including MFTL, to understand potential impacts. Recently, a quantitative model[2] was developed to quantify indirect impacts of construction barriers on Aeolian and fluvial sand transport. As a result, impacts to sand transport corridors and the resulting impacts to sand-dune obligate species are analyzed in greater detail in this Supplemental EIR than was possible at the time the DPV2 EIR/EIS was prepared. Further, recent survey results identified three rare plants (ribbed cryptantha, winged cryptantha, Harwood's eriastrum) and a greater concentration of MFTL than was identified during 2006 surveys for the DPV2 EIR/EIS. Accordingly, pertinent impacts of the entire expanded substation and telecommunication linear facilities are disclosed, rather than only the incremental impact of the proposed substation expansion and ancillary facilities.

D.2.4 Environmental Impacts and Mitigation Measures for the Proposed Project

The EIR/EIS for the DPV2 project evaluated 18 impacts in the biological resources section. Consistent with the discussion above describing why the Supplemental EIR has been prepared, this analysis focuses on biological resources. Evaluation of the following biological resources impacts is sufficient to supplement the original DPV2 Final EIR/EIS analysis, thereby making it adequate for the project as revised.

Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II for Desert tortoise, Class III for Swainson's hawk)

Desert Tortoise. The project area provides low-quality habitat for desert tortoise. Although no live tortoises or recent sign were observed within the project area or 1-mile survey buffer and habitat quality is relatively poor, individuals could occur onsite as they move between areas of higher quality creosote scrub habitat adjacent to the sand transport corridor. Therefore, the project area is considered to be low-density occupied desert tortoise habitat. Impacts to desert tortoise from construction and operation of

[2] In 2010, a Sand Transport Model was developed by ESA PWA and implemented to support biological resource impact analyses for the BSPP, GSEP, and Palen Solar Power Plant. See Appendix 3 for a description of the model and its assumptions.

the CRS expansion are consistent with those described in the DPV2 EIR/EIS, including injury or mortality during surface disturbing activities, nest and/or burrow destruction, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise or vibrations from the heavy equipment, alteration of seasonal activities, and habitat degradation (e.g., noxious weed invasion and soil compaction) and loss. Additionally, human activity may attract subsidies predators, including ravens. As described in the DPV2 EIR/EIS (Section D.2.6.1.6), these impacts would be mitigated below the level of significance with implementation of Mitigation Measures B-1a (Prepare and implement a Habitat Restoration/Compensation Plan), B-7b (Conduct pre-construction tortoise surveys), and B-7c (Purchase mitigation lands for impacts to tortoise habitat) (Class II).

The following measures have been relocated here, but those portions unchanged from the Draft SEIR are not shown in underline/strikeout format.

Mitigation Measures for Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (desert tortoise)

B-1a **Prepare and implement a Habitat Restoration/Compensation Plan.** SCE shall restore all areas disturbed by project construction, including temporary disturbance areas around tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations that are removed during construction of the Proposed Project. Where onsite restoration is planned for mitigation of temporary impacts to sensitive vegetation communities, SCE shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC/BLM. Hydroseeding, drill seeding, or an otherwise proved restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC/CDFG/~~AGFD/~~FWS and BLM. SCE shall flag the limits of disturbance at each construction site. The Plan shall incorporate the measures identified in the June 2006 Memorandum of Understanding regarding vegetation management along rights-of-way for electrical transmission and distribution facilities on Federal lands. In project areas that occur in the WRCMSHCP plan area, SCE shall use the applicable Best Management Practices identified in the WRCMSHCP.

The creation or restoration of habitat shall be monitored for five years after mitigation site construction, or until established success criteria are met, to assess progress and identify potential problems with the restoration site. The following performance standards must be met by the end of the monitoring period: (a) at least 80% of the vegetative cover observed within the restoration area shall be native species that naturally occur in desert scrub habitats; (b) absolute cover and density of native plant species within the restoration areas shall equal at least 60% of the pre-disturbance or reference vegetation cover; and (c) the site shall have gone without irrigation or remedial planting for a minimum of three years prior to completion of monitoring. Remedial activities (e.g., additional planting, weeding, or erosion control) shall be taken during the monitoring period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, monitoring shall extend beyond the five-year period until the criteria are met or unless otherwise noted by the CPUC/BLM.

B-7b **Conduct pre-construction tortoise surveys.** Prior to construction, SCE shall survey the transmission line corridor for desert tortoise burrows and pallets within fourteen (14) days preceding construction. Tortoise burrows and pallets encountered within the construction zone (if any) will be conspicuously flagged by the surveying biologist(s) and avoided during all construction activities.

- During construction activities, SCE shall inspect under equipment and vehicles prior to moving equipment. If tortoises are encountered, the vehicle will not be moved until such animals have voluntarily moved to a safe distance away from the parked vehicle or a qualified biologist moves the tortoise.
- SCE shall monitor construction activities in all areas with the potential to support desert tortoise.
- Desert tortoises will be handled only by a FWS/CDFG permitted and authorized tortoise handler and only when necessary. New latex gloves will be used when handling each desert tortoise to avoid the transfer of infectious diseases between animals. Desert tortoises will be moved the minimum distance possible within appropriate habitat to ensure their safety. In general, desert tortoises will not be moved in excess of 1,~~000~~640 feet (500 meters) ~~for adults and 300 feet for hatchlings.~~
- Desert tortoises that are found above ground and need to be moved will be placed in the shade of a shrub. All desert tortoises removed from burrows will be placed in an unoccupied burrow of approximately the same size as the one from which it was removed. All excavation of desert tortoise burrows will be done using hand tools, either by, or under the direct supervision of, an authorized tortoise handler. If an existing burrow is unavailable, an authorized tortoise handler will construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. Desert tortoises moved during inactive periods will be monitored for at least two days after placement in the new burrows to ensure their safety. An authorized tortoise handler will be allowed some judgment and discretion to ensure that survival of the desert tortoise is likely.
- If desert tortoises need to be moved at a time of the day when ambient temperatures could harm them (less than 40 degrees F or greater than 90 degrees F), they will be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of an authorized tortoise handler under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes will be appropriately discarded after one use.
- All desert tortoises moved will be marked for future identification. An identification number using the acrylic paint/epoxy covering technique should be placed on the fourth costal scute. No notching would be authorized.

B-7c **Purchase mitigation lands for impacts to tortoise habitat.** Following construction, SCE shall acquire lands to compensate for the loss of tortoise habitat within the Category II and III management areas in California. The amount of land to be acquired will depend on the acreage of disturbance within these management areas. Acquired lands will be in a nearby area of good tortoise density and within tortoise habitat. BLM and SCE shall conduct a field inspection of the disturbed areas after completion of construction of the transmission line to determine the exact acreage required for compensation. The lands purchased will be transferred to the United States and be administered by the BLM. Land may be transferred to the BLM and/or incorporated into an existing management area.

SCE may elect to fund the acquisition and initial improvement of compensation lands through the National Fish and Wildlife Foundation (NFWF) by depositing funds for that purpose into NFWF's Renewable Agency Action Team (REAT) Account. Initial deposits for this purpose must be made in the same amounts as the Security (refer to Table D.2-1) and

may be provided in lieu of Security. If this option is used for the acquisition and initial improvement and the actual land cost is higher than the estimated Security amount, SCE shall make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the compensation land purchase once land is identified and the actual costs are known. If the actual costs for acquisition and administrative costs and fees are less than that estimated by CDFG, the excess money deposited in the REAT Account shall be returned to SCE. Money deposited for the initial protection and improvement of the compensation lands shall not be returned to SCE. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a nongovernmental organization supportive of desert habitat conservation, by written agreement of CPUC, BLM, and CDFG. Such delegation shall be subject to approval by CPUC, in consultation with BLM and CDFG, prior to land acquisition, initial protection or maintenance and management activities.

Swainson's hawk. Applicant-provided survey results mapped occurrences of State-listed Swainson's hawk near the CRS expansion area (CH2M Hill, 2010). It is unclear whether Swainson's hawk was observed during these surveys for the Proposed Project, or if the occurrences mapped in the Applicant's biological report were of historical records. Based on the presence of suitable habitat and prey as well as recent occurrences mapped in the project vicinity for other solar projects, it is assumed that wintering or migrating Swainson's hawks utilize the Proposed Project area for foraging. However, this species is not currently known to nest east of Victorville (approximately 160 miles to the northwest) (CEC, 2010a; CEC, 2010b; CEC, 2010c; CEC, 2010e). Foraging habitat is locally abundant in the extensive agricultural areas and desert scrub habitats in the region. Construction and operation of the Proposed Project is not expected to result in the loss of Swainson's hawks or their nests, and because wintering and migrating raptors are able to forage over wide areas and contiguous foraging habitat is available proximate to the project area, construction disturbance is not expected to substantially disrupt foraging activities. Impacts to Swainson's hawk would be less than significant and no mitigation is required (Class III).

Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants (Class II for Harwood's milk-vetch, Harwood's eriastrum, and flat-seeded spurge; Class III for ribbed cryptantha and winged cryptantha)

Construction of the substation would result in direct impacts to ribbed cryptantha (CRPR 4.3) and Harwood's eriastrum (BLM Sensitive, CRPR 1B.2), which occupy the proposed CRS footprint. Winged cryptantha (CRPR 4.3) and Harwood's milkvetch occur adjacent to the proposed substation in stabilized and partially stabilized sand dunes and would not be directly impacted by construction of the substation. Ribbed cryptantha and Harwood's milkvetch occur within the proposed telecommunication routes.

Ribbed cryptantha, Harwood's eriastrum, Harwood's milkvetch, and winged cryptantha occur in semi-stabilized sandy plains or dunes. Results from spring 2010 surveys conducted for the BSPP off-site linears mapped these species throughout the one-mile buffer surrounding the proposed CRS as well as sandy areas extending at least 3.5 miles east of the proposed CRS (AECOM, 2010). It is assumed that ribbed cryptantha and Harwood's eriastrum, Harwood's milkvetch, and winged cryptantha occur in areas of suitable habitat within the sand shadow of the substation as well as the telecommunication route. Additionally, one special-status plant (flat-seeded spurge; BLM Sensitive, CRPR 1B.2) has moderate to high potential to occur within the Proposed Project area and/or sand shadow. This species would be most reliably identifiable during late-summer/fall surveys rather than typical spring-season botanical surveys.

Construction of the substation expansion, including a new access road and widening and other improvements to an existing access road from Willey Well Road, would result in the direct and permanent loss of approximately 98 acres of occupied sand dune habitat for the abovementioned rare plants (refer to Table B-2 for estimates of permanent disturbance). Loss of habitat and direct loss of special-status plants resulting from the construction of the telecommunication linear facilities is expected to be minimal, as ground disturbance would be limited to less than 2 acres of temporary disturbance[3] and approximately 0.06 acres of permanent disturbance. In addition, most disturbance for telecommunication line construction would occur in previously disturbed road shoulders. As described below under Impact B-9 (Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife), the expanded CRS would create a barrier to Aeolian sand transport in the Chuckwalla sand corridor, which would result in degradation of approximately 1,365 acres of stabilized and partially stabilized sand dune habitat east of the substation. The proposed access roads would not create a barrier to sand transport and therefore would not contribute to these indirect downwind impacts to sand dune habitat.

Many large occurrences of ribbed cryptantha have been found during the spring surveys for the Blythe, Palen, and Genesis solar projects, totaling over 100,000 plants and possibly many more. As described above, the population size encompassing the Proposed Project area is estimated in the tens of millions. Given the regional abundance of ribbed cryptantha in the project vicinity, and its apparently stable population in its range in California, impacts to ribbed cryptantha would be adverse, but less than significant and no mitigation is proposed (Class III).

One occurrence of winged cryptantha was identified north of the Proposed Project area. This occurrence would not be affected by project construction and based on a review of survey results for a portion of the sand shadow, it is not anticipated that there are many additional occurrences in the area of indirect effect; potential impacts to winged cryptantha would be adverse, but less than significant (Class III).

Harwood's milk-vetch was recorded within the northern fiber optic route just north of the CRS. However, impacts in this area would be minimal because the fiber optic line would be installed on existing structures in this area. Ground disturbance associated with pulling and splicing sites would be minimal and temporary, but would directly impact Harwood's milk-vetch if pulling and splicing sites are located within Harwood's milk-vetch occupied habitat. Pre-construction surveys would be conducted to identify and flag populations of special-status plants for avoidance, in accordance with Mitigation Measure B-8a (Conduct surveys for listed plant species) identified in the Final EIR/EIS. In addition, indirect impacts to offsite habitat for Harwood's milk-vetch would be minimized through the implementation of Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat) identified below. With the implementation of these measures, impacts to Harwood's milk-vetch would be less than significant (Class II).

Harwood's eriastrum is a BLM Sensitive species and CRPR 1B.2 species, which indicates it is rare, threatened, or endangered throughout its range. More than 2,000 plants were mapped in the sandy areas sur-

[3] SCE has not identified the exact number and locations of the stringing and pulling sites that would be used, but they are typically spaced every 6,000 to 10,000 feet and are required at the beginning and end of every cable pull (CH2MHill, 2010). Therefore, it is estimated that approximately 10 to 17 stringing and pulling sites would be required for the 19.2 miles of fiber optic cable to be installed. The actual number may vary due to terrain and other considerations identified during final engineering. The size of a stringing and pulling site also varies depending on terrain and space considerations, but is typically 40 by 60 feet (0.06 acre). An estimated 0.6 to 1.02 acres would be temporarily disturbed by the use of stringing and pulling sites.

rounding the proposed CRS and within the sand dunes extending east. Although no Harwood's eriastrum were observed within the proposed substation footprint, habitat degradation of the 1,365 acres extending east of the substation would result in a significant impact without mitigation (Class II).

Because the region's flora is so under-surveyed and poorly understood relative to other parts of the state, and because its flora is so intertwined with its variable and unpredictable climate, it is difficult to fully assess the occurrence of special-status plants in this region. Flat-seeded spurge is a BLM Sensitive species and is on CRPR 1B.2 and has moderate to high potential to occur in the Proposed Project area. Suitable habitat for this plant is found within the project site and throughout the sand dunes extending east of the CRS. Occurrence of flat-seeded spurge on the site is unknown; its growing season is outside of the window in which 2010 surveys were conducted and late-season plant growth is generally poor on the project site due to low summer rainfall. If flat-seeded spurge were to occur on the site or in sandy habitat to the east, then habitat loss or degradation would result in a significant impact without mitigation. With implementation of the impact avoidance and minimization measures in new Mitigation Measure B-8b, potential impacts to flat-seeded spurge would be less than significant (Class II).

Mitigation Measure B-8b includes impact avoidance and minimization measures for Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge. Indirect impacts to special-status plants resulting from sand dune habitat loss and degradation would also be effectively mitigated by acquisition of compensatory habitat for MFTL described in under Impact B-9 below, in Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat). Implementation of this mitigation measure would ensure that impacts to Harwood's eriastrum, and the potential impacts to Harwood's milk-vetch and flat-seeded spurge, are not significant.

Other indirect impacts to special-status plants include: introduction and spread of invasive plants; population fragmentation and disruption of gene flow; potential impacts to pollinators; increased risk of fire; erosion and sedimentation of disturbed soils, which render the habitat vulnerable to invasion by pest plants, herbicide and other chemical drift; and disruption of photosynthesis and other metabolic processes from fugitive dust during construction and operation. These indirect impacts would be avoided and adequately minimized with implementation of APMs that require minimization of work disturbance areas, identification and avoidance of environmentally sensitive areas, noxious weed control, avoidance of off-road travel, and implementation of erosion control (i.e., APMs B-2, B-3, B-12, B-13, B-14, W-3).

Mitigation Measures for Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants

B-8b **Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat**. SCE and their contractors or affiliates shall avoid adverse impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat (i.e., sandfields and dunes) adjacent to the project site that may result from project construction or operation, such as equipment staging, spoils transport or storage, weed control, soil tackifiers or stabilization agents, collection and disposal of accumulating aeolian sand, or erosion. SCE shall prepare and implement a focused Special-Status Plant Impact Avoidance and Minimization Plan to describe specific measures to be taken during substation construction and operation to minimize impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat. The Plan shall include consideration of the following components:

1. Delineation of the limits of construction disturbance area on-site prior to beginning of construction (the construction disturbance area includes equipment staging areas, spoils transport or storage areas, access routes and all other areas that may be temporarily disturbed by construction);
2. Preconstruction surveys to identify and designate suitable habitat (whether occupied or not) for any of these species throughout the construction disturbance area and a 250-foot buffer are surrounding it;
3. Specific measures to be implemented and monitored throughout substation construction and operation, including but not limited to
   a. prevent overspray of herbicides, pesticides, soil tackifiers, or other potential toxins into suitable habitat during weed control or other site maintenance activities.
   b. on-site management of runoff to prevent nuisance runoff from draining into suitable habitat and prevent erosion of the habitat during heavy rains.
   c. management and control of weeds on and adjacent to the site to prevent weed invasions into suitable adjacent special-status plant habitat;
   d. prevent damage to suitable special-status plant habitat that may result from collecting or disposing accumulating sand;
4. Schedule and format for reporting to CPUC on implementation and progress of the components listed above.

The Plan shall be reviewed and approved by the CPUC at least 60 days prior to construction.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat (see full text of the measure under Impact B-9)**.**

Impact B-9: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive wildlife (Class I for Mojave fringe-toed lizard; Class II for desert kit fox; Class III for northern harrier)

Special-Status Birds. Surveys conducted for the Proposed Project identified several special-status bird species, including burrowing owl, loggerhead shrike, Le Conte's thrasher, northern harrier, Cooper's hawk, and ferruginous hawk (CH2MHill, 2010). These species, with the exception of northern harrier, were considered in the DPV2 EIR/EIS and are not analyzed further in this Supplemental EIR, as impacts would not differ in type or magnitude from what was previously analyzed, and, thus, would not represent new significant environmental effects or a substantial increase in the severity of a previously identified significant effect.

Three occurrences of northern harrier were mapped along the telecommunication route in the *DPV2 Telecommunication Route Biological Review*, which has been included in the Final Supplemental EIR as a new Appendix 9 (CH2MHill, 2010), but this species was not discussed in the report and it is unknown whether these occurrences were located during project surveys or if they are historical records. Nonetheless, the project area supports suitable foraging habitat for this species along most of the route and therefore wintering or migrating northern harrier is assumed to be present. Northern harriers winter in southern California deserts, but breed farther north (Macwhirter and Bildstein, 1996). Due to the limited amount and duration of construction activities, and the fact that wintering raptors are able to forage over very wide areas, impacts are expected to be adverse but less than significant (Class III) and similar to impacts described for other raptor species in the Final EIR/EIS.

Desert Kit Fox and American Badger. American badger was detected during surveys of the telecommunication linear facilities (CH2MHill, 2010). Suitable habitat for this species occurs throughout the project area. However, this species was evaluated in the DPV2 EIR/EIS and is not analyzed further in this Supplemental EIR, as impacts would not differ in type or magnitude from what was previously analyzed and thus would not represent new significant environmental effects or a substantial increase in the severity of a previously identified significant effect. Mitigation Measure B-9g (recommended in the Final EIR/EIS) would apply to this area and would ensure that impacts are less than significant (Class II).

The nearest desert kit fox den is approximately one mile from proposed construction areas, but the presence of multiple desert kit fox complexes in the project vicinity suggests that individuals may be occasionally present within the project area. In addition, desert kit foxes could establish a den or complex within the project area in advance of construction. Construction activities, including site grading and heavy equipment operation, could kill or injure desert kit foxes as a result of collisions with construction equipment or entombment in dens. Construction activities could also result in disturbance or harassment of individuals. These impacts would be significant without mitigation. Impacts to desert kit fox would be avoided or minimized by excluding these animals from the project area prior to construction activities. Mitigation Measure B-9g (Conduct pre-construction surveys and passive relocation for American badger) was presented in the DPV2 Final EIR/EIS. It was developed to mitigate impacts to the American badger, but it would also effectively minimize impacts to kit foxes in the project area. Accordingly, Mitigation Measure B-9g has been revised to include kit fox and is presented as Mitigation Measure B-9g(rev), below. Identification and passive relocation would encourage excluded animals within the project area to occupy nearby habitat or disperse to another area. Implementation of Mitigation Measure B-9g(rev) would mitigate potential impacts to desert kit fox to less than significant levels (Class II).

Mitigation Measure for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9g(rev) **Conduct pre-construction surveys and passive relocation for American badger and desert kit fox.** Prior to construction, SCE shall conduct pre-construction surveys for American badger and desert kit fox. Surveys will be conducted prior to ground disturbance activities in areas that contain habitat for ~~this~~ these species. Badger and desert kit fox dens located outside the project area shall be flagged for avoidance. Unoccupied dens located in the ~~right-of-way~~ project area shall be covered to prevent the animal from re-occupying the den prior to construction. If occupied dens are identified in the area ~~of the ROW~~ that must be disturbed, the CDFG/BLM/Forest Service shall be consulted regarding options for action. Hand-excavation is an option if occupied dens cannot be avoided, but alternatives shall be considered due to potential danger to biologists. After verification that the den is unoccupied, it shall be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. Dens shall be hand–excavated only before or after the breeding season (February 1–May 30). Any relocation of badgers or desert kit fox shall take place after consultation with the BLM, Forest Service, and CDFG.

Mojave Fringe-Toed Lizard

The proposed substation expansion, access driveway and existing DPV1 access road proposed for widening, as well as portions of the telecommunication routes are located within MFTL-occupied stabilized and partially stabilized sand dune habitat in the Chuckwalla sand transport corridor (see Figure D-1). Construction of the expanded CRS, including the access roads, would result in direct loss of 98 acres of MFTL habitat (refer to Table B-2 for estimates of permanent disturbance). Construction of the telecom-

munication facilities would result in minimal temporary disturbance associated with pulling and splicing sites and no permanent disturbance, as the fiber optic line would be installed on existing structures in MFTL-occupied habitat. Other direct impacts include mortality from encounters with construction and maintenance equipment and vehicles.

Construction of the CRS within an active sand transport corridor would also result in habitat degradation of the sand dunes east of the project area. Mojave fringe-toed lizards rely on vegetated sand dunes and the regular addition of fine wind-blown sand for habitat. Active sand dunes (i.e., dunes that have an active layer of mobile sand) exist in a state of dynamic equilibrium, continuously losing sand downwind due to erosion and transport and gaining new supplies from upwind. If the upwind sand supply is cut off by a barrier (e.g., building) the dunes deflate, losing sand downwind and shrinking in size and depth. The finest sand (which is most easily transported) is lost first with coarser sand and gravel being left behind to form an armor or lag. This lag does not support Mojave fringe-toed lizard habitat. Experiments conducted by Turner et al. (1984) demonstrated that while MFTL were abundant upwind of barriers, they were absent downwind in this lag.

As described in the Geomorphic Assessment and Sand Transport Impacts Analysis of the Colorado River Substation (Appendix 3; ESA PWA, 2010), construction of the proposed expanded CRS would cause a reduction of sand transported to 1,365 acres downwind (east) of the Proposed Project area. This resultant deflation would ultimately eliminate 1,365 acres of MFTL sand dune habitat that comprise the easternmost extent of the Chuckwalla sand transport corridor. Modeled impacts to sand transport are illustrated in Figure D-2.

The Chuckwalla Valley population of MFTL would be adversely affected by the Proposed Project. This population, along with a very small population in Joshua Tree National Park's Pinto Basin, represents the southernmost distribution of this species (Barrows pers. comm., as cited in CEC, 2010a). Elimination of the eastern extent of the sand dune habitat for this southernmost population would constitute a range contraction for the species. Further, this population may represent an important gene pool in light of the likely warming and drying that will occur in this region as a result of climate change. These southernmost MFTL may already be adapted to hotter and drier conditions than MFTL further north and could represent a source of genetic variation that could stave off extinction of this species in selected refugia (Barrows pers. comm., as cited in CEC, 2010a).

The distribution of Mojave fringe-toed lizards is naturally fragmented because of the species' requirement to live in a habitat that is patchy. Many local populations of this species are small, with small patches of sand supporting small populations of lizards. This fragmented pattern of distribution leaves the species vulnerable to local extirpations from additional habitat disturbance and fragmentation (Murphy et al., 2007). This extirpation vulnerability coupled with the genetic importance of this population makes the habitat loss and species' range contraction resulting from the substation expansion a significant impact (Class I), even with implementation of Mitigation Measure B-9j, as discussed below.

Recent mitigation strategies implemented by BLM and the CEC require acquisition of compensatory habitat at a 3:1 ratio for direct impacts and a 0.5:1 ratio for indirect impacts to stabilized and partially stabilized sand dunes (BLM, 2010a and 2010b; CEC, 2010a and 2010b). The CEC quantified the acreage of private lands in the wind transport corridor of Chuckwalla Valley that is potentially suitable for MFTL compensatory mitigation (CEC, 2010a). This analysis was independently verified by the CPUC during consideration of the MFTL mitigation acreage required for the Palen, Blythe, and Genesis solar projects; results show that it is feasible to require that acquisition of compensatory lands occur within the wind transport

Figure D-2. MFTL Occurrences and Impacts – Proposed CRS Location
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corridor of Chuckwalla Valley. However, given that acquisition of enough compensatory acreage is contingent on negotiations with private parties to sell their land, it is prudent to include restoration and/or enhancement in the mitigation approach to ensure mitigation availability and feasibility.

It is unlikely that MFTL from the affected areas on the east side of the CRS would colonize any acquired or enhanced parcels west of the CRS; rather, it is likely any remnant populations in the edges of the sand shadow and adjacent sandy creosote scrub would be further fragmented. Also, relocation from the area of indirect effect is infeasible due to the cryptic nature of the species (they are difficult to find). Therefore, even with implementation of Mitigation Measure B-9j, construction and operation of the CRS project would result in significant and unmitigable impacts to MFTL (Class I).

Although it would not reduce the severity of the impact to a less than significant level, new Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat) would lessen impacts to MFTL by securing and preserving unprotected private lands or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development. Acquisition of additional lands would be more beneficial than restoration/enhancement of protected land and per Mitigation Measure B-9j should be the priority. Only if there is not enough acreage available for purchase should restoration/enhancement be implemented as supplementary mitigation. Several restoration/enhancement actions could qualify as mitigation (listed in Mitigation Measure B-9j); however, noxious weed eradication at the Chuckwalla Dune Thicket ACEC would be relatively easy to implement and would directly benefit the Chuckwalla Valley population of MFTL. Additionally, Mitigation Measure B-9d (Conduct pre-construction reptile surveys) from the DPV2 EIR/EIS has been modified below to include MFTL and is presented as B-9d(rev). This measure would avoid and minimize direct impacts to MFTLs present within the CRS and telecommunication linear facilities construction footprints.

Other MFTL Mitigation Options Evaluated

Several other mitigation options were evaluated to reduce MFTL impacts; these were considered as alternatives or as supplements to compensatory habitat acquisition (Mitigation Measure B-9j). However, in consultation with BLM and CDFG, it was determined that these mitigation options would not reduce impacts more effectively or further than Mitigation Measure B-9j, or their implementation would result in additional significant impacts. Therefore, they are not recommended as mitigation. These options are described below.

Chain-link Fencing. The proposed substation wall would be 8 feet tall and composed of concrete. It was considered whether construction of a chain-link fence instead of an impermeable concrete wall would allow the sand to be transported through the substation and beyond, thereby reducing the indirect downwind impacts. Aside from the potential equipment damage from fine sand blowing into an electrical substation and the fact that the sand would instead become entrained on the windward side of the equipment, a chain-link fence would not substantially reduce the barrier to sand transport. The majority of sand is transported within 1 centimeter of the ground (Lancaster, 1995). Further, the presence of 24-inch traffic cones spaced evenly along bare ground in the Mojave Desert reduced dust transport by 45 to 60 percent (Grantz et al., 1998), demonstrating that even a small barrier adversely affects downwind sand transport. Additionally, a semi-permeable barrier (e.g., chain-link fence) dampens wind speeds and reduces the potential for wind to transport sand (Skidmore and Hagen, 1977). Therefore, installation of a chain-link fence would not effectively reduce the downwind habitat loss created by the Proposed Project's concrete wall.

Mechanical Sand Transport. Mechanical sand transport is the process by which Aeolian sand that accumulates on the windward side of a barrier to sand transport is mechanically moved (i.e., by dump truck) around the barrier and deposited in area (called "replenishment area") where it can be picked up again by the wind and transported. SCE submitted a preliminary evaluation an Aeolian sand mitigation program for the proposed CRS (Kenney, 2011). The proposed mitigation program would use sand traps on the western side of the substation to gather data on the sand transport system. The data would be used by engineers with expertise in soil wind erosion and Aeolian sand migration to subsequently design a "Sand Nourishment Program."

SCE estimated that a minimum ratio of 1:10 (barrier height: horizontal distance downwind from the base of the wall) should be used to determine the length of the area between the substation and the replenishment area. Because an 8-foot substation wall would be constructed, SCE estimated that the leeward sheltered area between the substation and the replenishment area would be at least 80 feet wide (east to west). Depending on local sand fluxes, mechanical sand transport could be required every 2 to 3 months up to once a month. Maintenance of the replenishment area would require grading at least once a month to minimize surface roughness and maintain high wind velocities, minimize formation of hard crusts and loosen sand, and discourage infiltration of native plants and animals in the area.

The CPUC's EIR consultant, ESA PWA, also conducted an independent preliminary evaluation of the necessary components and feasibility of a mechanical sand transport mitigation program (see Appendix 3 for the full analysis). It was determined a ratio of 1:25 should be used to estimate the width of the sheltered area. Assuming an 8-foot-tall substation wall, the sheltered area would extend approximately 200 feet from the wall (in contrast to 80 feet estimated by SCE). Additionally, the evaluation used existing regional data to estimate a range of sediment flux occurring in the project area (see Appendix 3 for assumptions and methodology).

The analysis in Appendix 3 estimates that sand accumulation at the substation would be between 578 and 2,603 cubic meters per year. Based on this accumulation, 77 to 347 truck trips would be required per year to transport sand.[4] Based on the sand flux assumptions in another recent analysis (Lancaster, 2010), 3,654 cubic meters of sand would accumulate at the substation. This would require approximately 500 truck trips per year for mechanical sand transport.

There is general consensus that it may be physically feasible to move Aeolian sand around a barrier to a location where it would be entrained by the wind. However, differences among the mechanical sand transport analyses highlight the uncertainty surrounding the specific requirements for implementation of such mitigation. In addition, the many truck trips that would be required over the 30-year life of the CRS would result in additional biological resources and air quality impacts. These long-term adverse impacts include:

- Injury and mortality to MFTL from vehicle collisions
- Injury and mortality to MFTL from mechanically transporting sand (i.e., being picked up by equipment)
- Crushing and burying dune-dependent rare plants
- Additional loss of habitat from establishment of a sheltered area, a replenishment area, and access roads
- Noxious weed proliferation
- Increased air emissions from mechanical sand transport equipment.

[4] This analysis assumes that each dump truck carries 7.5 cubic meters of sand.

Further, it has not been empirically demonstrated that mechanical transport of Aeolian sand has effectively replicated the natural downwind conditions that would have existed (or did exist) in the absence of the barrier. This uncertainty, coupled with the severity of residual and new long-term impacts negate the effectiveness of mechanical sand transport as biological resource mitigation.

However, even in the absence of mitigation requirements, it is expected that sand will need to somehow be removed from the windward (east) side of the proposed substation because its build-up could have negative implications for operation and maintenance of the substation. Therefore, it is assumed that additional access roads will be required to facilitate mechanical removal of the accumulated sand. If SCE deposits the sand on the leeward side of the substation, where it could be transported by the wind, the footprint of the sheltered area and the replenishment area would constitute an additional loss of MFTL habitat. Impacts associated with sand transport would be similar to those listed above. If this mechanical movement is required, these additional areas of direct impact (i.e., access road(s), sheltered area, deposition area) would be included in the mitigation requirement, requiring a 3:1 replacement of habitat for the direct loss of habitat, consistent with the mitigation requirements of the proposed substation footprint, as described in Mitigation Measure B-9j.

As described above, mechanically transporting sand to a replenishment area where Aeolian processes could re-distribute the sand would not reduce indirect downwind impacts. Therefore, the 0.5:1 mitigation ratio described in Mitigation Measure B-9j is required regardless of the method in which SCE manages the accumulated sand at the substation wall. Compensatory habitat acquired to mitigate the indirect impacts from construction of the CRS would also mitigate for the expected and unquantifiable long-term and persistent injury and mortality of MFTL from mechanical sand removal during substation operation, although not below the level of significance (Class I).

Mitigation Measures for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9d(rev) **Conduct pre-construction reptile surveys.** Prior to construction, SCE shall conduct surveys in areas of suitable habitat for Mojave fringe-toed lizard, ~~Sonoran desert tortoise,~~ common chuckwalla, banded Gila monster, and desert rosy boa within 48 hours prior to the start of construction activities. If Mojave fringe-toed lizards, common chuckwallas, banded Gila monsters and/or desert rosy boas are found on the construction site, they will be relocated to nearby suitable habitat outside the construction area. Following the clearance surveys, exclusion fencing will be erected or a biological monitor will be onsite during construction activities.

- If potentially suitable burrows or rock piles are found, they will be checked for occupancy. Occupied burrows will be flagged and avoided (employing a 50-foot buffer) during construction. If the burrow cannot be avoided, it will be excavated and the occupant relocated to an unoccupied burrow outside the construction area and of approximately the same size as the one from which it was removed. If an existing burrow is unavailable, the biologist will construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original. Trenches, holes, or other excavations will be examined for banded Gila monster prior to filling. If individuals are found, the biological monitor will relocate them to nearby suitable habitat.
- During construction, if a Mojave fringe-toed lizard, common chuckwalla, banded Gila monster, and/or desert rosy boa occur on the project site, construction activities adjacent to the individual's location will be halted and the animal will be allowed to move away from the construction site. If the individual is not moving, a qualified biologist will relocate it to

nearby suitable habitat outside the construction area. It shall be placed in the shade of a shrub. The Forest Service will be notified of any sensitive wildlife identified on NFS lands. ~~Also during construction, if a Sonoran desert tortoise occurs on the project site, construction activities adjacent to the individuals' location will be halted and the~~ USFWS's 2009 *Desert Tortoise Field Manual* ~~or more current guidance provided by CDFG and USFWS *Guidelines for Handling Sonoran Desert Tortoises Encountered During Construction Projects* will be followed by qualified personnel.~~

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat. To mitigate for habitat loss and direct impacts to Mojave fringe-toed lizards, SCE shall acquire compensatory habitat. If sufficient acreage (in accordance with the ratios below) is not available, SCE shall enhance or restore marginal MFTL habitat. Requirements and performance standards of each of these options is described below.

Acquisition of Compensatory Habitat

Compensation lands shall be purchased in fee or in easement in whole or in part, at the following ratios:

- 3:1 mitigation for direct impacts to stabilized and partially stabilized sand dunes (approximately 98 acres or final acreage permanently impacted by the project footprint plus any permanent disturbance areas required for moving accumulated sand); and
- 0.5:1 mitigation for indirect impacts to stabilized and partially stabilized sand dunes (1,365 acres indirectly impacted by the project, including indirect impacts of moving accumulated sand).

If compensation lands are acquired, SCE shall provide funding for the acquisition in fee title or in easement, initial habitat improvements, and long-term maintenance and management of the compensation lands. The compensation lands for direct impacts (at a 3:1 ratio) must be stabilized and partially stabilized sand dune habitat.

1. *Criteria for Compensation Lands*: The compensation lands selected for acquisition shall:

   a. Provide suitable habitat for Mojave fringe-toed lizards, and, aside from the minimum amount of stabilized and partially stabilized sand dunes described above, may also include sand drifts over playas or sandy Sonoran creosote bush scrub;

   b. Be within the Chuckwalla Valley with potential to contribute to Mojave fringe-toed lizard habitat connectivity and build linkages between known populations of Mojave fringe-toed lizards and preserve lands with suitable habitat;

   c. Contain at least one occurrence of Harwood's milk-vetch, Harwood's eriastrum, or flat-seeded spurge if these species are identified in pre-construction surveys required per Mitigation Measure B-8b(2).

   d~~c~~. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

   e~~d~~. Provide quality habitat for Mojave fringe-toed lizard that has the capacity to regenerate naturally when disturbances are removed;

fe. Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible;

gf. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

hg. Not contain hazardous wastes that cannot be removed to the extent the site is suitable for habitat;

ih. Not be subject to property constraints (i.e. mineral leases, cultural resources); and

ji. Be on land for which long-term management is feasible.

2. *Security for Implementation of Mitigation*: SCE shall provide financial assurances to the CPUC, BLM, and CDFG to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of Mojave fringe-toed lizard habitat as described in this condition. Financial assurance can be provided to the CPUC and CDFG in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPUC, the project owner shall obtain the CPUC's approval in consultation with CDFG and BLM, of the form of the Security. These funds shall be used solely for implementation of the measures associated with the project. The final amount due will be determined by an updated appraisal and a PAR analysis. The preliminary estimate of the required Security is presented in Table D.2-1.

   SCE may elect to fund the acquisition and initial improvement of compensation lands through the National Fish and Wildlife Foundation (NFWF) by depositing funds for that purpose into NFWF's Renewable Agency Action Team (REAT) Account. Initial deposits for this purpose must be made in the same amounts as the Security (refer to Table D.2-1) and may be provided in lieu of Security. If this option is used for the acquisition and initial improvement and the actual land cost is higher than the estimated Security amount, SCE shall make an additional deposit into the REAT Account if necessary to cover the actual acquisition costs and administrative costs and fees of the compensation land purchase once land is identified and the actual costs are known. If the actual costs for acquisition and administrative costs and fees are less than that estimated by CDFG, the excess money deposited in the REAT Account shall be returned to SCE. Money deposited for the initial protection and improvement of the compensation lands shall not be returned to SCE.

   The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a nongovernmental organization supportive of desert habitat conservation, by written agreement of CPUC, BLM, and CDFG. Such delegation shall be subject to approval by CPUC, in consultation with BLM and CDFG, prior to land acquisition, initial protection or maintenance and management activities.

3. *Preparation of Management Plan*: SCE shall submit to the CPUC, BLM, and CDFG a Management Plan that describes site-specific enhancement measures for the Mojave fringe-toed lizard habitat on the acquired compensation lands. The objective of the Management Plan shall be to enhance the value of the compensation lands for Mojave fringe-toed lizards, and may include enhancement actions such as weed control, fencing to exclude livestock, erosion control, or protection of sand sources or sand transport corridors.

Restoration/Enhancement of Protected Land

If sufficient compensatory mitigation land is unavailable for acquisition as described above, a portion of the compensation funds may be used to implement MFTL habitat restoration/ enhancement measures on land protected by a conservation easement or BLM land that will not be developed in the future (e.g., ACEC, wilderness area, DWMA). Land targeted for restoration/enhancement shall also be occupied by MFTL or adjacent to MFTL-occupied land. Compensatory mitigation land shall be determined to be unavailable if after 18 months after the beginning of project ground disturbance SCE (or NFWF if NFWF option is selected) is able to determine through due diligence that: (1) land owners are unwilling to sell sufficient acreage or (2) acquisition cost per acre exceeds fair market value.

The amount of land on which to implement MFTL habitat restoration/enhancement measures shall be twice the number of mitigation acres that could not be acquired. For example, if 1000 acres is required (based on the acreage of the final project footprint at a ratio of 3:1 or 0.5:1) and only 800 acres could be acquired, enhancement measures shall be implemented over a 400-acre area ((1000-800) x 2 = 400).

MFTL habitat enhancement measures may include, but would not be limited to:

- Long-term eradication of invasive plants, particularly Sahara mustard and Russian thistle; and/or
- Removal of upwind barriers to dispersal (e.g., removal of upwind tamarisk windrows, or of land uses that would tend to stop moving sand from reaching protected habitat downwind).

The restoration/enhancement area shall be approved by CDFG, BLM, and CPUC. In addition, a site-specific Habitat Enhancement Plan shall be prepared by SCE that describes the methodology for implementation of site-specific enhancement measures for Mojave fringe-toed lizard habitat on the subject lands. The objective of the Management Plan shall be to enhance the value of the subject lands for Mojave fringe-toed lizards in perpetuity.

Verification

No later than 30 days prior to beginning Project ground-disturbing activities, SCE shall provide written verification of an approved form of Security. Actual Security shall be provided no later than 7 days prior to the beginning of Project ground-disturbing activities. SCE, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities.

No less than 90 days prior to acquisition of the property, SCE shall submit a formal acquisition proposal to the CPUC, BLM, and CDFG describing the parcels intended for purchase.

SCE, or an approved third party, shall provide the CPUC, BLM, and CDFG, with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. SCE, or an approved third party, shall provide the CPUC, BLM, and CDFG, with a management plan for restoration/enhancement activities on protected or qualifying BLM land no later than 60 days prior to construction; the restoration/enhancement management plan must include a detailed monitoring and reporting component. The CPUC shall review and approve the management plan(s), in consultation with BLM and CDFG.

Within 90 days after completion of Project construction, SCE shall provide to the CPUC, BLM, and CDFG an analysis with the final accounting of the amount (detailed by habitat type) of Mojave fringe-toed lizard habitat disturbed during Project construction.

The project owner shall provide written verification to the CPUC, BLM, and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months from the start of ground-disturbing activities.

Table D.2-1. Mojave Fringe-Toed Lizard and Aeolian Sand Habitat Compensation Cost Estimate[1]

	Task	Cost
1.	Land Acquisition (952.5 acres at $500 / acre; 160-acre avg. parcel size)[2]	$476,250.00
2.	Level 1 Environmental Site Assessment ($3,000 per parcel)[3]	$18,000.00
3.	Appraisal ($5,000 per parcel)	$30,000.00
4.	Initial site work – clean-up, enhancement, restoration ($250 per acre)[4]	$238,125.00
5.	Closing and Escrow Costs – 2 transactions at $2,500 each; landowner to third party and third party to agency	$30,000.00
6.	Biological survey for determining mitigation value of land (habitat based with species specific augmentation) ($20,000 / parcel)	$120,000.00
7.	Third party administrative costs – includes but not limited to staff time to work with agencies and landowners; develop management plan; oversee land transaction; organizational reporting and due diligence; and review of acquisition documents (10% of land acquisition cost).	$47,625.00
8.	Agency costs to review and determine accepting land donation – includes but not limited to 2 physical inspections; review and approval of the Level 1 ESA assessment; review of all title documents; drafting deed and deed restrictions; issue escrow instructions; mapping the parcels (15% of land acquisition costs (#1) × 1.17 [17% of the 15% for overhead]).	$83,851.88
	SUBTOTAL – Acquisition & Initial Site Work	*$1,043,581.88*
9.	Long-term Management and Maintenance (LTMM) Fund – includes but is not limited to land management in-perpetuity; enforcement and defense of easement or title [short and long term]; and monitoring ($1,450 per acre)[5]	$1,381,125.00
	SUBTOTAL – Acquisition, Initial Site Work, & LTMM	*$2,424,706.88*
	NFWF Fees	
10.	Establish the project specific account	$12,000
11.	Pre-proposal Modified RFP or RFP processing[6]	$30,000
12.	NFWF management fee for acquisition & initial site work (3% of Acquisition & Initial Site Work subtotal)	$31,307.46
13.	NFWF Management fee for LTMM Fund (1% of LTMM Fund)	$13,811.25
	TOTAL for deposit in REAT-NFWF Project Specific Account	*$2,511,825.58*

1 - Estimates provided by REAT (CEC, CDFG, USFWS, and BLM). All costs are best estimates as of summer 2010. Actual costs will be determined at the time of the transactions and may change the funding needed to implement the required mitigation obligation. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.

2 - Generalized estimate taking into consideration a likely jump in land costs due to demand, and an 18- to 24-month window to acquire the land after agency decisions are made. If the agencies, developer, or third party has better, credible information on land costs in the specific area where project-specific mitigation lands are likely to be purchased, that data overrides this general estimate. Note: regardless of the estimates, the developer is responsible for providing adequate funding to implement the required mitigation.

3 - For the purposes of determining costs, average parcel size is estimated at 160 acres (per REAT estimates for the region).

4 - Based on information from CDFG.

5 - Estimate for purposes of calculating general costs. The actual long term management and maintenance costs will be determined using a Property Assessment Report (PAR) tailored to the specific acquisition.

6 - If determined necessary by the REAT agencies if multiple third parties have expressed interest; for transparency and objective selection of third party to carry out acquisition.

Impact B-15: Operation of the transmission line and telecommunication linear facilities may result in collisions by listed bird species (Class II)

Potential avian collisions with power lines were addressed in the Final EIR/EIS, but this discussion focused on the transmission lines. The fiber optic cable proposed for the telecommunication linear facilities would also present a collision risk to birds. Because the fiber optic cable is smaller than the transmission line conductor, it may be more difficult to see and therefore may pose a greater collision risk for birds than the power lines themselves. Additionally, where fiber optic lines are placed in the ground wire position above transmission conductors, birds who attempt to avoid the conductors by flying over them risk colliding with the smaller and more difficult to see fiber optic lines (Janss and Ferrer, 1998; Avery et al., 1978).

It is difficult to predict the magnitude of collision-caused bird mortality without extensive information on bird species and movements in the Proposed Project area, and these data are not available for the proposed fiber optic line study area. In general, collisions are expected to be more likely near wetlands, valleys that are bisected by lines, and within narrow passes where lines run perpendicular to flight paths. The Proposed Project area does not include any of these features, and based on available information, it is generally expected that collision mortality would be low. However, injury or mortality of any listed or special-status bird would be considered significant. Mitigation Measure B-15a (Utilize collision-reducing techniques in installation of transmission lines), presented in the Final EIR/EIS, requires SCE to install the transmission line utilizing APLIC standards for collision-reducing techniques. Mitigation Measure B-15a has been revised to require collision-reducing techniques in the installation of the fiber optic lines as well. With the implementation of Mitigation Measure B-15a(rev), impacts to listed and other special-status bird species from collisions with the fiber optic cable would be reduced to less than significant (Class II).

Mitigation Measure for Impact B-15: Operation of the transmission line and telecommunication linear facilities may result in line collisions by listed bird species

B-15a(rev) Utilize collision-reducing techniques in installation of transmission lines and telecommunication linear facilities. SCE shall install the transmission line and telecommunication linear facilities utilizing APLIC standards for collision-reducing techniques as outlined in "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994 (APLIC, 1996)."

- Placement of towers and lines will not be located significantly above existing transmission line towers and lines, topographic features, or tree lines to the maximum extent practicable.
- Overhead lines that occur significantly above the above-mentioned features and that are located in highly utilized avian flight paths will be marked utilizing aerial marker spheres, swinging plates, spiral vibration dampers, bird flight diverters, avifauna spirals, or other diversion device as to be visible to birds and reduce avian collisions with lines.

Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS (Class II)

Desert sand dunes are considered sensitive by BLM per the NECO Plan (BLM CCD, 2002) and provide important and regionally limited habitat for special-status plants and wildlife (e.g., ribbed cryptantha, Harwood's eriastrum, winged cryptantha, Harwood's milkvetch, MFTL), as described in Section D.2.1. Although, related, impacts to this sensitive natural community are analyzed separately from the special-status species it supports; refer to analyses of impacts to sand dune-dependent rare plants (Impact B-8) and Aeolian sand-obligate MFTL (Impact B-9), above.

Construction of the Proposed Project would result in direct loss of 98 acres of this sensitive habitat type. Additionally, degradation of 1,365 acres of sand dunes downwind (east) of the CRS would result from blockage of sand transport, as described under Impacts B-8 and B-9, above. Other indirect impacts to sand dune habitat include introduction of noxious weeds, which would further stabilize the sand dunes and out-compete native plants, thereby degrading this sensitive natural community. These direct and indirect impacts would be significant without mitigation (Class II). Mitigation measures for impacts to dune-dependent rare plants and MFTL would also effectively mitigate impacts to sand dunes. These mitigation measures are: Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat), which requires implementation of measures to control spread of noxious weeds, runoff, herbicide drift and into adjacent sand dune habitat; and Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat), which would secure and preserve unprotected private lands with dune habitat or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development.. Implementation of these mitigation measures would reduce direct and indirect impacts to sand dune habitat, a BLM-designated sensitive natural community, below the level of significance (Class II).

Mitigation Measure for Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

D.2.5 Connected Actions

Section B.4 describes two solar power projects — BSPP and GSEP — that currently have Power Purchase Agreements and would interconnect at the CRS. As such, they are considered part of the proposed action to expand the CRS Substation. As explained in Section A, both BSPP and GSEP were previously evaluated under CEQA and NEPA, and those analyses are incorporated into this Supplemental EIR by reference. The impacts of those projects, as described in the prior environmental analyses (i.e., Section C.2 of the BSPP Revised Staff Assessment, the Biological Resources section of the BSPP SSA, Section C.2 of the GSEP RSA, and Section C.2 of the RSA Supplement), are summarized here.

D.2.5.1 Blythe Solar Power Project

Construction Impacts

Construction of the BSPP would eliminate all native plant and wildlife communities within its 7,044-acre footprint, including loss of 6,488 acres of creosote bush scrub. Habitat types impacted by the BSPP include upland habitat types such as Sonoran creosote bush scrub and stabilized and partially stabilized sand dunes, as well as desert dry wash woodlands and vegetated ephemeral swales. These habitats provide foraging, cover, and/or breeding habitat for a variety of resident wildlife, including the state and federally listed desert tortoise, American badger, desert kit fox, golden eagle, various migratory birds, burrowing owl, and Mojave fringe-toed lizard.

The BSPP would result in loss of habitat for desert tortoise and would degrade and fragment adjacent native plant and wildlife communities, decreasing regional connectivity and dispersal of resident wildlife.

Additionally, the BSPP is likely to promote the spread of invasive non-native plants, and subsidize desert tortoise predators such as common raven, coyotes, and feral dogs. Impacts of the BSPP are further described below. Implementation of avoidance, minimization, and compensatory mitigation measures would offset direct, indirect, and cumulative construction impacts to less than significant levels, and assure compliance with state and federal laws such as the federal and state endangered species acts and regulations protecting waters of the state.

***State-jurisdictional Desert Washes*.** The BSPP would directly and indirectly affect an extensive network of state-jurisdictional desert washes encompassing more than 550 acres and including desert dry wash woodland, vegetated ephemeral swales, and unvegetated desert washes. The BSPP would significantly alter the hydrology of the area by re-routing these waterways through five engineered channels. Implementation of impact avoidance and minimization measures as well as compensatory mitigation (i.e., acquisition of 1,320 acres of similar desert wash habitat within the immediate or adjacent watersheds) would mitigate impacts to less than significant.

Special-status Plants. No federal- or state-listed plant species occur within the BSPP, but six species of special-status plants (California Rare Plant Rank 1B, 2, or 4 species) were detected there, including ribbed cryptantha, Utah milkvine (*Cynanchum utahense*), desert unicorn plant (*Proboscidea althaeifolia*), Las Animas colubrine (*Colubrina californica*), Harwood's milk-vetch, and Harwood's eriastrum. Additionally, ephemeral desert annuals may occur onsite that cannot be detected during a typical spring survey. Direct impacts include habitat loss and loss of any plants occurring in the project area. Indirect impacts to special-status plants include: introduction and spread of invasive plants; population fragmentation and disruption of gene flow; potential impacts to pollinators; increased risk of fire; erosion and sedimentation of disturbed soils, which render the habitat vulnerable to invasion by pest plants, herbicide and other chemical drift; and disruption of photosynthesis and other metabolic processes from fugitive dust during construction and operation. Mitigation requires late-season surveys to ensure that any plants missed during the spring surveys would be detected and any impacts mitigated. Mitigation includes impact avoidance and minimization measures as well as compensatory mitigation for direct impacts to special-status plant species. With mitigation, impacts to special-status plants recorded on site and those potentially observed during late-season surveys would be less than significant.

Desert Tortoise. Construction activities could also result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Other direct effects could include individual tortoises being crushed or entombed in their burrows, collection or vandalism, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise or vibrations from the heavy equipment, and injury or mortality from encounters with workers' or visitors' pets. Indirect effects include increased predation on desert tortoise from the provision of food or other attractants in the form of trash, road-killed animals, and water, which would draw unnaturally high numbers of desert tortoise predators such as the common raven, kit fox, and coyote to the project area. Noxious weed proliferation may impede desert tortoise movement and degrade habitat and forage. Mitigation requires implementation of impact avoidance and minimization measures, development of a Raven Management and Monitoring Plan to address Project-related increases in ravens as well as contributions to the USFWS Regional Raven Management Program. To mitigate the loss of 7,044 acres of desert tortoise habitat, compensatory habitat acquisition at a 1:1 ratio within the Colorado Desert Recovery Unit is recommended. With implementation of mitigation, impacts to desert tortoise would be less than significant.

Migratory and Special-status Birds. Desert dry wash woodland, Sonoran creosote bush scrub, and other habitat within the BSPP provides foraging, cover, and/or breeding habitat for migratory birds, including a number of special-status bird species potentially occurring at the site. Implementation of mitigation

requiring development of an Avian Protection Plan and pre-construction nest surveys would mitigate impacts below the level of significance. Potential impacts to burrowing owls would be further mitigated by implementation of passive relocation of burrowing owls, as well as acquisition of 39 acres of off-site lands suitable for burrowing owl.

***Golden Eagle*.** No active golden eagle nests were found within 10 miles of the BSPP. One inactive golden eagle nest in poor condition is located approximately 3 miles west of the BSPP. One active golden eagle nest was located in the Big Maria Mountains northeast of the site; however, this nest was not occupied (no fledglings or eggs) during spring 2010 and is outside the 10-mile buffer surrounding the BSPP. Implementation of a golden eagle monitoring and management program would endure avoidance of disturbance and mitigate potential impacts from construction to less than significant levels. Golden eagles forage in the BSPP area and construction would contribute to the cumulative loss of foraging habitat. Compensatory mitigation required for desert tortoise would mitigate the projects contribution to less than cumulatively considerable.

American Badger and Desert Kit Fox. These species occur throughout the BSPP, and construction activities could crush or entomb individuals. Preconstruction surveys and passive relocation would protect badgers and kit fox, thereby avoiding this potential impact.

***Mojave Fringe-toed Lizard and Sand Dune Habitat*.** Although the solar field would not be located in sand dunes that provide habitat for MFTL, MFTL could occur along the BSPP's transmission line required to interconnect at the Colorado River Substation. Transmission line construction would result in permanent impacts to approximately 4 acres of sand dune habitat. Indirect impacts include the introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; fragmentation and degradation of remaining habitat; increased road kill hazard from operations traffic; harm from accidental spraying or drift of herbicides and dust suppression chemicals, and; an increase in access for avian predators (such as loggerhead shrikes) due to new perching structures. Mitigation requires acquisition of sand dune habitat at a 3:1 ratio, as required by the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO). With implementation of mitigation, impacts to MFTL would be less than significant.

***Couch's Spadefoot Toad*.** Three ponds potentially suitable for Couch's spadefoot toads occur within the BSPP and nine more suitable ponds exist within a mile of the site. Direct effects to Couch's spadefoot toads could include loss of breeding habitat and direct mortality during grading or construction. Disturbance to breeding ponds, including to new ponds incidentally created during construction activities, could also impact this species. In addition, construction, maintenance, and operation traffic could result in direct mortality, particularly on Black Rock Road, where the three ponds are located. Indirect impacts could result from hydrology changes that reduce flow to breeding areas. In addition, construction noise could trigger emergence when conditions are not favorable. implementation of a Couch's Spadefoot Toad Protection and Mitigation Plan, which requires avoiding impacts to all spadefoot toad breeding habitat, or requires construction of replacement habitat if impacts are unavoidable, would mitigate impacts to a less than significant level.

***Nelson's Bighorn Sheep*.** The BSPP would not directly affect habitat within any NECO connectivity corridors or WHMAs, and would not conflict with Desert Bighorn Sheep Conservation goals and objectives outlined in the NECO. However, the BSPP would result in the loss of potential spring foraging habitat for Nelson's bighorn sheep. Mitigation requires creation of a new water source in the McCoy Mountains. This artificial water source would attract bighorn sheep and expand foraging opportunities in the lower elevations of the mountains to replace spring foraging habitat lost to Project facilities. This water source would also serve to attract the bighorn during seasonal movements and keep them in the mountainous

portion of the wildlife corridor. With implementation of mitigation, impacts to Nelson's bighorn sheep would be less than significant.

Operational Impacts

Impacts to biological resources from operation of the BSPP include collision with BSPP structures, electrocution by the gen-tie transmission line, and exposure to glare that is potentially hazardous to wildlife, as described below.

***Collision*.** BSPP structures (e.g., air cooled condenser [approximately 120 feet tall], heat transfer fluid heaters [80 feet tall], cooling towers [32 feet tall], take-off towers [50 feet in height], and auxiliary boilers [32 feet in height]) pose a collision risk to birds and bats. Lighting at the BSPP would increase avian collision risk because lights can attract nocturnal migrant songbirds. Night lighting close to the ground at the project site could also attract bats and disturb wildlife that occurs adjacent to the project site (e.g., nesting birds, foraging mammals, and flying insects). Measures to minimize night lighting and implementation of an Avian Protection Plan would mitigate impacts below the level of significance. The Avian Protection Plan would provide the information needed to determine if operation of the project posed a collision risk for birds, and would provide adaptive management measures to mitigate those impacts to less than significant levels.

***Electrocution*.** Large raptors like golden eagles could be electrocuted by the BSPP transmission lines if a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. This is unlikely given the adequate distance between these elements. Adherence to Avian Powerline Interaction Committee (APLIC) guidelines would mitigate this potential impact to a less than significant level.

***Lighting – Glare*.** Wildlife on the ground at a distance of 20 meters or less from the BSPP could experience a light intensity equal or greater to levels considered safe for the human retina and potentially unsafe for wildlife. Use of slatted fencing as the project perimeter fencing would prevent glare exposure to wildlife on the ground within 20 meters of the BSPP project boundary, thereby reducing the potential for a significant impact to less than significant.

D.2.5.2 Genesis Solar Energy Project

Construction Impacts

Construction of the GSEP would eliminate all native plant and wildlife communities within its 1,880-acre footprint. Habitat types impacted by the GSEP include upland habitat types such as Sonoran creosote bush scrub and stabilized and partially stabilized sand dunes, as well as desert dry wash woodlands and vegetated ephemeral swales. These habitats provide foraging, cover, and/or breeding habitat for a variety of resident wildlife, including the state and federally-listed desert tortoise, American badger, desert kit fox, golden eagle, various migratory birds, burrowing owl, and Mojave fringe-toed lizard. Impacts of the GSEP are further described below. Implementation of avoidance, minimization, and compensatory mitigation measures would offset direct, indirect, and cumulative construction impacts to less than significant levels, and assure compliance with state and federal laws such as the federal and state endangered species acts and regulations protecting waters of the state.

State-jurisdictional Desert Washes. The GSEP would directly impact 69 acres of state jurisdictional waters, including 16 acres of microphyllous riparian vegetation, eliminating the hydrological, biogeochemical, vegetation, and wildlife functions of this network of ephemeral drainages. As many as 21 acres of ephemeral drainages downstream of the GSEP could also be indirectly impacted by changes in upstream hydrol-

ogy. Implementation of impact avoidance and minimization measures as well as compensatory mitigation (i.e., acquisition and enhancement of 111 acres of ephemeral dry washes within the Chuckwalla-Ford Dry Lake watershed) would mitigate impacts to less than significant.

Special-status Plants. No federal- or state-listed plant species occur within the GSEP, but four species of special-status plants (California Rare Plant Rank 1B, 2, or 4 species) were detected there, including ribbed cryptantha, desert unicorn plant, Harwood's milk-vetch, and Harwood's eriastrum. Additionally, ephemeral desert annuals may occur onsite that cannot be detected during a typical spring survey (e.g., Abram's spurge, flat-seeded spurge, lobed ground cherry). Direct impacts include habitat loss and loss of any plants occurring in the project area. Indirect impacts to special-status plants include: introduction and spread of invasive plants; population fragmentation and disruption of gene flow; potential impacts to pollinators; increased risk of fire; erosion and sedimentation of disturbed soils, which render the habitat vulnerable to invasion by pest plants, herbicide and other chemical drift; and disruption of photosynthesis and other metabolic processes from fugitive dust during construction and operation. The GSEP's direct, indirect, and cumulative impacts to Harwood's eriastrum and Harwood's milk-vetch would be significant without mitigation, but impacts to ribbed cryptantha and desert unicorn adverse but less than significant. Mitigation requires late-season surveys to ensure that any plants missed during the spring surveys would be detected and any impacts mitigated. Mitigation includes impact avoidance and minimization measures as well as compensatory mitigation for direct impacts to special-status plant species. With mitigation, impacts to special-status plants recorded on site and those potentially observed during late-season surveys would be less than significant.

Desert Tortoise. Construction activities would result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Other direct effects could include individual tortoises being crushed or entombed in their burrows, collection or vandalism, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise or vibrations from the heavy equipment, and injury or mortality from encounters with workers' or visitors' pets. Indirect effects include increased predation on desert tortoise from the provision of food or other attractants in the form of trash, road-killed animals, and water, which would draw unnaturally high numbers of desert tortoise predators such as the common raven, kit fox, and coyote to the project area. Noxious weed proliferation may impede desert tortoise movement and degrade habitat and forage. Mitigation requires implementation of impact avoidance and minimization measures, development of a Raven Management and Monitoring Plan to address Project-related increases in ravens as well as contributions to the USFWS Regional Raven Management Program. To mitigate the loss of desert tortoise habitat, acquisition of compensatory habitat at a 1:1 ratio for 1,750 acres and 5:1 ratio for impacts to 24 acres within the Chuckwalla Desert Tortoise Critical Habitat Unit is recommended. With implementation of mitigation, impacts to desert tortoise would be less than significant.

Mojave Fringe-toed Lizard and Sand Dune Habitat. The GSEP would directly impact 38 acres of Mojave fringe-toed lizard habitat (including 7.5 acres of dunes and 38 acres of playa with sand drifts) and indirectly affect 151 acres of habitat downwind of the project area. The indirect impact results from the GSEP solar arrays extending into the sand transport corridor, diminishing the input of sand to downwind areas and reducing the active sand layer that is crucial to Mojave fringe-toed lizard habitat. The Mojave fringe-toed lizards in the Chuckwalla Valley are at the southernmost portion of the species range, and the proposed Project could increase the risks of local extirpation of an already fragmented and isolated population. Indirect impacts include the introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; fragmentation and degradation of remaining habitat; increased road kill hazard from operations traffic; harm from accidental spraying or drift of herbicides and dust suppression

chemicals, and; an increase in access for avian predators (such as loggerhead shrikes) due to new perching structures. Mitigation requires acquisition of sand dune habitat at a 3:1 ratio for direct impacts, as required by the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO). Indirect downwind impacts would be mitigated at a 0.5:1 ratio. Acquisition and protection of habitat should supporting core populations of Mojave fringe-toed lizard habitat in the Chuckwalla Valley. With implementation of mitigation, impacts to MFTL would be less than significant.

Migratory and Special-status Birds. Desert dry wash woodland, Sonoran creosote bush scrub, and other habitat within the GSEP provides foraging, cover, and/or breeding habitat for migratory birds, including a number of special-status bird species potentially occurring at the site. Implementation of mitigation requiring development of an Avian Protection Plan and pre-construction nest surveys would mitigate impacts below the level of significance. Potential impacts to burrowing owls would be further mitigated by implementation of passive relocation of burrowing owls, as well as acquisition of 39 acres of off-site lands suitable for burrowing owl.

Golden Eagle. Three golden eagle nests were found within the 10-mile survey buffer of the GSEP. One of these nests was an inactive nest in the McCoy Mountains approximately 8.26 miles east of the GSEP, and 5.2 miles from the closest point of the transmission line. The other two nests were within the Palen Mountains, both approximately 9.8 miles northwest of the GSEP site boundary. One of these was inactive, but the other showed evidence that new material may have been recently added; no eagles were observed using this nest. The three observed nests likely represent two eagle territories, one in the Palen Mountains and one in the McCoy Mountains. No eagles were observed during any March, April, or May 2010 helicopter surveys in either mountain range. Implementation of a golden eagle monitoring and management program would endure avoidance of disturbance and mitigate potential impacts from construction to less than significant levels. Golden eagles forage in the GSEP area and construction would contribute to the cumulative loss of foraging habitat. Compensatory mitigation required for desert tortoise would mitigate the projects contribution to less than cumulatively considerable.

***American Badger and Desert Kit Fox*.** These species occur throughout the GSEP, and construction activities could crush or entomb individuals. Preconstruction surveys and passive relocation would protect badgers and kit fox, thereby reducing this potential impact to less than significant.

Couch's Spadefoot Toad. Couch's spadefoot toads were historically recorded breeding in a pond south of I-10 near Wiley Well Road that overlaps with the GSEP's proposed transmission line corridor; in the absence of survey information indicating otherwise, this species is considered to be extant at this location. Direct effects to Couch's spadefoot toads could include loss of breeding habitat and direct mortality during grading or construction. Disturbance to breeding ponds, including to new ponds incidentally created during construction activities, could also impact this species. In addition, construction, maintenance, and operation traffic could result in direct mortality, particularly on Black Rock Road, where the three ponds are located. Indirect impacts could result from hydrology changes that reduce flow to breeding areas. In addition, construction noise could trigger emergence when conditions are not favorable. implementation of a Couch's Spadefoot Toad Protection and Mitigation Plan, which requires avoiding impacts to all spadefoot toad breeding habitat, or requires construction of replacement habitat if impacts are unavoidable, would mitigate impacts to less than significant.

Operational Impacts

Impacts to biological resources from operation of the GSEP include collision with GSEP structures, electrocution by the gen-tie transmission line, and exposure to glare that is potentially hazardous to wildlife, as described below.

***Collision*.** Avian collision hazards at the GSEP would include several ancillary buildings (e.g., water treatment building, administration building, control room, steam turbine generator building) that range in height from 30 to 50 feet. The tallest proposed structures are the transmission line monopoles, which are approximately 75 feet tall. Lighting at the GSEP would increase avian collision risk because lights can attract nocturnal migrant songbirds. Night lighting close to the ground at the project site could also attract bats and disturb wildlife that occurs adjacent to the project site (e.g., nesting birds, foraging mammals, and flying insects). Measure to minimize night lighting and implementation of an Avian Protection Plan would mitigate impacts below the level of significance. The Avian Protection Plan would provide the information needed to determine if operation of the project posed a collision risk for birds, and would provide adaptive management measures to mitigate those impacts to less than significant levels.

***Electrocution*.** Large raptors like golden eagles could be electrocuted by the GSEP transmission lines if a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. This is unlikely given the adequate distance between these elements. Adherence to Avian Powerline Interaction Committee (APLIC) guidelines would mitigate this potential impact below the level of significance.

Lighting – Glare. Wildlife on the ground at a distance of 20 meters or less from the GSEP could experience a light intensity equal or greater to levels considered safe for the human retina and potentially unsafe for wildlife. Use of slatted fencing as the project perimeter fencing would prevent glare exposure to wildlife on the ground within 20 meters of the project boundary, thereby reducing the potential for a significant impact.

D.2.6 Partial Avoidance Alternative

Environmental Setting

The regional environmental setting of the Partial Avoidance Alternative and its vicinity is the same as the setting for the Proposed Project in Section D.2.1.

The majority of the Partial Avoidance Alternative site is within the active sand transport corridor, which is occupied habitat for MFTL, ribbed cryptantha and Harwood's eriastrum. The remainder of the site transitions into Sonoran creosote bush scrub, which has low to moderate potential to support desert tortoise. The transitional areas between partially stabilized sand dunes and creosote bush scrub are dominated by Asian mustard (*Brassica tournefortii*), an invasive perennial weed. The soils, vegetation communities, and wildlife in the area are described in more detail in Section D.2.1 (Environmental Setting for Proposed Project).

Construction and operation of the substation at the Partial Avoidance Alternative site would directly impact 80 acres of sand dunes and 10 acres of sandy creosote scrub, in addition to permanent disturbance required for access roads and telecom lines. This alternative substation would also indirectly impact 855 acres of downwind sand dune habitat (Appendix 3; ESA PWA, 2010). The existing access road, which runs along the DPV1 transmission line through the sand transport corridor, would be widened to 30 feet from the substation to Wiley Well Road, which would result in approximately 10 acres of impact to stabilized and partially stabilized sand dunes in the active sand transport corridor.

Environmental Impacts and Mitigation Measures for the Partial Avoidance Alternative

Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II for desert tortoise, Class III for Swainson's hawk)

Impacts on Swainson's hawk from the Partial Avoidance Alternative would be the same as those described in Section D.2.4 for the Proposed Project. Because a large amount of foraging habitat is available for Swainson's hawk, construction disturbance is not expected to substantially disrupt foraging activities. Impacts to Swainson's hawk would be less than significant, and no additional mitigation is required (Class III).

There is a higher potential for desert tortoise to occur on the Partial Avoidance Alternative site than the proposed CRS site, due to the presence of suitable creosote scrub habitat. Although slightly higher, the potential is considered low. Protocol surveys conducted for the proposed CRS site encompassed the Partial Avoidance Alternative site (AECOM, 2010). No live tortoise or recent sign were observed during surveys and no sign were observed onsite. A tortoise burrow (Class 4) and mineralized tortoise bone fragment were observed within one mile of the alternative site. The protocol survey results have been added as Appendix 8 in this Final SEIR (survey results for CRS are presented in Section 5.2 and Figures 7 and 8 in Appendix 8). Potential direct impacts could include injury or mortality of individuals (if present onsite) as well as loss of approximately 10 acres of creosote scrub habitat. Indirect impacts may include disruption, harassment, or degradation of adjacent habitat. These impacts to desert tortoise were analyzed in the DPV2 EIR/EIS for the original 44-acre CRS and the impacts of the Partial Avoidance Alternative would not be substantially more severe in comparison. Therefore, desert tortoise mitigation included in the DPV2 EIR/EIS would also mitigate any impacts to desert tortoise from construction and operation of the Partial Avoidance Alternative; impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Compensation Plan), B-7b (Conduct pre-construction tortoise surveys), and B-7c (Purchase mitigation lands for impacts to tortoise habitat) from the DPV2 Final EIR/EIS.

Mitigation Measures for Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (desert tortoise)

B-1a **Prepare and implement a Habitat Restoration/Compensation Plan.** *[The full text of the measure has been moved to Section D.2.4]* ~~SCE shall restore all areas disturbed by project construction, including temporary disturbance areas around tower construction sites, laydown/staging areas, temporary access and spur roads, and existing tower locations that are removed during construction of the Proposed Project. Where onsite restoration is planned for mitigation of temporary impacts to sensitive vegetation communities, SCE shall identify a qualified Habitat Restoration Specialist to be approved by the CPUC/BLM. Hydroseeding, drill seeding, or an otherwise proved restoration technique shall be utilized on all disturbed surfaces using a locally endemic native seed mix approved by the CPUC/CDFG/AGFD/FWS and BLM. SCE shall flag the limits of disturbance at each construction site. The Plan shall incorporate the measures identified in the June 2006 Memorandum of Understanding regarding vegetation management along rights-of-way for electrical transmission and distribution facilities on Federal lands. In project areas that occur in the WRCMSHCP plan area, SCE shall use the applicable Best Management Practices identified in the WRCMSHCP.~~

~~The creation or restoration of habitat shall be monitored for five years after mitigation site construction, or until established success criteria are met, to assess progress and identify~~

~~potential problems with the restoration site. Remedial activities (e.g., additional planting, weeding, or erosion control) shall be taken during the monitoring period if necessary to ensure the success of the restoration effort. If the mitigation fails to meet the established performance criteria after the five-year maintenance and monitoring period, monitoring shall extend beyond the five year period until the criteria are met or unless otherwise noted by the CPUC/BLM.~~

B-7b **Conduct pre-construction tortoise surveys.** *[The full text of the measure has been moved to Section D.2.4]* ~~Prior to construction, SCE shall survey the transmission line corridor for desert tortoise burrows and pallets within fourteen (14) days preceding construction. Tortoise burrows and pallets encountered within the construction zone (if any) will be conspicuously flagged by the surveying biologist(s) and avoided during all construction activities.~~

- ~~During construction activities, SCE shall inspect under equipment and vehicles prior to moving equipment. If tortoises are encountered, the vehicle will not be moved until such animals have voluntarily moved to a safe distance away from the parked vehicle or a qualified biologist moves the tortoise.~~
- ~~SCE shall monitor construction activities in all areas with the potential to support desert tortoise.~~
- ~~Desert tortoises will be handled only by a FWS/CDFG permitted and authorized tortoise handler and only when necessary. New latex gloves will be used when handling each desert tortoise to avoid the transfer of infectious diseases between animals. Desert tortoises will be moved the minimum distance possible within appropriate habitat to ensure their safety. In general, desert tortoises will not be moved in excess of 1,000 feet for adults and 300 feet for hatchlings.~~
- ~~Desert tortoises that are found above ground and need to be moved will be placed in the shade of a shrub. All desert tortoises removed from burrows will be placed in an unoccupied burrow of approximately the same size as the one from which it was removed. All excavation of desert tortoise burrows will be done using hand tools, either by, or under the direct supervision of, an authorized tortoise handler. If an existing burrow is unavailable, an authorized tortoise handler will construct or direct the construction of a burrow of similar shape, size, depth, and orientation as the original burrow. Desert tortoises moved during inactive periods will be monitored for at least two days after placement in the new burrows to ensure their safety. An authorized tortoise handler will be allowed some judgment and discretion to ensure that survival of the desert tortoise is likely.~~
- ~~If desert tortoises need to be moved at a time of the day when ambient temperatures could harm them (less than 40 degrees F or greater than 90 degrees F), they will be held overnight in a clean cardboard box. These desert tortoises shall be kept in the care of an authorized tortoise handler under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes will be appropriately discarded after one use.~~
- ~~All desert tortoises moved will be marked for future identification. An identification number using the acrylic paint/epoxy covering technique should be placed on the fourth costal scute. No notching would be authorized.~~

B-7c **Purchase mitigation lands for impacts to tortoise habitat.** *[The full text of the measure has been moved to Section D.2.4]* ~~Following construction, SCE shall acquire lands to compensate for the loss of tortoise habitat within the Category II and III management areas in Arizona and California. The amount of land to be acquired will depend on the acreage of disturbance within these management areas. Acquired lands will be in a nearby area of good tortoise density and within tortoise habitat. BLM and SCE shall conduct a field inspection of the disturbed areas after completion of construction of the transmission line to determine the exact acreage required for compensation. The lands purchased will be transferred to the United States and be administered by the BLM. Land may be transferred to the BLM and/or incorporated into an existing management area.~~

Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants (Class II, Class III)

Impacts to sensitive plants from the proposed Partial Avoidance Alternative would be similar to those described for the Proposed Project (Section D.2.4). Construction of the Partial Avoidance Alternative would lead to the direct loss of 80 acres of sand dune habitat and 10 acres of sandy creosote scrub, in addition to permanent disturbance of approximately 10 acres of sand dune habitat required for access roads. In addition, the substation would create a barrier to Aeolian sand transport in the Chuckwalla sand corridor, resulting in degradation of approximately 855 acres of stabilized and partially stabilized sand dune habitat east of this alternative substation.

Impacts to ribbed cryptantha would be similar to those described in Section D.2.4 for the Proposed Project. Because of the regional abundance of this species, these impacts would be adverse, but less than significant, and no mitigation is proposed (Class III). Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge were not found during surveys of the Partial Avoidance Alternative site; however, no spring season field surveys were completed, and suitable habitat for the species is present. Loss of this habitat in combination with habitat degradation of the approximately 855 acres extending east of Partial Avoidance Alternative would result in significant impacts without mitigation (Class II).

SEIR Mitigation Measure B-8b includes impact avoidance and minimization measures for Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge. Indirect impacts to special-status plants resulting from sand dune habitat loss and degradation would also be effectively mitigated by acquisition of compensatory habitat for MFTL described in Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat).

Mitigation Measures for Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants

B-8b **Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.**

B-9j **Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.**

Impact B-9: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive wildlife (Class III for northern harrier; Class II for desert kit fox; and Class I for Mojave fringe toed lizard)

Wintering or migrating (i.e., non-breeding) northern harrier is expected to utilize the Partial Avoidance Alternative site for foraging. Due to the ability of wintering raptors to forage over wide areas and the availability of contiguous foraging habitat proximate to this alternative site, impacts to northern harrier would be adverse, but less than significant and no additional mitigation is required (Class III).

The nearest known desert kit fox den is approximately 0.75 miles from the Partial Avoidance Alternative site. The presence of kit fox complexes in the vicinity suggests that kit foxes may occasionally be present on this alternative site. Impacts to desert kit fox would be the same as those of the Proposed Project and would be significant without mitigation (Class II). With the implementation of Mitigation Measure B-9g(rev) (Conduct pre-construction surveys and passive relocation for American badger and desert kit fox) these impacts would be less than significant.

The Partial Avoidance Alternative would lead to the direct loss of approximately 90 acres of MFTL habitat (80 acres from the substation and 10 acres from the access road). Construction of the project in this location would also disrupt sand transport in the Chuckwalla sand corridor, resulting in the indirect impacts to approximately 855 acres of MFTL habitat. Therefore, although impacts would be reduced compared to the Proposed Project, construction and operation of the Partial Avoidance Alternative would have significant and unmitigable impacts on MFTL (Class I). New mitigation measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat) would reduce the magnitude of the impacts to MFTL, but not below significant levels.

Mitigation Measures for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9g(rev) Conduct pre-construction surveys and <u>passive</u> relocation for American badger <u>and desert kit fox</u>.

B-9d(rev) Conduct pre-construction reptile surveys.

<u>B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.</u>

Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS (Class II)

Construction of the Partial Avoidance Alternative would result in direct loss of 90 acres (80 acres for substation, 10 acres for access roads) of stabilized and partially stabilized sand dunes, which are considered sensitive by BLM per the NECO Plan (BLM CCD, 2002). Additionally, construction of the substation would result in degradation of 855 acres of sand dunes downwind (east) of the CRS from blockage of sand transport; construction and widening of access roads would not block sand transport. Direct and indirect impacts would be the same as the Proposed Project, albeit at a reduced magnitude because encroachment into dune habitat would be less with this alternative. Regardless, direct and indirect impacts would be significant without mitigation (Class II) for the same reasons as the Proposed Project, given its regionally limited distribution and importance to special-status plants and wildlife. Mitigation measures for impacts to dune-dependent rare plants and MFTL would effectively mitigate impacts to sand dunes. These miti-

gation measures are: Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat), which requires implementation of measures to control spread of noxious weeds, runoff, herbicide drift and into adjacent sand dune habitat; and Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat), which would secure and preserve unprotected private lands with dune habitat or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development. Implementation of these mitigation measures would reduce direct and indirect impacts to sand dune habitat, a BLM-designated sensitive natural community, below the level of significance (Class II).

Mitigation Measure for Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

D.2.7 Avoidance Alternative #1

Environmental Setting

The regional environmental setting for Avoidance Alternative #1 and its vicinity is the same as the setting described in Section D.2.1 for the Proposed Project.

The site for Avoidance Alternative #1 consists of Sonoran creosote bush scrub; it is entirely outside of the active sand transport corridor. Soils are relatively compacted and gravelly and considered unsuitable for ribbed cryptantha, Harwood's eriastrum, and MFTL, but potentially suitable for desert tortoise. The site is bordered to the northwest by the margins of stabilized sand dunes supporting Asian mustard. Avoidance Alternative #1 would have direct impacts on approximately 90 acres of creosote scrub. The existing access road, which runs along the DPV1 transmission line through the sand transport corridor, would be widened to 30 feet from the substation to Wiley Well Road, which would result in approximately 10 acres of impact to stabilized and partially stabilized sand dunes in the active sand transport corridor. The soils, vegetation communities, and wildlife in the area are described in more detail in Section D.2.1 (Environmental Setting for Proposed Project).

Environmental Impacts and Mitigation Measures for Avoidance Alternative #1

Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II for desert tortoise, Class III for Swainson's hawk)

Impacts on Swainson's hawk from Avoidance Alternative #1 would be the same as those described for the Proposed Project. Because a large amount of foraging habitat is available for Swainson's hawk, construction disturbance is not expected to substantially disrupt foraging activities; therefore, impacts to Swainson's hawk would be less than significant and no additional mitigation is required (Class III).

There is a higher potential for desert tortoise to occur on the Avoidance Alternative #1 site than the CRS site because of the presence of creosote scrub habitat. Although slightly higher, the potential is considered low. Protocol surveys conducted for the proposed CRS site encompassed the majority of Avoid-

ance Alternative #1, with the exception of the southeastern end (AECOM, 2010). No live tortoise or recent sign were observed during surveys and no sign were observed onsite. A tortoise burrow (Class 4) and mineralized tortoise bone fragment were observed within one mile of the alternative site. The protocol survey results have been added as Appendix 8 in this Final SEIR (survey results for CRS are presented in Section 5.2 and Figures 7 and 8 in Appendix 8).

Potential direct impacts could include injury or mortality of individuals (if present onsite) as well as loss of approximately 90 acres of creosote scrub habitat. Indirect impacts may include disruption, harassment, or degradation of adjacent habitat. These impacts to desert tortoise were analyzed in the DPV2 EIR/EIS for the original 44-acre CRS and the impacts of the Avoidance Alternative #1 would not be substantially more severe in comparison. Therefore, desert tortoise mitigation included in the DPV2 EIR/EIS would also mitigate any impacts to desert tortoise from construction and operation of the Avoidance Alternative #1; impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Compensation Plan), B-7b (Conduct pre-construction tortoise surveys), and B-7c (Purchase mitigation lands for impacts to tortoise habitat) from the DPV2 EIR/EIS.

Mitigation Measures for Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (desert tortoise)

B-1a Prepare and implement a Habitat Restoration/Compensation Plan.

B-7b Conduct pre-construction tortoise surveys.

B-7c Purchase mitigation lands for impacts to tortoise habitat.

Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants (Class II, Class III)

Construction and operation of Avoidance Alternative #1 would result in direct loss of 90 acres of creosote bush scrub, but the substation would not impact sand dune habitat. However, widening the access road would result in the loss of approximately 10 acres of sand dune habitat suitable for ribbed cryptantha, Harwood's eriastrum, Harwood's milkvetch, and winged cryptantha. For the reasons described in the Proposed Project, these impacts to ribbed cryptantha and winged cryptantha are adverse but less than significant (Class III) and impacts to Harwood's eriastrum would be significant without mitigation (Class II). Inadequate data are available to determine whether Harwood's milk vetch or flat-seeded surge are present within the alternative substation site and would be affected; therefore, impacts would be potentially significant without mitigation (Class II). Mitigation Measure B-8b includes impact avoidance and minimization measures for Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge. Impacts to special-status plants resulting from sand dune habitat loss and degradation from construction (widening) of the access road would be effectively mitigated by acquisition of compensatory habitat for MFTL described in Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat).With the implementation of these measures, impacts to special-status plants would be less than significant.

Mitigation Measures for Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-9: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive wildlife (Class III for northern harrier; Class II for desert kit fox; No Impact [substation] and Class II [access road] for MFTL)

Wintering or migrating (i.e., non-breeding) northern harrier is expected to utilize the Avoidance Alternative #1 site for foraging. Due to the ability of wintering raptors to forage over wide areas and the availability of contiguous foraging habitat proximate to this alternative site, impacts to northern harrier would be adverse, but less than significant and no additional mitigation is required (Class III).

The nearest known desert kit fox den is approximately 0.75 miles from the Avoidance Alternative #1 site. The presence of kit fox complexes in the vicinity suggests that kit foxes may occasionally be present on this alternative site. Impacts to desert kit fox would be the same as those of the Proposed Project and would be significant without mitigation (Class II). With the implementation of Mitigation Measure B-9g(rev) (Conduct pre-construction surveys and passive relocation for American badger and desert kit fox) these impacts would be less than significant.

Because it is located outside of sand dune or otherwise suitable sandy habitat, construction and operation of the substation at Avoidance Alternative #1 would not affect MFTL. However, widening the existing DPV1 access road to Wiley Well Road would result in the loss of approximately 10 acres of suitable MFTL habitat in the sand transport corridor. Loss of MFTL habitat in the sand transport corridor is significant without mitigation (Class II). New mitigation measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat) would mitigate impacts to MFTL below the level of significance. Indirect downwind impacts would not occur as widening of an existing access road or construction of a driveway would not create a barrier to sand transport.

Mitigation Measures for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9g(rev) Conduct pre-construction surveys and passive relocation for American badger and desert kit fox.

B-9d(rev) Conduct pre-construction reptile surveys.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS (Class II)

Construction of the substation at the Avoidance Alternative #1 site would not directly or indirect impact stabilized and partially stabilized sand dunes, which are considered sensitive by BLM per the NECO Plan (BLM CCD, 2002).

However, widening of the existing DPV1 access road to Wiley Well Road would occur within this sensitive natural community and would result in approximately 10 acres of direct impact (loss) to sand dunes. Indirect downwind impacts would not occur because construction and widening of access roads would not block sand transport. Other indirect impacts to stabilized and partially stabilized sand dunes would

be the same as the Proposed Project, albeit at a reduced magnitude because encroachment into dune habitat would be substantially less with this alternative. Regardless, direct and indirect impacts would be significant without mitigation (Class II) for the same reasons as the Proposed Project, given its regionally limited distribution and importance to special-status plants and wildlife. Mitigation measures for impacts to dune-dependent rare plants and MFTL would also effectively mitigate impacts to sand dunes. These mitigation measures are: Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat), which requires implementation of measures to control spread of noxious weeds, runoff, herbicide drift and into adjacent sand dune habitat; and Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat), which would secure and preserve unprotected private lands with dune habitat or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development. Implementation of these mitigation measures would reduce direct and indirect impacts to sand dune habitat, a BLM-designated sensitive natural community, below the level of significance (Class II).

Mitigation Measure for Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

D.2.8 Avoidance Alternative #2

Environmental Setting

The regional environmental setting for Avoidance Alternative #2 and its vicinity is the same as the setting for the Proposed Project in Section D.2.1.

The majority of the habitat at Avoidance Alternative #2 site is Sonoran creosote bush scrub; however, approximately 20 acres in the eastern portion of the site contains isolated fine sands and sparse creosote bushes. This sandy area provides potentially suitable habitat for MFTL, ribbed cryptantha, and Harwood's eriastrum. The remainder of the site is relatively compacted with gravelly soils and has low to moderate potential to support desert tortoise. Construction of the substation at this alternative site would directly impact approximately 70 acres of creosote scrub and 20 acres of sandy habitat. The existing access road, which runs along the DPV1 transmission line through the sand transport corridor, would be widened to 30 feet from the substation to Wiley Well Road, which would result in approximately 10 acres of impact to stabilized and partially stabilized sand dunes in the active sand transport corridor. The soils, vegetation communities, and wildlife in the area are described in more detail in Section D.2.1 (Environmental Setting for Proposed Project).

Environmental Impacts and Mitigation Measures for Avoidance Alternative #2

Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II for desert tortoise, Class III for Swainson's hawk)

Impacts on Swainson's hawk from Avoidance Alternative #2 would be the same as those described in Section D.2.4 for the proposed CRS site. Because a large amount of foraging habitat is available for Swainson's hawk, construction disturbance is not expected to substantially disrupt foraging activities. Impacts to Swainson's hawk would be less than significant, and no additional mitigation is required (Class III).

There is a higher potential for desert tortoise to occur on the Avoidance Alternative #2 site than the proposed CRS site due to the presence of creosote scrub habitat. Potential for occurrence is considered low to moderate. Protocol surveys conducted for the proposed CRS site encompassed the majority of Avoidance Alternative #2, with the exception of the southeastern end (AECOM, 2010). No live tortoise or recent sign were observed during surveys and no sign were observed onsite. A tortoise burrow (Class 4) and mineralized tortoise bone fragment were observed within one mile of the alternative site. The protocol survey results have been added as Appendix 8 in this Final SEIR (survey results for CRS are presented in Section 5.2 and Figures 7 and 8 in Appendix 8).

Potential direct impacts could include injury or mortality of individuals (if present onsite) as well as loss of approximately 70 acres of creosote scrub habitat. Indirect impacts may include disruption, harassment, or degradation of adjacent habitat. These impacts to desert tortoise were analyzed in the DPV2 EIR/EIS for the original 44-acre CRS and the impacts of the Avoidance Alternative #2 would not be substantially more severe in comparison. Therefore, desert tortoise mitigation included in the DPV2 EIR/EIS would also mitigate any impacts to desert tortoise from construction and operation of the Avoidance Alternative #2; impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Compensation Plan), B-7b (Conduct pre-construction tortoise surveys), and B-7c (Purchase mitigation lands for impacts to tortoise habitat) from the DPV2 EIR/EIS.

Mitigation Measures for Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (desert tortoise)

B-1a **Prepare and implement a Habitat Restoration/Compensation Plan.**

B-7b **Conduct pre-construction tortoise surveys.**

B-7c **Purchase mitigation lands for impacts to tortoise habitat**.

Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants (Class II, Class III)

Avoidance Alternative #2 would lead to the direct loss of approximately 70 acres of creosote scrub and 20 acres of isolated sandy habitat. Impacts to ribbed cryptantha would be similar to those described in Section D.2.1.4 for the Proposed Project. These impacts would be adverse, but less than significant, and no mitigation is proposed (Class III).

Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge have the potential to occur on the Avoidance Alternative #2 substation site and within the area of impact for access road widening. Loss habitat for these special-status plants would result in potentially significant impacts without mitigation (Class II). Mitigation Measure B-8b includes impact avoidance and minimization measures for Harwood's

eriastrum, Harwood's milk vetch, and flat-seeded spurge. Indirect impacts to special-status plants resulting from habitat loss would also be effectively mitigated by acquisition of compensatory habitat for MFTL described in Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat). With the implementation of this mitigation, impacts to sensitive plants would be less than significant.

Mitigation Measures for Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-9: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive wildlife (Class III for northern harrier; Class II for desert kit fox; Class II [access road] and Class III [substation] for MFTL)

Wintering or migrating (i.e., non-breeding) northern harrier is expected to utilize the Avoidance Alternative #2 site for foraging. Due to the ability of wintering raptors to forage over wide areas and the availability of contiguous foraging habitat proximate to this alternative site, impacts to northern harrier would be adverse, but less than significant and no additional mitigation is required (Class III).

The nearest known desert kit fox den is approximately 0.75 miles from the Avoidance Alternative #2 site. The presence of kit fox complexes in the vicinity suggests that kit foxes may occasionally be present on this alternative site. Impacts to desert kit fox would be the same as those of the Proposed Project and would be significant without mitigation (Class II). With the implementation of Mitigation Measure B-9g(rev) (Conduct pre-construction surveys and passive relocation for American badger and desert kit fox) these impacts would be less than significant.

Construction of the substation at Avoidance Alternative #2 would directly affect approximately 20 acres of potential MFTL habitat; however, it would not affect the sand transport corridor, and subsequently, it would not have any additional indirect impacts on downwind habitat. As a result, impacts to MFTL would be reduced compared to the Proposed Project. MFTL are generally restricted to the active sand transport corridor. However, MFTL may forage in sandy habitat extending approximately 45 meters (Norris, 1958) or more (Calblk and Heaton, 2002) from the sand corridor. The substation at Avoidance Alternative #2 would be approximately 200 meters from the sand transport corridor and therefore does not likely constitute habitat that is important for the viability of Chuckwalla Valley MFTL. The loss of 20 acres of isolated sandy habitat within this alternative substation site would not significantly adversely affect MFTL; impacts would be less than significant and no mitigation is proposed (Class III).

However, widening the existing DPV1 access road to Wiley Well Road would result in the loss of approximately 10 acres of suitable MFTL habitat in the sand transport corridor. Loss of MFTL habitat in the sand transport corridor is significant without mitigation (Class II). New mitigation measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat) would mitigate impacts to MFTL below the level of significance. Indirect downwind impacts would not occur as widening of an existing access road would not create a new barrier to sand transport.

Mitigation Measures for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9g(rev) Conduct pre-construction surveys and passive relocation for American badger and desert kit fox.

B-9d(rev) Conduct pre-construction reptile surveys.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS (Class II)

Construction of the substation at the Avoidance Alternative #2 site would not directly or indirect impact stabilized and partially stabilized sand dunes, which are considered sensitive by BLM per the NECO Plan (BLM CCD, 2002).

However, widening of the existing DPV1 access road to Wiley Well Road would occur within this sensitive natural community and would result in approximately 10 acres of direct impact (loss) to sand dunes. Indirect downwind impacts would not occur because construction and widening of access roads would not block sand transport. Other indirect impacts to stabilized and partially stabilized sand dunes would be the same as the Proposed Project, albeit at a reduced magnitude because encroachment into dune habitat would be substantially less with this alternative. Regardless, direct and indirect impacts would be significant without mitigation (Class II) for the same reasons as the Proposed Project, given its regionally limited distribution and importance to special-status plants and wildlife. Mitigation measures for impacts to dune-dependent rare plants and MFTL would also effectively mitigate impacts to sand dunes. These mitigation measures are: Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat), which requires implementation of measures to control spread of noxious weeds, runoff, herbicide drift and into adjacent sand dune habitat; and Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat), which would secure and preserve unprotected private lands with dune habitat or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development. Implementation of these mitigation measures would reduce direct and indirect impacts to sand dune habitat, a BLM-designated sensitive natural community, below the level of significance (Class II).

Mitigation Measure for Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

D.2.9 Avoidance Alternative #3

Environmental Setting

The regional environmental setting for Avoidance Alternative #3 and its vicinity is the same as the setting for the Proposed Project in Section D.2.1.

This alternative site has approximately 45 acres of Sonoran creosote scrub intermixed with approximately 45 acres of isolated fine sands. Sandy areas of the Avoidance Alternative #3 site support ribbed cryptantha and provide potentially suitable habitat for MFTL, Harwood's eriastrum, Harwood's milk vetch, and possibly flat-seeded spurge. The creosote bush scrub habitat is potentially suitable for desert tortoise. A potentially State-jurisdictional desert wash occurs on site and may act as a sand source. The existing access road, which runs along the DPV1 transmission line through the sand transport corridor, would be widened to 30 feet from the substation to Wiley Well Road, which would result in approximately 10 acres of impact to stabilized and partially stabilized sand dunes in the active sand transport corridor. The soils, vegetation communities, and wildlife in the area are described in more detail in Section D.2.1 (Environmental Setting for Proposed Project).

Environmental Impacts and Mitigation Measures for Avoidance Alternative #3

Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II for desert tortoise, Class III for Swainson's hawk)

Impacts on Swainson's hawk from Avoidance Alternative #3 would be the same as those described in Section D.2.4 for the proposed CRS site. Because a large amount of foraging habitat is available for Swainson's hawk, construction disturbance is not expected to substantially disrupt foraging activities. Impacts to Swainson's hawk would be less than significant, and no additional mitigation is required (Class III).

There is a higher potential for desert tortoise to occur on the Avoidance Alternative #3 site than the CRS site because of the presence of creosote scrub habitat. The potential to occur is considered low to moderate. Potential direct impacts could include injury or mortality of individuals (if present onsite) as well as loss of approximately 45 acres of creosote scrub habitat. Indirect impacts may include disruption, harassment, or degradation of adjacent habitat. These impacts to desert tortoise were analyzed in the DPV2 EIR/EIS for the original 44-acre CRS and the impacts of the Avoidance Alternative #3 would not be substantially more severe in comparison. Therefore, desert tortoise mitigation included in the DPV2 EIR/EIS would also mitigate any impacts to desert tortoise from construction and operation of the Avoidance Alternative #3; impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Compensation Plan), B-7b (Conduct pre-construction tortoise surveys), and B-7c (Purchase mitigation lands for impacts to tortoise habitat) from the DPV2 EIR/EIS.

Mitigation Measures for Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (desert tortoise)

B-1a **Prepare and implement a Habitat Restoration/Compensation Plan.**

B-7b **Conduct pre-construction tortoise surveys.**

B-7c **Purchase mitigation lands for impacts to tortoise habitat**.

Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants (Class II, Class III)

Construction of the substation at Avoidance Alternative #3 would result in the direct loss of approximately 90 acres of habitat consisting of interspersed creosote bush scrub and isolated fine sands. Ribbed cryptantha have been observed on the site, and suitable habitat is present for Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge. Because this alternative site is outside the active sand transport corridor, Avoidance Alternative #3 would eliminate indirect impacts to downwind habitat.

Widening the access road would result in the loss of less than 10 acres of sand dune habitat suitable for ribbed cryptantha, Harwood's eriastrum, Harwood's milkvetch, and winged cryptantha. For the reasons described in the Proposed Project, these impacts to ribbed cryptantha and winged cryptantha are adverse but less than significant (Class III) and impacts to Harwood's eriastrum would be significant without mitigation (Class II). Inadequate data are available to determine whether Harwood's milk vetch or flat-seeded surge are present within the alternative substation site and would be affected; therefore, impacts would be potentially significant without mitigation (Class II). Mitigation Measure B-8b includes impact avoidance and minimization measures for Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge. Impacts to special-status plants resulting from sand dune habitat loss and degradation from construction (widening) of the access road would be effectively mitigated by acquisition of compensatory habitat for MFTL described in Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat).With the implementation of these measures, impacts to special-status plants would be less than significant.

Mitigation Measures for Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-9: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive wildlife (Class III for special status birds; Class II for desert kit fox; Class II [access road] and Class III [substation] for MFTL)

Wintering or migrating (i.e., non-breeding) northern harrier is expected to utilize the Avoidance Alternative #3 site for foraging. Due to the ability of wintering raptors to forage over wide areas and the availability of contiguous foraging habitat proximate to this alternative site, impacts to northern harrier would be adverse, but less than significant and no additional mitigation is required (Class III).

The nearest known desert kit fox den is approximately 1.5 miles from the Avoidance Alternative #3 site. The presence of kit fox complexes in the project vicinity suggests that kit foxes may occasionally be present on this alternative site. Impacts to desert kit fox would be the same as those of the Proposed Project and would be significant without mitigation (Class II). With the implementation of Mitigation Measure B-9g(rev) (Conduct pre-construction surveys and passive relocation for American badger and desert kit fox) these impacts would be less than significant.

Construction of the substation at Avoidance Alternative #3 would directly affect approximately 45 acres of potential MFTL habitat; however, it would not affect the sand transport corridor, and subsequently, it

would not have any additional indirect impacts on downwind habitat. As a result, impacts to MFTL would be reduced compared to the Proposed Project. MFTL are generally restricted to the active sand transport corridor. However, MFTL may forage in sandy habitat extending approximately 45 meters (Norris, 1958) or more (Calblk and Heaton, 2002) from the sand corridor. The Avoidance Alternative #3 substation would be located approximately 950 meters from the sand transport corridor and therefore does not likely constitute habitat that is important for the viability of Chuckwalla Valley MFTL. The loss of 45 acres of isolated sandy habitat at this alternative substation site would not significantly adversely affect MFTL; impacts would be less than significant and no mitigation is proposed (Class III).

However, widening the existing DPV1 access road to Wiley Well Road would result in the loss of approximately 10 acres of suitable MFTL habitat in the sand transport corridor. Loss of MFTL habitat in the sand transport corridor is significant without mitigation (Class II). New mitigation measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat) would mitigate impacts to MFTL below the level of significance. Indirect downwind impacts would not occur as widening of an existing access road would not create a new barrier to sand transport.

Mitigation Measures for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9g(rev) Conduct pre-construction surveys and passive relocation for American badger and desert kit fox.

B-9d(rev) Conduct pre-construction reptile surveys.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-10: Construction activities would result in adverse effects to jurisdictional waters and wetlands (Class II)

Construction of Avoidance Alternative #3 would affect a State-jurisdictional desert wash. This impact would not occur with construction and operation of the Proposed Project.

Desert washes provide important habitat for wildlife and plants. Direct impacts include fill of the wash and loss of downstream functions and habitat value. These impacts to jurisdictional washes were analyzed in the DPV2 EIR/EIS and the impacts of Avoidance Alternative #3 would not be substantially more severe in comparison. Therefore, mitigation for jurisdictional washes included in the DPV2 EIR/EIS would also mitigate any impacts to jurisdictional washes from construction and operation of the Avoidance Alternative #3; impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Compensation Plan) from the DPV2 EIR/EIS.

Mitigation Measures for Impact B-10: Construction activities would result in adverse effects to jurisdictional waters and wetlands

B-1a Prepare and implement a Habitat Restoration/Compensation Plan.

Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS (Class II)

Construction of the substation at the Avoidance Alternative #3 site would not directly or indirect impact stabilized and partially stabilized sand dunes, which are considered sensitive by BLM per the NECO Plan (BLM CCD, 2002).

However, widening of the existing DPV1 access road to Wiley Well Road would occur within this sensitive natural community and would result in approximately 10 acres of direct impact (loss) to sand dunes. Indirect downwind impacts would not occur because construction and widening of access roads would not block sand transport. Other indirect impacts to stabilized and partially stabilized sand dunes would be the same as the Proposed Project, albeit at a reduced magnitude because encroachment into dune habitat would be substantially less with this alternative. Regardless, direct and indirect impacts would be significant without mitigation (Class II) for the same reasons as the Proposed Project, given its regionally limited distribution and importance to special-status plants and wildlife. Mitigation measures for impacts to dune-dependent rare plants and MFTL would also effectively mitigate impacts to sand dunes. These mitigation measures are: Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat), which requires implementation of measures to control spread of noxious weeds, runoff, herbicide drift and into adjacent sand dune habitat; and Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat), which would secure and preserve unprotected private lands with dune habitat or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development. Implementation of these mitigation measures would reduce direct and indirect impacts to sand dune habitat, a BLM-designated sensitive natural community, below the level of significance (Class II).

Mitigation Measure for Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

D.2.10 Southern Alternative

Environmental Setting

The regional environmental setting of the Southern Alternative and its vicinity is the same as the setting for the Proposed Project in Section D.2.1.

The Southern Alternative site comprises Sonoran creosote bush scrub habitat with relatively compacted, gravelly soils. Numerous potentially jurisdictional washes transect the alternative site. An active kit fox complex and other mammalian burrows are also present on the site. Construction of the substation at this alternative site would directly impact approximately 90 acres of creosote scrub habitat. The existing access road, which runs along the DPV1 transmission line through the sand transport corridor, would be widened to 30 feet from the substation to Wiley Well Road, which would result in approximately 10 acres of impact to stabilized and partially stabilized sand dunes in the active sand transport corridor. The

soils, vegetation communities, and wildlife in the area are described in more detail in Section D.2.1 (Environmental Setting for Proposed Project).

Environmental Impacts and Mitigation Measures for the Southern Alternative

Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (Class II for desert tortoise, Class III for Swainson's hawk)

Impacts on Swainson's hawk from the Southern Alternative would be the same as those described in Section D.2.1.4 for the proposed CRS site. Because a large amount of foraging habitat is available for Swainson's hawk, construction disturbance is not expected to substantially disrupt foraging activities. Impacts to Swainson's hawk would be less than significant, and no additional mitigation is required (Class III).

There is a higher potential for desert tortoise to occur on the Southern Alternative site than the proposed CRS site due to the presence of suitable creosote scrub habitat. The potential for occurrence is considered low to moderate. Protocol surveys conducted for the proposed CRS site encompassed the Southern Alternative site (AECOM, 2010). No live tortoise or recent sign were observed during surveys. A tortoise burrow (Class 4) and mineralized tortoise bone fragment were observed approximately 0.3 mile west of the alternative site. The protocol survey results have been added as Appendix 8 in this Final SEIR (survey results for CRS are presented in Section 5.2 and Figures 7 and 8 in Appendix 8).

Potential direct impacts could include injury or mortality of individuals (if present onsite) as well as loss of approximately 45 acres of creosote scrub habitat. Indirect impacts may include disruption, harassment, or degradation of adjacent habitat. These impacts to desert tortoise were analyzed in the DPV2 EIR/EIS for the original 44-acre CRS and the impacts of the Southern Alternative would not be substantially more severe in comparison. Therefore, desert tortoise mitigation included in the DPV2 EIR/EIS would also mitigate any impacts to desert tortoise from construction and operation of the Southern Alternative; impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Compensation Plan), B-7b (Conduct pre-construction tortoise surveys), and B-7c (Purchase mitigation lands for impacts to tortoise habitat) from the DPV2 EIR/EIS.

Mitigation Measures for Impact B-7: Construction activities would result in indirect or direct loss of listed wildlife or habitat (desert tortoise)

B-1a **Prepare and implement a Habitat Restoration/Compensation Plan.**

B-7b **Conduct pre-construction tortoise surveys.**

B-7c **Purchase mitigation lands for impacts to tortoise habitat**.

Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants (Class II, Class III)

Construction and operation of the substation at the Southern Alternative site would result in direct loss of 90 acres of creosote bush scrub habitat, but would not impact sand dune habitat. However, access road construction and widening would result in the loss of approximately 10 acres of sand dune habitat suitable for ribbed cryptantha, Harwood's eriastrum, Harwood's milkvetch, and winged cryptantha. For the reasons described in the Proposed Project, these impacts to ribbed cryptantha and winged cryptantha are adverse but less than significant (Class III) and impacts to Harwood's eriastrum would be significant without mitigation (Class II). Inadequate data are available to determine whether Harwood's milk vetch or flat-seeded surge are present within the alternative substation site and would be affected; therefore,

impacts would be potentially significant without mitigation (Class II). Mitigation Measure B-8b includes impact avoidance and minimization measures for Harwood's eriastrum, Harwood's milk vetch, and flat-seeded spurge. Impacts to special-status plants resulting from sand dune habitat loss and degradation from construction (widening) of the access road would be effectively mitigated by acquisition of compensatory habitat for MFTL described in Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat).With the implementation of these measures, impacts to special-status plants would be less than significant.

Mitigation Measures for Impact B-8: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive plants

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-9: Construction activities would result in indirect or direct loss of individuals and/or habitat for sensitive wildlife (Class III for northern harrier; Class II for desert kit fox; No Impact [substation] and Class II [access road] for MFTL)

Wintering or migrating (i.e., non-breeding) northern harrier is expected to utilize the Southern Alternative site for foraging. Due to the ability of wintering raptors to forage over wide areas and the availability of contiguous foraging habitat proximate to this alternative site, impacts to northern harrier would be adverse, but less than significant and no additional mitigation is required (Class III).

An active desert kit fox den and other mammalian burrows occur on the Southern Alternative site; therefore, this alternative would have increased impacts on desert mammals compared with the Proposed Project. However, with the implementation of Mitigation Measure B-9g(rev) (Conduct pre-construction surveys and passive relocation for American badger and desert kit fox) these impacts would be less than significant.

Because is the substation would be located outside of sand dune or otherwise suitable sandy habitat, construction and operation of the Southern Alternative would not affect MFTL. However, access road construction and widening would result in the loss of approximately 10 acres of suitable MFTL habitat in the sand transport corridor. Loss of MFTL habitat in the sand transport corridor is significant without mitigation (Class II). New mitigation measure B-9j (Provide compensatory mitigation and restoration/ enhancement of protected land for impacts to sand dune habitat) would mitigate impacts to MFTL below the level of significance. Indirect downwind impacts would not occur as widening of an existing access road would not create a new barrier to sand transport.

Mitigation Measures for Impact B-9: Construction activities would result in indirect or direct loss of individuals, or a direct loss of habitat for sensitive wildlife

B-9d(rev) Conduct pre-construction reptile surveys.

B-9g(rev) Conduct pre-construction surveys and passive relocation for American badger and desert kit fox.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

Impact B-10: Construction activities would result in adverse effects to jurisdictional waters and wetlands (Class II)

Several small highly divided sandy channels drain to the west across the site and approximately three have the potential to be jurisdictional. Therefore, the Southern Alternative would create impacts to ~~State-~~ potentially jurisdictional desert washes that would not occur with construction and operation of the Proposed Project.

Desert washes provide important habitat for wildlife and plants. Direct impacts include fill of the wash and loss of downstream functions and value. These impacts to potentially jurisdictional washes were analyzed in the DPV2 EIR/EIS and the impacts of the Southern Alternative would not be substantially more severe in comparison. Therefore, mitigation for jurisdictional washes included in the DPV2 EIR/EIS would also mitigate any impacts to jurisdictional washes from construction and operation of the Southern Alternative. If the desert washes in the project area are determined by USACE and/or CDFG to be waters of the U.S. and/or State, respectively,~~;~~ impacts would be less than significant (Class II) with the implementation of Mitigation Measures B-1a (Prepare and implement Habitat Restoration/Plan) from the DPV2 EIR/EIS.

Mitigation Measures for Impact B-10: Construction activities would result in adverse effects to jurisdictional waters and wetlands

B-1a Prepare and implement a Habitat Restoration/Compensation Plan.

Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS (Class II)

Construction of the substation at the Southern Alternative site would not directly or indirect impact stabilized and partially stabilized sand dunes, which are considered sensitive by BLM per the NECO Plan (BLM CCD, 2002).

However, widening of the existing DPV1 access road to Wiley Well Road would occur within this sensitive natural community and would result in approximately 10 acres of direct impact (loss) to sand dunes. Indirect downwind impacts would not occur because construction and widening of access roads would not block sand transport. Other indirect impacts to stabilized and partially stabilized sand dunes would be the same as the Proposed Project, albeit at a reduced magnitude because encroachment into dune habitat would be substantially less with this alternative. Regardless, direct and indirect impacts would be significant without mitigation (Class II) for the same reasons as the Proposed Project, given its regionally limited distribution and importance to special-status plants and wildlife. Mitigation measures for impacts to dune-dependent rare plants and MFTL would also effectively mitigate impacts to sand dunes. These mitigation measures are: Mitigation Measure B-8b (Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat), which requires implementation of measures to control spread of noxious weeds, runoff, herbicide drift and into adjacent sand dune habitat; and Mitigation Measure B-9j (Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat), which would secure and preserve unprotected private lands with dune habitat or enhancing/restoring sand dunes already conserved or on BLM land that is not slated for development. Implementation of these mitigation measures would reduce direct and indirect impacts to sand dune habitat, a BLM-designated sensitive natural community, below the level of significance (Class II).

Mitigation Measure for Impact B-18: Construction activities would result in indirect or direct loss of a sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG, BLM, or USFWS

B-8b Minimize off-site impacts to Harwood's eriastrum, Harwood's milk-vetch, and flat-seeded spurge habitat.

B-9j Provide compensatory mitigation and restoration/enhancement of protected land for impacts to sand dune habitat.

D.2.11 No Project Alternative

Environmental Setting

The environmental setting of the scenario defined for the No Project Alternative (Section C.6) would incorporate the project area of the proposed substation expansion, as well as the project areas for the interconnecting solar projects (i.e., BSPP and GESP) and the transmission line routes between those solar fields and the CRS. These areas incorporate habitat of the types defined in Section D.2.1, ranging from creosote scrub to Aeolian sand as well as State-jurisdictional desert washes. It is anticipated that similar special-status species would also occur in the subject area.

Environmental Impacts and Mitigation Measures for the No Project Alternative

The "No Project" analysis compares the environmental effects of constructing the Colorado River Substation as previously approved against environmental effects which would occur if the proposed expansion is approved. The environmental effects of constructing the substation as previously approved and associated mitigation are described in Section D of the original DPV2 EIR/EIS (CPUC/BLM, 2006).

In addition to the construction of the already-approved 44-acre substation at the CRS site, the No Project scenario would require additional construction for expanded substations at the solar project sites or adjacent to existing Blythe area substations. It would also require revised and likely expanded rights-of-way for 500 kV transmission gen-tie lines (rather than the 230 kV gen-tie lines that are proposed). It is not possible to define these impacts with any specificity because no designs are available to identify the impact areas. Because additional ground disturbance could be required at multiple substation sites, and additional right-of-way would be required for the additional transmission line, habitat loss and direct impacts to special-status species would likely be more severe than for the Proposed Project.

D.3 Cultural Resources

This section discusses the cultural resources located in the vicinity of the Proposed Project. Cultural resources are defined as any object or specific location of past human activity, occupation, or use, identifiable through historical documentation, inventory, or oral evidence. Cultural resources can be separated into three categories: archaeological, building and structural, and traditional resources (DSW EIR, 2005). Information for the Proposed Project compiled in the following section was gathered from the archaeological survey reports prepared on SCE's behalf by ASM Affiliates (DeCarlo et al., 2010) and ICF Jones & Stokes (Eckhardt and Wilson, 2009) as well as the Final EIR/EIS for DPV2 and related cultural resources documents (Eckhardt et al., 2005).

Cultural resources impacted by the DPV2 transmission line and interconnections to the BSPP and GSEP have been evaluated in several other environmental documents (CPUC, 2006; CEC, 2010a; CEC, 2010b). The

current document evaluates those SCE Colorado River Substation project elements that have not been analyzed elsewhere. These project elements include: the 45-acre substation expansion, the 220 kV transmission line interconnections, the electric distribution line for station light and power (15-20 new wood poles, 1,000 feet of underground distribution line and the graded access road extending north), optical ground wire (OPGW), and improvements to the access road from Willey Well Road (compaction, paving, widening from 13 feet to 30 feet for 4.7 miles). This document also incorporates the analysis of cultural resources conducted for the BSPP and GSEP by reference, and summarizes that analysis in Section D.3.5, below.

Eleven cultural resources potentially eligible for National Register listing occur within and adjacent to areas that could be impacted by ground-disturbing activities for the Proposed Project. Nine of these resources are historic-period archaeological sites that are potential contributing elements to a proposed historic-period cultural landscape (historic district), referred to as the World War II Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL).

D.3.1 Environmental Setting for the Proposed Project

The Proposed Project area is located in Palo Verde Valley, along the western edge of the Colorado River. This area is part of the Mojave Desert, a sub-region of the Lower Sonoran Life Zone. The project vicinity has two main vegetation types: Sonoran creosote bush scrub and stabilized and partially stabilized sand dunes (CPUC, 2007). Humans have inhabited this region for the last 10,000 years, with the population ebbing and flowing primarily in response to several climatic shifts. These shifts have resulted in variable availability of vital resources, and that variability has influenced the scope and scale of human use of the vicinity of the project site. During cool, wet times the regional lakes filled and the necessary resources for human occupation were available. During warm, dry times the lakes dried and the region became a difficult place to live and traverse.

Eight successive temporal periods, each with distinctive cultural patterns, have been defined for the prehistoric Colorado Desert. They are: Paleo-Indian Period (about 10,000–8000 BC), Lake Mojave Complex (8000–6000 BC), Pinto Complex (8000–3000 BC), Deadman Lake Complex (7500–5200 BC), Possible Abandonment (3000–2000 BC), Gypsum Complex (2000 BC–200 AD), Rose Spring Complex (200 AD–1000 AD), and the Late Prehistoric Period (1000 AD–1700 AD). Within the Chuckwalla Valley, prehistoric sites are clustered around springs, wells, and other obvious important features/resources. Sites include villages with cemeteries, occupation sites with and without pottery, large and small concentrations of ceramic sherds and flaked stone tools, rock art sites, rock shelters with perishable items, rock rings, stone circles, geoglyphs, and cleared areas, a vast network of trails, markers and shrines, and quarry sites (Morratto, 1984; Shaeffer and Laylander, 2007; Sutton et al., 2007).

This region does not appear to be associated clearly with any historic Native American group (Singer, 1984, pp. 36-38). However, seven groups — Chemehuevi, Serrano, Cahuilla, Mojave, Quechan, Maricopa, and Halchidhoma — claim territory nearby or describe this region in their oral history. The trails, rock art, geoglyphs and other prehistoric features are still of religious importance to many of these Native American groups.

The major historical themes for the Mojave Desert region and Colorado River Substation (CRS) vicinity are the establishment of transportation routes, water access, agriculture, ranching, mineral exploitation, and military uses. Mineral deposits identified in the region include gold, silver, fluorite, manganese, copper, gypsum, and uranium. Most mining in the region took place in the 1880s and 1890s, but gypsum mines in the McCoy Mountains were also profitable from 1925 to the 1960s. Evidence of mining activity in the region primarily takes the form of access roads, pit mines, tailing piles, and refuse.

Transportation is also an important theme for the region. One of the earliest major trans-desert trail/ wagon routes established in the vicinity of the CRS was known as Frink's Route. Based on a prehistoric Native American trail, Frink's Route for wagons was established prior to 1856, connecting southern California supply points with mines and outposts along the Colorado River. Automobile travel across and within the Colorado Desert area first developed using existing wagon roads such as Frink's Route. The Mecca-Blythe-Ehrenberg route approximates the current Interstate 10 route. Travelers along these routes relied on natural water sources such as springs and wells excavated by wagon road users. In the early 1920s, Highway 60 was built to the south of the original route through Shavers Valley and Chuckwalla Valley. In the 1960s, the current Interstate Highway 10 was constructed along the old route of Highway 60. With the arrival of roads, settlement patterns changed from occasional miner's camps to roadside businesses serving travelers.

With the passage of the Homestead Act in 1862, vast areas of public land were opened up to private citizens, and agriculture became an economically important industry in California. Although much of the desert lands were poorly suited to farming, the Palo Verde Valley of the lower Colorado River was an exception. Thomas H. Blythe was the first to develop large tracts of land along the west bank of the Colorado River, across from the established portage point at Ehrenberg, Arizona, near the existing town of Blythe. Farming continues to be a commercial industry in Blythe. On the Palo Verde Mesa, however, agriculture was never a significant pursuit due to the poor soils and lack of readily accessible water. In the early twentieth century, some ranching activities were attempted on the mesa, as evidenced by ranch remains (Von Till Warren et al., 1980).

Military uses of the region are primarily associated with Gen. Patton's World War II Desert Training Center/ California-Arizona Maneuver Area (DTC/C-AMA), which was in operation from 1942-1944. The area was chosen by Gen. George S. Patton, Jr. to prepare troops for the harsh conditions and environment of combat for the North Africa Campaign. At 12,000,000 acres, the DTC/C-AMA was the largest-ever military training center, stretching from west of Pomona, California, to Yuma, Arizona, and north into Nevada. The remains of the DTC/C-AMA areas consist of rock features, faint roads, structural features, concertina wire, tank tracks, footprints of runway and landing strips, foxholes and bivouacs, concrete defensive positions, refuse, and trails (Bischoff, 2000).

Cultural Resources in the Project Area

A review of relevant historic maps, and excavation and survey reports found that eight previous cultural resource studies have been conducted within one mile of the current project APE for the proposed substation (Carrico et al., 1982; Carrico et al., 2004; Eckhardt et al., 2005; Eckhardt and Wilson, 2009; Farmer et al., 2009; Keller and Doolittle, 2009; McDougal et al., 2006). Most of these surveys have been associated with the DPV1, DPV2, GSEP, and BSPP, which have been incorporated by reference into this SEIR (see Section A.5.2). These projects depict a region of archaeological resources that, for both the prehistoric and historic periods, represent primarily transportation and resource exploitation. In this landscape, people have mostly left remains of being in transit or of extracting useful or valuable materials — Native Americans sought and removed food, toolstones, and other raw materials for manufacturing, and Euro-Americans sought and removed various minerals. The trails and roads near the Proposed Project either took people across the region or went to the places where the desired resources were found (Von Till Warren et al., 1980). An important exception to this generality is the use of the region by the U.S. military for training on a large scale, both early in World War II and just prior to involvement in Vietnam.

In general, the previous research in the region suggests that prehistoric archaeological sites are typically located near water (specifically, near springs), on terraces near the shore of the dry lake beds, and in

areas where natural resources were utilized. Prehistoric site types in the vicinity include lithic scatters, quarry sites, sites with features, trails, and pot drops. Three broad categories of historic-period sites have been identified including early twentieth century mining and ranching sites, World War II-era DTC/C-AMA sites, and other historic-period sites. At the direction of the California State Historic Preservation Office (SHPO), BLM and the California Energy Commission (CEC, 2010a and 2010b) are in the process of determining if these two broad regional patterns — sites associated with prehistoric trails and those associated with historic military maneuvers — can be considered cultural landscapes which are eligible for the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR).

Contributors to the proposed DTCCL and Prehistoric Trails Network Cultural Landscape (PTNCL) have been identified beyond the boundaries of a single project. As seen in the table below, the DTCCL has 10 potential contributors within the CRS Project area. Additional contributors are also located within the BSPP (CEC, 2010a), GSEP (CEC, 2010b), and the Palen Solar Power Project (CEC, 2010d) site footprints and linear corridors. As many contributing elements to both of these landscapes are often considered not to be significant in their own right, previously identified cultural resources may need to be evaluated in the context of the broader cultural and historical landscape. These formal evaluations would be completed during the Section 106 process, as required by the National Historic Preservation Act (NHPA) (see Section D.3.5.1, below, for further detail regarding the DTCCL and PTNCL).

Based on the intensive pedestrian surveys, the proposed Colorado River Substation Expansion would have a significant direct impact on 7 known archaeological resources, in addition to one resource within the original substation footprint (see Table D.3-1). An additional 4 resources would need to be actively avoided during construction. Two resources (P-33-17315 and P-33-17325) would be destroyed during substation construction within the expanded footprint, and a third along the western boundary (CA-RIV-9277) would need to be actively avoided. An additional resource (CA-RIV-9011) would be destroyed during construction within the original footprint.

Along the power and light distribution line, three sites (CA-RIV-9278, CA-RIV-9279, CA-RIV-9280) would be subject to possible direct impacts and would need to be actively avoided. Finally, although the 5 sites along the Wiley Well access road have already been disturbed by previous construction, the planned expansion would cause additional damage. This damage may need to be mitigated if the sites are determined to be eligible for the NRHP or CRHR; mitigation already presented in the DPV2 EIR/EIS will be implemented to ensure site avoidance or recovery.

None of the 11 resources discussed above have been formally evaluated for eligibility for listing on the NRHP or the CRHR. Nine are potential contributors to the DTC Cultural Landscape, and as such may be eligible for listing on the NRHP and CRHR. Although these sites have not been formally evaluated, it is assumed for this analysis that all will be found eligible for the CRHR, and that, therefore, they are considered historical resources.

Along the 19-mile southern telecommunication linear facilities, where 39 percent of the corridor has been intensively surveyed, 23 cultural resources have been identified within 30 feet on either side of centerline (Table D.3-1). Twelve date to the historic period, including two transmission lines, seven canals or other water conveyance systems, the Atchison Topeka and Santa Fe Railroad, one refuse dump, and one road segment. Eight sites date to the prehistoric period, including three trail segments, two temporary camps, one cobble quarry, and two lithic scatters. One trail has both historic and prehistoric elements, while another is of unknown age. Finally, one site is of an unspecified type. It is likely that most, if not all, of these resources could be avoided by careful placement of new poles and planning of pull

sites. Avoidance is particularly feasible where the telecommunications line crosses other linear features, such as canals, roads, railroads, and transmission lines. None of these resources has been formally evaluated for NRHP or CRHR eligibility. If particular sites cannot be avoided, damage would need to be mitigated if any sites are found to be eligible for the NRHP or CRHR. For purposes of this analysis, all archaeological sites are presumed eligible for the CRHR.

Along the 9.9-mile northern telecommunication linear facilities, where 98 percent of the corridor has been intensively surveyed, 8 cultural resources have been identified within 30 feet on either side of the centerline (Table D.3-1). Five are prehistoric lithic reduction sites, and the others are historic period transmission lines. It is likely that most, if not all, of these resources could be avoided by careful placement of new poles and planning of pull sites. Avoidance is particularly feasible where the telecommunications line crosses the other linear transmission line sites. None of these resources has been formally evaluated for NRHP or CRHR eligibility. If particular sites cannot be avoided, damage would need to be mitigated if any sites are found to be eligible for the NRHP or CRHR. For purposes of this analysis, all 8 sites are presumed eligible for the CRHR.

Table D.3-1. Potential Effects to Cultural Resources

Record No.	Description	Era	Project Component	Impact	Eligibility and Treatment
P-33-14153	DTC/C-AMA temporary camp and refuse scatter	Historic	Wiley Well Access Road	Direct impact	Not Evaluated, Further Effort Warranted (Eckhardt & Wilson, 2009)
P-33-14152	DTC/C-AMA feature, post alignment	Historic	Wiley Well Access Road	Direct impact	Not Evaluated, Further Effort Warranted (Eckhardt & Wilson, 2009)
P-33-14146	DTC/C-AMA refuse scatter	Historic	Wiley Well Access Road	Direct impact	Not Evaluated, Further Effort Warranted (Eckhardt & Wilson, 2009)
P-33-13599	Artifact scatter	Prehistoric	Wiley Well Access Road	Direct impact	Not Evaluated, Further Effort Warranted (Eckhardt & Wilson, 2009)
P-33-13598	DTC/C-AMA refuse scatter	Historic	Wiley Well Access Road	Direct impact	Not Evaluated, Further Effort Warranted (Eckhardt & Wilson, 2009)
CA-Riv-9280 P-33-18056	DTC/C-AMA temporary camp with structural ruins and refuse scatter	Historic	Power and Light Distribution Line	Possible Impact	Not Evaluated, No Recommendation (DeCarlo et al., 2010)
CA-RIV-9279 P-33-18055	DTC/C-AMA refuse scatter	Historic	Power and Light Distribution Line	Possible Impact	Not Evaluated, No Recommendation (DeCarlo et al., 2010)
CA-RIV-9278 P-33-18054	DTC/C-AMA refuse scatter and tank tracks	Historic	Power and Light Distribution Line	Possible Impact	Not Evaluated, No Recommendation (DeCarlo et al., 2010)
CA-RIV-9011 P-33-17323	Refuse scatter	Historic	Original CRS Footprint	Direct impact	Not Evaluated, No Recommendation (Eckhardt & Wilson, 2009)
P-33-17325	DTC/C-AMA can scatter	Historic	Expanded CRS Footprint	Direct impact	Not Evaluated, No Recommendation (Eckhardt & Wilson, 2009)
P-33-17315	DTC/C-AMA can scatter	Historic	Expanded CRS Footprint	Direct impact	Not Evaluated, No Recommendation (Eckhardt & Wilson, 2009)

Table D.3-1. Potential Effects to Cultural Resources

Record No.	Description	Era	Project Component	Impact	Eligibility and Treatment
CA-RIV-9277 P-33-18053	DTC/C-AMA refuse scatter	Historic	Boundary Expanded CRS Footprint	Possible Impact	Not Evaluated, No Recommendation (DeCarlo et al., 2010)
CA-RIV-343 P-33-343	Trail segment	Unknown	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-650 P-33-650	Trail segment	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-673 P-33-673	Trail segments	Historic and Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-772 P-33-772	Trail segment	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-775 P-33-775	Trail segment	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV1819 P-33-1819	Cobble quarry	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-1820 P-33-1820	Lithic scatter	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-1821 P-33-1821	Temporary camp	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-1822 P-33-1822	Temporary camp	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-1823 P-33-1823	Lithic scatter	Prehistoric	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-5545 P-33-5816	Road segment	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11044	Canal	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11045	Canal	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11057	Canal	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11058	Water conveyance system	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11060	Canal	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11063	Canal	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11104	Canal	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11110	Pilot Knob-Blythe Transmission Line	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-7045 P-33-12410	Atchison Topeka and Santa Fe Railroad	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-7127 P-33-12532	Niland-Blythe Transmission Line	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-13583	Unknown	Unknown	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-14204	Refuse dump	Historic	Southern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation

Table D.3-1. Potential Effects to Cultural Resources

Record No.	Description	Era	Project Component	Impact	Eligibility and Treatment
CA-RIV-2793 P-33-2793	Lithic scatter, quarry	Prehistoric	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-2794 P-33-2794	Lithic scatter	Prehistoric	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-2795 P-33-2795	Lithic scatter	Prehistoric	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV-2796 P-33-2796	Lithic scatter	Prehistoric	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-11110	Pilot Knob-Blythe Transmission Line	Historic	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
CA-RIV7127 P-33-12532	Niland-Blythe Transmission Line	Historic	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-14082	Parker-Blythe Transmission Line	Historic	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation
P-33-17318	Lithic scatter	Prehistoric	Northern Telecommunications Line	Possible Impact	Not evaluated, No Recommendation

D.3.2 Applicable Regulations, Plans, and Standards

Because the project area is entirely on public lands and the requirements related to cultural resources mitigation from the original EIR/EIS still apply, this EIR addresses requirements of federal law as well as those related to CEQA. The study upon which the analysis in this SEIR is based was conducted for the Bureau of Land Management (BLM) in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 and 4331-4335), the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.), and the requirements set forth in Protection of Historic Properties (36 CFR 800), implementing regulations of the NHPA.

The level of examination and study described for NEPA also satisfies the requirements of the California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code §21000 et seq.), and was conducted for the CPUC, as lead CEQA agency, pursuant to the Guidelines for Implementation of the California Environmental Quality Act (California Code of Regulations, Title 14, §15000 et seq.). The BLM as lead federal agency initiated government-to-government consultation with local Native American groups regarding impacts and potential mitigation for the Proposed Project. Requirements for continuing government-to-government consultation through the development, construction, and operation of the Proposed Project have been formalized in a Programmatic Agreement (PA), as required by Section 106 of the NHPA, and included in BLM's DVP2 Final EIR/EIS.

The CPUC, as part of the scoping process for the proposed substation expansion, contacted local Native American tribes and individuals identified by the Native American Heritage Commission (NAHC) to elicit their concerns about potential impacts to cultural resources (see Appendix 4).

Federal

National Historic Preservation Act (36 CRF Part 60.6). The basis for determining significance of cultural resources is driven by the National Historic Preservation Act (NHPA) (36 CRF Part 60.6). Four criteria are used in the evaluation process. These criteria involve districts, sites, buildings, structures, or objects that possess integrity of location, design, setting, material, workmanship, feeling, and association, and meet one or more of the following criteria:

a. Associated with events that have made a significant contribution to the broad pattern of our history

b. Associated with the lives of persons significant in our past

c. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

d. Have yielded, or may be likely to yield, information important in prehistory or history.

Criterion d is most frequently applied to prehistoric sites, and often applied to historical–period sites as well. Because of the general nature of the criterion, it is necessary to develop pertinent research themes (also referred to as "historic contexts") to provide a systematic framework by which each cultural resource can be evaluated. A principal component of each research theme is the delineation of data requirements that can be used as a baseline for evaluating each site. A determination that a particular site possesses significant data and integrity qualifies the site for listing on the NRHP. Consequently, the site is protected under the conditions set forth in the Historic Preservation Act, and requires mitigation measures before the undertaking can proceed.

National Environmental Policy Act of 1969 (NEPA). Under NEPA, agencies have broad responsibilities to be concerned about the impacts of their activities on the environment, including historic properties. To an extent, NEPA addresses some of the same concerns as the NHPA, for instance regarding identification of irreversible effects. Although Section 106 is a totally separate authority from NEPA, and is not satisfied simply by complying with NHPA, it is perfectly reasonable for agencies to coordinate studies done and documents prepared under Section 106 with those done under NEPA. The Advisory Council on Historic Preservation (ACHP) regulations provide guidance on how the NEPA and Section 106 processes can be coordinated. They also set forth the manner in which a federal agency can use the NEPA process and documentation to comply with Section 106.

Archeological and Historic Preservation Act of 1974 (AHPA). If a project will affect historic properties that have archeological value, the AHPA may impose additional requirements on an agency. Notifying the Department of the Interior that you are doing something under AHPA does not constitute compliance with Section 106.

Archeological Resources Protection Act of 1979 (ARPA). If federal or Indian lands are involved, ARPA may impose additional requirements on an agency. ARPA: (1) Prohibits unauthorized excavation on federal and Indian lands; (2) Establishes standards for permissible excavation; (3) Prescribes civil and criminal penalties; (4) Requires agencies to identify archeological sites; and (5) Encourages cooperation between federal agencies and private individuals.

American Indian Religious Freedom Act of 1978 (AIRFA). AIRFA affirms the right of Native Americans to have access to their sacred places. If a place of religious importance to American Indians may be affected by an undertaking, AIRFA promotes consultation with Indian religious practitioners, which may be coordinated with Section 106 consultation. Amendments to Section 101 of NHPA in 1992 strengthened the interface between AIRFA and NHPA by clarifying that: (1) Properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion on the National Register; and (2) In carrying out its responsibilities under Section 106, a federal agency shall consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties described in subparagraph (1).

Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). For activities on federal lands, NAGPRA requires consultation with "appropriate" Indian tribes (including Alaska Native villages) or Native Hawaiian organizations prior to the intentional excavation, or removal after inadvertent discovery, of several kinds of cultural items, including human remains and objects of cultural patrimony. For activities on Native American or Native Hawaiian lands, which are defined in the statute, NAGPRA requires the consent of the Indian tribe or Native Hawaiian organization prior to the removal of cultural items. The law also provides for the repatriation of such items from federal agencies and federally assisted museums and other repositories.

NAGPRA defines Native American cultural items as: (1) Human remains; (2) Associated funerary objects; (3) Unassociated funerary objects; (4) Sacred objects; and (5) Cultural patrimony.

In brief, NAGPRA requires agencies to: (1) Inventory Native American cultural items; (2) Repatriate Native American cultural items; and (3) Consult with Native American groups about permits to excavate on federal or tribal lands.

1992 amendments to NHPA strengthened NAGPRA by encouraging "protection of Native American cultural items . . . and of properties of religious or cultural importance to Indian tribes, Native Hawaiians, or other Native American groups" [Section 112(b)(3)] and by stipulating that a federal ". . . agency's procedures for compliance with Section 106 . . . provide for the disposition of Native American cultural items from federal or tribal land in a manner consistent with Section 3(c) of the Native American Graves Protection and Repatriation Act . . . ."

Executive Order 11593 (1971), Protection and Enhancement of the Cultural Environment. The federal government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. This executive order (EO) addresses the NRHP and provides guidance to those involved with federal properties that should be inventories and nominated for listing on the NRHP.

Executive Order 13007 (1996). Protection and Preservation of Native American Sacred Sites. This EO is meant to improve the management of these sites. The EO strives to protect and preserve Indian religious practices. Section 1 of the EO states that:

> *(a) In managing Federal lands, each executive branch agency with statutory or administrative responsibility for the management of Federal lands shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.*

California

The Proposed Project is being evaluated under the California Environmental Quality Act (CEQA) by the CPUC as the designated State Lead Agency. The following State public resource codes and CEQA regulations apply.

California Environmental Quality Act (CEQA) Public Resources Code Sections 5020.1, 5024.1, 21083.2, 21084.1, et seq.

CEQA requires analysis of potential impacts of proposed projects on significant cultural resources and application of feasible mitigation measures.

- **Title 14, Public Resources Code, Section 5020.1** defines several terms, including the following: (f) "DPR Form 523" means the Department of Parks and Recreation Historic Resources Inventory Form; (i) "historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California; (j) "local register of historical resources" means a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution; (l) "national Register of Historic Places" means the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture as authorized by the NHPA of 1966 (Title 16 United States Code Section 470 et seq.); (q) "substantial adverse change" means demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired.
- **Title 14, Public Resources Code, Section 5024.1** establishes a California Register of Historic Places; sets forth criteria to determine significance; defines eligible properties; lists nomination procedures.
- **Title 14, Public Resources Code, Section 5097.5** – Any unauthorized removal or destruction of archaeological, paleontological resources on sites located on public lands is a misdemeanor.
- **Title 14, Public Resources Code 5097.98** prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn; sets penalties.
- **Title 14, Public Resources Code, Section 21083.2** – The lead agency determines whether a project may have a significant effect on unique archaeological resources. If a potential for damage to unique archaeological resources can be demonstrated, such resources must be avoided; if they cannot be avoided, mitigation measures shall be required; discusses excavation as mitigation; discusses cost of mitigation for several types of projects; sets time frame for excavation; defines "unique and non-unique archaeological resources"; provides for mitigation of unexpected resources; sets limitation for this section.
- **Title 14, Public Resources Code, Section 21084.1** – indicates that a project may have a significant effect on the environment if it causes a substantial change in the significance of a historic resource; the section further describes what constitutes a historic resource and a significant historic resource.
- **Guidelines for the Implementation of CEQA**. Section 15064.5 specifically addresses effects on historic and prehistoric archaeological resources, in response to problems that have arisen in the application of CEQA to these resources.
- **Title 14, Penal Code, Section 622.5** – anyone who damages an item of archaeological or historic interest is guilty of a misdemeanor.
- **CEQA Guidelines: California Code of Regulations, Sections 15000, et seq., Appendix G (j)**, specifically defines a potentially significant environmental effect as occurring when the Proposed Project will ". . . disrupt or adversely affect . . . an archeological site, except as part of a scientific study."
- **Public Resources Code, Section 5097.5**. Any unauthorized removal of archaeological resources on sites located on public lands is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority or public corporation, or any agency thereof.
- **CEQA: Public Resources Code Sections 15064.5(e) and 15064.5(d), et seq.**, requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the

lead agency must consult with the appropriate Native Americans as identified by the Native American Heritage Commission and the lead agency, under certain circumstances, should develop an agreement with the Native Americans for the treatment and disposition of the remains.

- **Public Resources Code, Section 5097.9**. Stipulates that it is contrary to the free expression and exercise of Native American religion to interfere with or cause severe irreparable damage to any Native American cemetery, place of worship, religious or ceremonial site, or sacred shrine.
- **California Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.98**. If human remains are exposed during construction, these provisions must be followed regarding identification and disposition of the remains.

D.3.3 Approach to Impact Assessment

The approach to impact assessment is based on the Final EIR/EIS for the DPV2 Transmission Line Project Section D.7.5 (CPUC, 2006).

Significance Criteria

Cultural resources are places or objects that are important for historical, scientific, and religious reasons and are of concern to cultures, communities, groups, or individuals. These resources may include buildings and architectural remains, archaeological sites and other artifacts that provide evidence of past human activity, human remains, or Traditional Cultural Properties (TCPs).

In the context of a federally permitted undertaking, such as the Proposed Project, the "significance" of cultural resources must be determined by the Federal Lead Agency under NEPA official in consultation with the SHPO and other interested parties. Any action, as part of an undertaking, that could affect a "significant" cultural resource is subject to review and comment under Section 106 of the NHPA of 1966. Cultural resources that retain integrity and meet one or more of the criteria of significance [36 CFR 60.4] qualify as significant and are eligible for listing on the NRHP; such resources are designated as historic properties and must be managed in compliance with the Advisory Council's regulations (36 CFR 800).

Within the State of California there are also provisions in the CEQA statutes, the State CEQA Guidelines, and the California Public Resources Code for the protection and preservation of significant cultural resources (i.e., "historical resources" and "unique archaeological resources"). California guidelines for assessing significant cultural resources parallel the federal criteria (Section 15064.5(a)(3) of the CEQA Guidelines (as amended)). The State CEQA Guidelines also require consideration of unique archaeological sites (Section 15064.5) (see also Public Resources Code Section 21083.2[h]).

Resources included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified as significant in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code), also are considered "historical resources" for the purposes of CEQA. A resource must also retain the integrity of its physical identity that existed during its period of significance. Integrity is evaluated with regard to retention of location, design, setting, materials, workmanship, feeling, and association.

Finally, under both federal and California State law, Native American human remains and associated grave goods are granted special significance.

The following significance criteria apply to cultural resources:

- The Proposed Project would cause an adverse effect or substantial adverse change in the characteristics of a historic property (i.e., those archaeological sites, buildings, architectural remains, objects, or districts that qualify for listing on the NRHP) or Traditional Cultural Property as defined by federal guidelines.
- The Proposed Project would cause a substantial adverse change in the characteristics of a significant cultural resource or unique archaeological site as defined by State of California guidelines.
- The Proposed Project would cause a substantial adverse change in the characteristics of a cultural resource included in a local register of historical resources.
- The Proposed Project could uncover, expose, and/or damage Native American human remains.

Applicant Proposed Measures and Previously Approved Mitigation Measures

As described in Section B.4 of this SEIR, APMs were presented in Tables B-10 through B-18 in Section B.5 of the Final EIR/EIS, and they also apply to the proposed CRS expansion. Similarly, the mitigation measures presented in the Final EIR/EIS for the DPV2 project would also apply to the CRS expansion, as appropriate.

Note: Mitigation measures modified from those presented in the Final EIR/EIS are presented with inserted text underlined, deleted text in ~~strikeout~~, and "(rev)" after the measure number. These measures supersede the original measures presented in the Final EIR/EIS. New mitigation measures presented in this SEIR (and not included in the Final EIR/EIS) are underlined in their entirety. Changes made to text excerpted from the DPV2 Final EIR/EIS (2006) are shown with double underline and ~~double strikeout~~.

Method of Analysis

This section analyzes the potential for direct and indirect impacts of construction and operation of the Proposed Project to cultural resources and provides mitigation, as necessary, to reduce the severity of significant impacts. This analysis is based on a review of environmental analyses and survey results pertaining to the cultural resources of the project area and vicinity, including recently prepared environmental review documents that are incorporated by reference herein and as described in Section A.5.2.

D.3.4 Environmental Impacts and Mitigation Measures for the Proposed Project

Construction Impacts – Substation Expansion, Access Roads, and Telecommunication Linear Facilities

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

Eleven cultural resources potentially eligible for National Register listing occur within and adjacent to areas that could be impacted by ground-disturbing activities for the Proposed Project, including access roads and road widening. An additional 31 known sites occur within the telecommunications linear facilities corridors, but can likely be avoided during construction. Some of these sites would be impacted by one or more of the following actions: construction of the new substation, placement of transmission poles, excavation for transmission lines, construction and use of access through-roads, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. Some of these sites may be eligible for listing on the NRHP, but have not been evaluated. For purposes of this impact analysis, it is assumed that all archaeological sites in the Proposed Project area are CRHR-eligible historical resources, and that construction impacts cannot be avoided.

Unavoidable direct impacts may occur to known archaeological resources within and in the vicinity of the project area during construction. Any ground-disturbing activity has the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads. Adverse effects to individual sites cannot be precisely identified for all substation components until the detailed engineering plans for all roads, transmission lines, and facilities are completed, and final NRHP eligibility of cultural resources has been assessed (as required under Mitigation Measure C-1a).

When archaeological resources, both historic and prehistoric, are found eligible for the NRHP and CRHR, it is usually because of their potential for containing data that contribute to important research issues (Criterion D). Mitigation through data-recovery excavations would capture those important data values, and apply them to relevant research. However, as data recovery is, in itself, destructive, avoidance is preferred wherever possible. Nonetheless, if the loss of significant archaeological resources is unavoidable, data recovery may be considered adequate mitigation, under NEPA and CEQA, to reduce impacts to a less than significant level (Class II). [36 CFR Part 800]

Generally, data-recovery investigations, alone, are not considered adequate to reduce adverse effects to resources that are considered eligible for the National Register under Criteria A, B, or C [36 CFR 800]. That is because the qualities that contribute to their register eligibility often include such values as setting, feeling, or workmanship that convey a sense of the past. Other types of treatment are generally required to mitigate any loss of those historic qualities, such as detailed mapping, scaled drawings, historical documentation, and public interpretation. [Identify any properties eligible under the NRHP/CRHR criteria]

In many cases, direct impacts would be avoided through minor design modifications and project effects would be reduced to a less than significant level (Class II) through implementation of the following mitigation measures: Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (Develop and implement Historic Properties Treatment Plan), C-1e (Monitor construction), and C-1f (Train construction personnel). However, if direct impacts to NRHP properties eligible under Criterion d (significant data potential) are unavoidable, mitigation through data recovery would reduce impacts (under Mitigation Measure C-1d), but, under the NHPA regulations, effects would still be considered significant (Class I). Likewise, for properties eligible for the NRHP under Criteria a, b, or c, data recovery could not reduce impacts to a less than significant level and effects would be considered significant (Class I). Since avoidance of such properties may not be possible, the Proposed Project would have a significant and unavoidable (Class I) impact on historic properties.

The text of Mitigation Measures C-1a to C-1f from the DPV2 Final EIR/EIS is included below.

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.** Prior to construction and all other surface disturbing activities, the Applicant shall have conducted and submitted for approval by the BLM and CPUC (and the USFS, on San Bernardino National Forest land and the THPO on Agua Caliente land) an inventory of cultural resources within the project's final Area of Potential Effect. The nature and extent of this inventory shall be determined by the BLM and CPUC in consultation with the appropriate State Historic Preservation Officer (SHPO) and shall be based upon project engineering specifications. Results of this inventory shall also be filed with appropriate State repositories and local governments. As part of the inventory, the Applicant shall conduct field surveys of sufficient nature and extent to identify cultural resources that

would be affected by tower pad construction, reconductoring activities, access road installation, and transmission line construction and operation. At a minimum, field surveys shall be conducted along newly proposed access roads, new construction yards, new tower sites, and any other projected areas of potential ground disturbance outside of the previously surveyed potential impact areas. Site-specific field surveys also shall be undertaken at all projected areas of impact within the previously surveyed corridor that coincide with previously recorded resource locations. The selected right-of-way and tower locations shall be staked prior to the cultural resource field surveys. As part of the inventory report, the Applicant shall evaluate the significance of all affected cultural resources on the basis of surface observations and provide recommendations with regard to their eligibility for the National Register of Historic Places (NRHP) or local registers. Preliminary determinations of NRHP eligibility will be made by the BLM, in consultation with the CPUC and appropriate local governments, the USFS (on USFS land), and the appropriate SHPO or THPO.

C-1b **Avoid and protect potentially significant resources.** On the basis of preliminary National Register of Historic Places (NRHP) eligibility assessments (Mitigation Measure C-1a) the BLM and CPUC may require the relocation of the line, ancillary facilities, or temporary facilities or work areas, if any, where relocation would avoid or reduce damage to cultural resource values. Where operationally feasible, potentially NRHP-eligible resources shall be protected from direct project impacts by project redesign.

Where the BLM and CPUC decide that potentially NRHP-eligible cultural resources cannot be protected from direct impacts by project redesign, the Applicant shall undertake additional studies to evaluate the resources' NRHP-eligibility and to recommend further mitigative treatment. The nature and extent of this evaluation shall be determined by the BLM in consultation with the CPUC and the appropriate State Historic Preservation Officer (SHPO) and shall be based upon final project engineering specifications. Evaluations will be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area. Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).

All potentially NRHP-eligible resources (as determined by the BLM and CPUC) that will not be affected by direct impacts, but are within 50 feet of direct impact areas will be designated as Environmentally Sensitive Areas (ESAs). Protective fencing, or other markers, at the BLM's discretion, shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity. Construction personnel and equipment shall be instructed on how to avoid ESAs. ESAs shall not be identified specifically as cultural resources. A monitoring program shall be developed as part of the Historic Properties Treatment Plan and implemented by the Applicant to ensure the effectiveness of ESAs.

C-1c **Develop and implement Historic Properties Treatment Plan.** Upon approval of the inventory report and the National Register of Historic Places (NRHP)-eligibility evaluations by the BLM and CPUC, consistent with Mitigation Measures C-1a (Inventory and evaluate cultural resources in Final APE) and C-1b (Avoid and protect potentially significant resources), the Applicant shall prepare and submit for approval a Historic Properties Treatment Plan (HPTP) for NRHP-eligible cultural resources to mitigate or avoid identified impacts. Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for com-

pliance with Section 106 of the National Historic Preservation Act and other appropriate State and local regulations. Avoidance, recordation, and data recovery will be used as mitigation alternatives. The HPTP shall be submitted to the BLM and CPUC for review and approval.

As part of the HPTP, the Applicant shall prepare a research design and a scope of work for evaluation of cultural resources and for data recovery or additional treatment of NRHP-eligible sites that cannot be avoided. Data recovery on most resources would consist of sample excavation and/or surface artifact collection, and site documentation. A possible exception would be a site where burials, cremations, or sacred features are discovered that cannot be avoided.

The HPTP shall define and map all known NRHP-eligible properties in or within 50 feet of all project APEs and shall identify the cultural values that contribute to their NRHP-eligibility. A cultural resources protection plan shall be included that details how NRHP-eligible properties will be avoided and protected during construction. Measures shall include, at a minimum, designation and marking of Environmentally Sensitive Areas (ESAs), archaeological monitoring, personnel training, and effectiveness reporting. The plan shall detail: what measures will be used; how, when, and where they will be implemented; and how protective measures and enforcement will be coordinated with construction personnel.

The HPTP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried NRHP-eligible cultural resources, including burials, cremations, or sacred features. The HPTP shall detail provisions for monitoring construction in these high-sensitivity areas. It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing NRHP-eligibility in the event that unknown cultural resources are discovered during construction. For all unanticipated cultural resource discoveries, the HPTP shall detail the methods, the consultation procedures, and the timelines for assessing NRHP-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be approved by the BLM and CPUC, appropriate local governments, appropriate Native Americans, and the appropriate State Historic Preservation Officer prior to implementation.

The HPTP shall include provisions for analysis of data in a regional context, reporting of results within one year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, libraries, and interested professionals. The BLM will retain ownership of artifacts collected from BLM managed lands. The Applicant shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections. The HPTP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary of the Interior's Standards (per 36 CFR 61).

C-1d **Conduct data recovery to reduce adverse effects.** If National Register of Historic Places (NRHP)-eligible resources, as determined by the BLM and SHPO, cannot be protected from direct impacts of the Proposed Project, data-recovery investigations shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its NRHP-eligibility. For sites eligible under Criterion d, significant data would be recovered through excavation and analysis. For properties eligible under Criteria a, b, or c, data recovery may include historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation. Data gathered during the evaluation phase studies and the research design element of

the Historic Properties Treatment Plan (HPTP) shall guide plans and data thresholds for data recovery; treatment will be based on the resource's research potential beyond that realized during resource recordation and evaluation studies. If data recovery is necessary, sampling for data-recovery excavations will follow standard statistical sampling methods, but sampling will be confined, as much as possible, to the direct impact area. Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan) and implemented by the Applicant only after approval by the BLM and CPUC. Following any field investigations required for data recovery, the Applicant shall document the field studies and findings, including an assessment of whether adequate data were recovered to reduce adverse project effects, in a brief field closure report. The field closure report shall be submitted to the BLM and CPUC for their review and approval, as well as to appropriate State repositories and local governments. Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM or CPUC, as appropriate.

C-1e **Monitor construction.** The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the Historic Properties Treatment Plan (HPTP). Full-time monitoring shall occur when ground-disturbing activities take place at all archaeological High-Sensitivity Areas described above and at all cultural resource Environmentally Sensitive Areas (ESAs). These locations and their protection boundaries shall be defined and mapped in the HPTP. Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and CPUC. Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the project, and under direct supervision of a principal archaeologist. The qualifications of the principal archaeologist and archaeological monitors shall be approved by the BLM and CPUC. A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. The monitoring plan in the HPTP shall indicate the locations where Native American monitors will be required and shall specify the tribal affiliation of the required Native American monitor for each location. The Applicant shall retain and schedule any required Native American monitors.

Compliance with and effectiveness of the cultural resources monitoring plan shall be documented by the Applicant in a monthly report to be submitted to the BLM and CPUC, and on San Bernardino National Forest, to the USFS, and on Agua Caliente land to the THPO, for the duration of project construction. In the event that cultural resources are not properly protected by ESAs, all project work in the immediate vicinity shall be diverted by the archaeological monitor until authorization to resume work has been granted by the BLM and CPUC. The Applicant shall notify the BLM of any damage to cultural resource ESAs. The Applicant shall consult with the BLM and CPUC to mitigate damages and to increase effectiveness of ESAs. At the discretion of the BLM and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.

C-1f **Train construction personnel.** All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. The Applicant shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed

upon the discovery of archaeological materials, including Native American burials. Training shall inform all construction personnel that Environmentally Sensitive Areas (ESAs) must be avoided and that travel and construction activity must be confined to designated roads and areas. All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the right-of-way by the Applicant, his representatives, or employees will not be allowed. Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project. Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order. The following issues shall be addressed in training or in preparation for construction:

- All construction contracts shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources.
- The Applicant shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors. Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources. Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.
- Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the Applicant's archaeologist notified. Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist will consult with the BLM or CPUC, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs.

Impact C-2: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or No Impact)

The potential to discover unanticipated cultural resources during construction exists throughout the Proposed Project and could result in adverse effects to cultural resources. If unanticipated sites, features, and/or artifacts were discovered as a result of construction, and those are determined to be NRHP-eligible at the time of discovery, there would be a significant adverse effect. Adverse effects could be reduced by data-recovery investigations, but, by virtue of the fact that such resources would be discovered after final project design and engineering, avoidance and protection of such resources would be infeasible. Therefore, since NRHP-eligible resources may be impacted during construction, even after data recovery, effects would be considered significant (Class I), under the regulations in the NHPA.

The potential to discover unknown buried Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features during construction exists. If unanticipated buried Native American human remains or sacred features were discovered as a result of construction, then there would be a significant and unavoidable impact to the remains (Class I), a significant adverse effect under the regulations in the NHPA.

Although impacts would be significant and unavoidable, implementation of the following mitigation measures would reduce the severity of impacts to the extent feasible. Mitigation Measures 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) and C-2a (Consult agencies and Native Americans) from the DPV2 Final EIR/EIS shall be implemented by the Applicant to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites and buried Native American human remains.

Mitigation Measures for Impact C-2: Construction of the project could 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-1e **Monitor construction.**

C-1f **Train construction personnel.**

C-2a **Consult agencies and Native Americans.** If human remains are discovered during construction, all work will be diverted from the area of the discovery and the BLM authorized officer will be informed immediately. The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains. The Applicant shall assist and support the BLM in all required government-to-government consultations with Native Americans and appropriate agencies and commissions, as requested by the BLM. The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.

Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I, Class II or No Impact)

The BLM, as the federal Lead Agency under NEPA and Section 106 of the NHPA, has initiated required government-to-government consultation with appropriate Native American groups and notification to other public groups regarding project effects on traditional cultural values. During scoping for the proposed substation modifications, the CPUC, as CEQA Lead Agency, also contacted local tribes and individuals identified by the NAHC to elicit concerns about cultural resources that could be potentially impacted by the Proposed Project (see Appendix 4).

That consultation will determine whether there are TCPs that could be affected and the significance of any project effects. 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 Native Americans or other Traditional Groups can reduce the impact to less than significant (Class II). Creative approaches to reduce direct impacts to the qualities that make these places culturally, spiritually, or religiously important can help to mitigate impacts. Such mitigation could include avoidance of physical impacts, screening of visual impacts, or even payment of compensatory damages. Implementation of Mitigation Measure C-3a (Complete consultation with Native American and other Traditional Groups) could reduce impacts to TCPs to a level that is less than significant (Class II), but in some cases impacts to TCPs would remain significant (Class I), even after mitigation. This mitigation measure would require Native American consultation and appropriate treatment of Native American resource values.

The text of Mitigation Measure C-3a from the DPV2 Final EIR/EIS is included below.

Mitigation Measure for Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-3a **Complete consultation with Native American and other Traditional Groups.** The Applicant shall provide assistance to the BLM, as requested by the BLM, to complete required government-to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other Traditional Groups to assess the impact of the Proposed Project on Traditional Cultural Properties or other resources of Native American concern. As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation. Written documentation of the completion of all pre-construction actions shall be submitted by the Applicant and approved by the BLM at least 30 days before commencement of construction activities. Actions that are required during or after construction shall be defined, detailed, and scheduled in the Historic Properties Treatment Plan and implemented by the Applicant, consistent with Mitigation Measure C-1c (Develop and implement Historic Properties Treatment Plan).

Operational Impacts

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

There are 11 known archaeological sites within the project area; others may be identified during additional surveys or during construction. Some sites that can be successfully protected from direct construction impacts could be impacted by operation, maintenance, and long-term presence of the Proposed Project. Direct impacts could result from maintenance or repair activities, while increased erosion could result in an indirect project impact. This impact would be significant, but would be mitigated to a level that is less than significant (Class II) through implementation of Mitigation Measure C-5a(rev) (Protect and monitor NRHP-eligible properties), in addition to Mitigation Measures C-2a (Consult agencies and Native Americans) and C-3a (Complete consultation with Native American and other Traditional Groups) from the DPV2 Final EIR/EIS (CPUC, 2006).

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-2a **Consult agencies and Native Americans.**

C-3a **Complete consultation with Native American and other Traditional Groups.**

C-5a(rev) **Protect and monitor NRHP-eligible properties.** The Applicant shall design and implement a long-term plan to protect National Register of Historic Places (NRHP)-eligible sites from direct impacts of project operation and maintenance and from indirect impacts, such as erosion that result from the presence of the project. The plan shall be developed in consultation with the BLM to design measures that will be effective against project maintenance impacts and project-related vehicular impacts. The plan shall also include protective measures for NRHP-eligible properties within the DPV corridor that will experience operational and access impacts as a result of the Proposed Project. The proposed measures may include restrictive fencing or gates, permanent access road closures, signage, stabilization of erosion, site capping, site patrols,

and interpretive/educational programs, or other measures that will be effective for protecting NRHP-eligible properties. The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for evaluating potential~~addressing~~ inadequacies that present the possibility of allowing ~~or failures that result in~~ damage to NRHP-eligible properties. The plan shall be submitted to the BLM and CPUC for review and approval at least 30 days prior to project operation.

Monitoring of selected sites shall be conducted annually by a professional archaeologist for a period of five years. Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photomonitoring stations and written observations. A monitoring report shall be submitted to the BLM and CPUC within one month following the annual resource monitoring. The report shall indicate any properties that have any potential to be ~~been~~ impacted by erosion or vehicle or maintenance impacts, and measures to prevent such effects shall be implemented. Protective measures shall include erosion controls such as those defined in Mitigation Measure H-1a and APM W-3 (which require pre- and post-construction erosion controls). For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures. After the fifth year of resource monitoring, the BLM or CPUC, as appropriate, will evaluate the effectiveness of the protective measures and the monitoring program. Based on that evaluation, the BLM or CPUC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule. If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.

If the annual monitoring program identifies adverse effects to National Register of Historic Places (NRHP)–eligible properties from operation or long-term presence of the project that could not be prevented based on annual inspection, or if, at any time, the Applicant, BLM or CPUC become aware of such adverse effects, the Applicant shall notify the BLM and CPUC immediately and implement mitigation for adverse changes, as directed by the BLM and CPUC. At the discretion of the BLM and CPUC, such mitigation may include, but not be limited to modification of protective measures, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of non-destructive cultural resources studies or protection.

D.3.5 Connected Actions

Section B.4 describes two solar power projects — BSPP and GSEP — that currently have Power Purchase Agreements and would interconnect at the CRS. As such, they are considered part of the proposed action to expand the CRS Substation. As explained in Section A, both BSPP and GSEP were previously evaluated under CEQA and NEPA, and those analyses are incorporated into this Supplemental EIR by reference. The impacts of those projects, as described in the prior environmental analysis, are summarized here.

The CEC's analysis of cultural resources is presented in the following documents:

- Blythe Solar Power Project: Revised Staff Assessment, Part 2, July 2010, Section C.3.6.1, Identification and Assessment of Direct Construction Impacts and Section C.3.10, Conclusions and Recommendations
- Genesis Solar Energy Project: Revised Staff Assessment Supplement, July 2010, Section C.3.6.2, Construction Impacts to NRHP- and CRHR-Eligible Cultural Resources and Section, Section C.3.6.3, Operation Impacts and Mitigation, and C.3.11, Recommended Conditions of Certification.

D.3.5.1 Blythe Solar Power Project

Construction Impacts

Construction impacts to NRHP- and CRHR-eligible cultural resources. For the determination of the BSPP's impacts, the impacts of the project were assumed to occur as one large, three-dimensional spatial block — an "impact block," entailing the full extent of the BSPP project's below-grade impacts (inclusive of all foundations and trenches) and above-grade impacts (inclusive of all above-ground facilities), and delimiting both the project's physical impacts to surficial and buried cultural resources and perceptual impacts to the settings of built environment resources. All cultural resources located within the impact block were assumed to be significantly impacted by the project and that these impacts would be significant, unavoidable, and would require mitigation.

Based on graphical representations from the Applicant (Solar Millennium) of their "impact block," the anticipated disturbance below ground and the anticipated aboveground intrusion into the flat landscape were determined to occur within the following parameters:

- General cutting and filling would disturb the overall BSPP plant site to a maximum depth of 7 feet.
- In the solar array fields, BSPP collector foundation excavations would cause ground disturbance down to a maximum depth of 16 feet, and the collectors would intrude into the flat landscape to a maximum height of 24 feet.
- In the power blocks, BSPP equipment foundation excavations would cause ground disturbance down to a maximum depth of 7 feet, and the equipment would intrude into the flat landscape to a maximum height of 80 feet.
- Along the linear facilities corridor, BSPP natural gas pipeline trench excavations would cause ground disturbance down to a maximum depth of 10 feet, and the transmission line supports would create an intrusion into the flat landscape to a maximum height of 140 feet. (The applicant did not provide the depth of ground disturbance resulting from transmission line support foundation excavations for either the project's gen-tie transmission line or its temporary construction power line, nor for the two telecommunications lines.)

Within this "impact block," all archaeological resources — recommended and/or assumed register-eligible, known and possibly yet to be discovered during construction, and located within the BSPP's impact block — would be significantly impacted by the BSPP's construction.

Based on these assumptions, the project would significantly directly impact 166 known archaeological and built environment resources eligible or assumed eligible for the California Register of Historical Resources. Additionally, the BSPP, in conjunction with the GSEP and the Palen Solar Power Project, would have a significant cumulatively considerable impact on two staff-identified cultural landscapes, the PTNCL, encompassing region-wide prehistoric trails and the resources and destinations they connected, and the DTCCL, comprehending the archaeological remains of the U.S. Army's WWII Desert Training Center.

To mitigate the significance of project's direct impacts to archaeological resources to a less than significant level, Conditions of Certification (CoCs) have been recommended to provide for data recovery from prehistoric archaeological sites identified as contributors to the PTNCL, including an archaeological district and other prehistoric archaeological sites with features, small non-habitation prehistoric archaeological sites. Other CoCs have been recommended providing for data recovery from historic-period

resources, including historic period archaeological sites with features, historic-period archaeological sites with structural remains, historic-period archaeological dump sites, historic-period roads, and built-environment resources.

It is not possible to reduce the level of significance of the project's cumulative impact on region-wide cultural resources of both the prehistoric and the historic period, but to reduce those impacts, CoCs have been recommended that would have the project owners of the BSPP, the GSEP, and the Palen Solar Power Project fund programs to document and possibly nominate to the NRHP, the PTNCL, and the DTCCL.

To provide for the appropriate treatment of additional cultural resource that would be encountered during construction, additional CoCs have been recommended, including those that identify the personnel and their qualifications who would implement the balance of the conditions, and the information the project owner would supply. Another condition provides for the preparation and implementation of the Cultural Resources Monitoring and Mitigation Plan (CRMMP), which would structure and govern the implementation and coordination of the broader treatment program. Another condition would provide training of project personnel to identify, protect, and provide appropriate notice about known and new unknown cultural resources in the project construction area. Other CoCs would provide construction monitoring and cultural resources discovery protocols. The last condition provides for the preparation of a final report to analyze, interpret, and document the ultimate results of the whole BSPP cultural resources management program.

The BLM is currently in the process of consulting with local Native American groups and others regarding impacts and mitigation for the BSPP. The results of these negotiations will be formalized in a Programmatic Agreement, as required by Section 106 of the National Historic Preservation Act, and included in the BLM's Final Environmental Impact Statement for the BSPP.

Ideally, the recommended CoCs will not conflict with the required mitigation measures for BSPP impacts promulgated by the BLM in their Programmatic Agreement (PA). The recommended CoCs may be revised, based on BLM's finalized PA, which, it is anticipated, will coordinate the cultural resources mitigation measures.

The recommended CoCs reflect appropriate mitigation under CEQA for BSPP's identified impacts to register-eligible cultural resources. The BLM's parallel but different process for resolving adverse project effects (consultation resulting in a PA) may result in different conclusions regarding cultural resources evaluations, the nature and severity of project impacts, and appropriate mitigation measures. It has been recommended that the BLM incorporate the recommended CoCs into the GSEP PA and its associated plan documents to ensure that the project's impacts to cultural resources are mitigated in a way that meets both federal and state requirements.

With the adoption and implementation of the CoCs, the BSPP would be in conformity with all applicable laws, ordinances, regulations, and standards. The first two CoCs would reduce the significance of the project's cumulative impacts to the greatest extent possible, but those impacts would still be cumulatively considerable. The remaining CoCs would reduce the project's direct impacts to a less than significant level.

Operational Impacts

Operation impacts to NRHP- and CRHR-eligible cultural resources. With respect to direct impacts, if during operation of the BSPP, the project owner should plan any changes or additions entailing significant amounts of ground disturbance, the project owner would have to petition the CEC to review the

environmental impacts of those activities and approve the plan (a description of the CEC's approval process for project modifications is included in Section A). Planned activities would be evaluated to determine if previously undisturbed sediments would be affected. If so, existing CoCs would be applied or new CoCs would be developed to mitigate any impacts to significant known or newly-identified cultural resources. Consequently, no CoCs addressing operational direct impacts have been recommended.

D.3.5.2 Genesis Solar Energy Project

Construction Impacts

Construction impacts to NRHP- and CRHR-eligible cultural resources. For the determination of the GSEP's impacts, the impacts of the project were assumed to occur as one large, three-dimensional spatial block—an "impact block," entailing the full extent of the project's below-grade impacts (inclusive of all foundations and trenches) and above-grade impacts (inclusive of all above-ground facilities), and delimiting both the project's physical impacts to surficial and buried cultural resources and perceptual impacts to the settings of built environment resources. All cultural resources located within the impact block were assumed to be significantly impacted by the project and that these impacts would be significant, unavoidable, and would require mitigation.

Based on graphical representations from the Applicant of their "impact block," the anticipated disturbance below ground and the anticipated aboveground intrusion into the flat landscape were determined to occur within the following parameters:

- General cutting and filling would disturb the overall GSEP plant site to a maximum depth of 2 feet.
- In the solar array fields, GSEP collector foundation excavations would cause ground disturbance down to an unspecified depth, and the collectors would intrude into the flat landscape to a maximum height of 25 feet.
- In the power blocks, GSEP equipment foundation excavations would cause ground disturbance down to a maximum depth of 25 feet, and the equipment would intrude into the flat landscape to a maximum height of 75 feet.
- Along the linear facilities corridor, GSEP natural gas pipeline trench excavations would cause ground disturbance down to a maximum depth of 10 feet. The transmission line supports would cause ground disturbance down to a depth of 15 feet and create an intrusion into the flat landscape to a maximum height of 75 feet.

Within this "impact block," all archaeological resources — recommended and/or assumed register-eligible, known and possibly yet to be discovered during construction, and located within the GSEP's impact block — would be significantly impacted by the GSEP's construction.

Based on these assumptions, the proposed GSEP would have a significant direct impact on 27 register-eligible archaeological resources and significant indirect impact on 248 contributors to a register-eligible cultural landscape. These impacts include direct impacts to 6 prehistoric-to-historic-period Native American archaeological sites; direct impacts to 6 and indirect impacts to 248 prehistoric-to-historic-period Native American archaeological sites that are contributing elements to the PTNCL; and direct impacts to 15 historic-period archaeological sites that are contributing elements to the DTCCL. Because the GSEP would impact contributors to the PTNCL and the DTCCL, it would also therefore impact these register-eligible resources.

To mitigate these impacts, a variety of cultural resources CoCs have been recommended. Two of the CoCs would fund programs to define, document, and nominate to the NRHP two cultural landscapes that GSEP shares with two other nearby solar projects, identifying specialists who would be hired to supervise the mitigation of GSEP's cumulative impacts to these resources and establishing a fund, to which multiple project owners will contribute, to hire these specialists. The remaining CoCs would mitigate GSEP's direct and indirect impacts to the cultural resources specific to the project. Two of these remaining CoCs are administrative conditions that set out who the people would be who implement the balance of the conditions, their qualifications and roles, and the information the project owner would supply them to help them fulfill those roles. Another CoC provides for the preparation and implementation of the Cultural Resources Monitoring and Mitigation Plan (CRMMP), which would structure and govern the implementation of the broader treatment program. A further CoC provides for the preparation of a final report to analyze, interpret, and document the ultimate results of the whole GSEP cultural resources management program. Another CoC would provide training of project personnel to identify, protect, and provide appropriate notice about known and new unknown cultural resources in the project construction area. Two additional CoCs would provide construction monitoring and cultural resources discovery protocols. Other CoCs are treatment conditions for direct impacts to historic-period and prehistoric resources that would reduce the severity of GSEP impacts to less than significant.

The respective adoption and implementation of some of the CoCs would reduce some of the indirect impacts of the Proposed Project on PTNCL contributors to less than significant. However, as of the publication date of this document, the indirect impacts to the contributing elements of the PTNCL have only been partially identified. Other indirect ethnographic impacts can be identified only by members of the community who value the resources culturally and/or spiritually, in this case Native Americans. BLM is currently in the process of consulting with local Native American groups regarding impacts and mitigation for the GSEP project area. The results of these negotiations will be formalized in a Programmatic Agreement, as required by Section 106 of the NHPA. Therefore, the recommended conditions may be revised, based on BLM's finalized PA, which, it is anticipated, will address the issues of unidentified indirect impacts and appropriate ways to mitigate them, and coordinate Energy Commission and BLM cultural resources mitigation measures.

In conclusion, with the adoption and implementation of the entire complement of cultural resources conditions, the GSEP project would be in conformity with all applicable LORS. The funding CoCs would reduce the cumulative impacts to the greatest extent possible, but these impacts would nonetheless be cumulatively considerable. The remaining CoCs would reduce the direct impacts to be less than significant. In addition, the impacts to ethnographic resources have not yet been evaluated. Consequently, it is not known if these resources are significant, or if any mitigation is needed or appropriate. However, significant unavoidable indirect impacts to ethnographic resources that cannot be fully mitigated may be possible. Only with the resolution of those impacts in the BLM's Programmatic Agreement, reflecting Native American identification of additional indirect impacts and recommendation of appropriate mitigation of those impacts, would GSEP's indirect impacts be reduced to a level less than significant. However, this resolution cannot be guaranteed.

The recommended CoCs reflect appropriate mitigation under CEQA for GSEP's identified impacts to register-eligible cultural resources. The BLM's parallel process for resolving adverse effects (consultation resulting in a PA), however, is somewhat different from the CEQA process. It has been recommended that the BLM incorporate the recommended conditions of certification into the GSEP PA and its associated plan documents to ensure that the project's impacts to cultural resources are mitigated in a way that meets both federal and State requirements.

Operational Impacts

Operation impacts to NRHP- and CRHR-eligible cultural resources. With respect to direct impacts, if, during operation of the GSEP, the project owner should plan any changes or additions entailing significant amounts of ground disturbance, the project owner would have to petition the Energy Commission to review the environmental impacts of those activities and approve the plan. Planned activities would be evaluated to determine if previously undisturbed sediments would be affected and, if so, the application of existing conditions or development of new conditions to mitigate any impacts to significant known or newly identified cultural resources would be identified. Consequently, no CoCs addressing direct impacts during operation have been recommended.

For indirect impacts, however, during operation of the GSEP, cultural resources on and in the immediate vicinity of the project site may experience increased vandalism, illegal collection of artifacts, and/or destruction of resources by vehicles traveling on the site, as a result of improved access due to the project's construction. For known sites adjacent to the GSEP boundaries, CoCs to mitigate these potential impacts would require that the project owner mark the boundary around each adjacent site, including a buffer zone, and then set aside each bounded area as an environmentally sensitive area that would not be subject to disturbance during the life of the project. One CoC requires a surface collection be done in each adjacent site. All diagnostic artifacts and features must be mapped using the latest technology with sub-meter accuracy, such as UTM 11 North or California Teale Albers. The CRRMP will include a detailed discussion of the specific equipment and methods used. In particular, any post-processing of the data would be described. The artifacts would be collected and curated.

D.3.6 Partial Avoidance Alternative

Environmental Setting

Based on the complete intensive pedestrian surveys performed by Applied Earthworks in December 2010 through January 2011,[5] the Partial Avoidance Alternative would have a significant direct impact on three known archaeological resources within the site itself and one known archaeological resource in the study area buffer,[6] in addition to two historical isolates, which are not significant. A portion of the historic road (CA-RIV-9100) to Roosevelt Mine, a DTC refuse scatter (AE-DEV-04H), and a single pot drop (AE-DEV-05), consisting of 15 sherds, would be destroyed during construction of the new substation. This damage may need to be mitigated if the sites are determined to be eligible for the NRHP or CRHR.

None of the four resources in the Partial Avoidance Alternative have been formally evaluated for eligibility for listing on the NRHP or the CRHR. One is a potential contributor to the DTC Cultural Landscape, and as such may be eligible for listing on the NRHP and CRHR. For this analysis, it is presumed that all archaeological sites in the Proposed Project area are CRHR-eligible.

The Partial Avoidance Alternative would have similar impacts to cultural resources as the Proposed Project substation. Similar to the Proposed Project, the alternative site and the buffer area would impact

[5] A cultural report entitled "Class III Cultural Resources Survey for the Colorado River Substation Alternatives Analysis" has been prepared by Applied Earthworks (March 2011). The survey report is in draft form and will be finalized as soon as site numbers are obtained from the Eastern Information Center.

[6] The overall area surveyed for alternatives includes the site as well as the area of potential access road expansion and gen-tie/transmission interconnection. Because the specific locations of these features have not yet been defined for alternatives, survey results include resources within a buffer around the substation site.

four unevaluated sites. In addition to the sites described above, the Proposed Project and all alternatives would directly impact five resources. These resources have not yet been formally evaluated for eligibility. They are located along the Wiley Well access road west of the proposed CRS site (see Table D.3-1). Because these sites would be impacted for the Proposed Project and all alternatives, they are not included in the comparative discussion of cultural resources in Section F or Appendix 1 (Alternatives Screening Report).

Environmental Impacts and Mitigation Measures for the Partial Avoidance Alternative

Construction Impacts

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

Three cultural resources potentially eligible for National Register listing occur within and adjacent to areas that could be impacted by ground-disturbing activities for the Partial Avoidance Alternative. Some of these sites would be impacted by one or more of the following actions: construction of the new substation, placement of transmission poles, excavation for transmission lines, construction and use of access through-roads, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. Some of these sites may be eligible for listing on the NRHP, but have not been evaluated.

Unavoidable direct impacts may occur to known archaeological resources within and in the vicinity of the project area during construction. Any ground-disturbing activity has the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads. Adverse effects to individual sites cannot be precisely identified for all substation components until the detailed engineering plans for all roads, transmission lines, and facilities are completed, and final NRHP eligibility of cultural resources has been assessed (as required under Mitigation Measure C-1a). For purposes of this impact analysis, it is assumed that all archaeological sites in the alternative area are CRHR-eligible historical resources, and that construction impacts cannot be avoided.

In many cases, direct impacts may be avoided through minor design modifications and project effects would be reduced to a less than significant level (Class II) through implementation of the following mitigation measures: Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (Develop and implement Historic Properties Treatment Plan), C-1e (Monitor construction), and C-1f (Train construction personnel). However, it is important to note that if direct impacts to NRHP properties eligible under Criterion d (significant data potential) are unavoidable, mitigation through data recovery would reduce impacts (under Mitigation Measure C-1d), but, under the NHPA regulations, effects would still be considered significant (Class I). Likewise, for properties eligible for the NRHP under Criteria a, b, or c, data recovery could not reduce impacts to a less than significant level and effects would be considered significant (Class I).

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.

C-1f Train construction personnel.

Impact C-2: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or No Impact)

The potential to discover unanticipated cultural resources during construction exists throughout the Proposed Project and could result in adverse effects to cultural resources. If unanticipated sites, features, and/or artifacts were discovered as a result of construction, and those are determined to be NRHP-eligible at the time of discovery, there would be an adverse effect. Adverse effects could be reduced by data-recovery investigations, but, by virtue of the fact that such resources would be discovered after final project design and engineering, avoidance and protection of such resources would be infeasible. Therefore, if NRHP-eligible resources are impacted during construction, even after data recovery, effects would be considered significant (Class I), under the regulations in the NHPA.

The potential to discover unknown buried Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features during construction could exist, resulting in adverse effects. If unanticipated buried Native American human remains or sacred features were discovered as a result of construction, then there would be a significant and unavoidable impact to the remains (Class I), a significant adverse effect under the regulations in the NHPA.

Although impacts would be significant and unavoidable, implementation of the following mitigation measures would reduce the severity of impacts to the extent feasible. Mitigation Measures 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) and C-2a (Consult agencies and Native Americans) from the DPV2 Final EIR/EIS shall be implemented by the Applicant to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites and buried Native American human remains.

Mitigation Measures for Impact C-2: Construction of the project could 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-1e Monitor construction.

C-1f Train construction personnel.

C-2a Consult agencies and Native Americans.

Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I, Class II or No Impact)

The BLM, as the federal Lead Agency under NEPA, has initiated required 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 TCPs in this alter-

native to the Proposed Project that could be affected and the significance of any project effects. Implementation of Mitigation Measure C-3a (Complete consultation with Native American and other Traditional Groups) would reduce impacts to TCPs to a level that is less than significant (Class II); however, in some cases impacts to TCPs would remain significant (Class I), even after mitigation. This mitigation measure would require Native American consultation and appropriate treatment of Native American resource values.

Mitigation Measure for Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-3a Complete consultation with Native American and other Traditional Groups.

Operational Impacts

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

There are three known archaeological sites within the Partial Avoidance Alternative; others may be identified during additional surveys or during construction. Some sites that can be successfully protected from direct construction impacts could be impacted by operation, maintenance, and long-term presence of the Proposed Project. Direct impacts could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. This impact is potentially significant, but would be mitigated to a level that is less than significant (Class II) through implementation of Mitigation Measure C-5a (Protect and monitor NRHP-eligible properties), in addition to Mitigation Measures C-2a (Consult agencies and Native Americans) and C-3a (Complete consultation with Native American and other Traditional Groups) from the DPV2 Final EIR/EIS.

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-2a Consult agencies and Native Americans.

C-3a Complete consultation with Native American and other Traditional Groups.

C-5a(rev) Protect and monitor NRHP-eligible properties.

D.3.7 Avoidance Alternative #1

Environmental Setting

Based on the complete, intensive pedestrian surveys performed by Applied Earthworks in December 2010 through January 2011,[7] the Avoidance Alternative #1 would have a significant direct impact on two known archaeological resources within the site itself and three known archaeological resource in the study area buffer,[8] in addition to one resource that would need to be actively avoided during construction. A portion of the historic road (CA-RIV-9100) to Roosevelt Mine and a single pot drop

[7] A cultural report entitled "Class III Cultural Resources Survey for the Colorado River Substation Alternatives Analysis" has been prepared by Applied Earthworks (March 2011). The survey report is in draft form and will be finalized as soon as site numbers are obtained from the Eastern Information Center.

[8] The overall area surveyed for alternatives includes the site as well as the area of potential access road expansion and gen-tie/transmission interconnection. Because the specific locations of these features have not yet been defined for alternatives, survey results include resources within a buffer around the substation site.

(AE-DEV-06), consisting of 7 sherds, would be destroyed during construction of the new substation. Another pot drop (AE-DEV-15) would need to be actively avoided during construction. Damage to any of these six resources may need to be mitigated if the sites are determined to be eligible for the NRHP or CRHR. None of the six resources in Avoidance Alternative #1 study area have been formally evaluated for eligibility for listing on the NRHP or the CRHR. For this analysis, it is presumed that all archaeological sites in the area are CRHR-eligible.

The Avoidance Alternative #1 would have greater impacts to cultural resources as the Proposed Project. It would impact six unevaluated sites, while the Proposed Project would impact four. In addition to the sites described above, the Proposed Project and all alternatives would directly impact five resources. These resources have not yet been formally evaluated for eligibility. They are located along the Wiley Well access road west of the proposed CRS site (see Table D.3-1). Because these sites would be impacted for the Proposed Project and all alternatives, they are not included in the comparative discussion of cultural resources in Section F or Appendix 1 (Alternatives Screening Report).

Environmental Impacts and Mitigation Measures for Avoidance Alternative #1

Construction Impacts

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

Three cultural resources potentially eligible for National Register listing occur within and adjacent to areas that could be impacted by ground-disturbing activities for Avoidance Alternative #1. Some of these sites would be impacted by one or more of the following actions: construction of the new substation, placement of transmission poles, excavation for transmission lines, construction and use of access through-roads, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. Some of these sites may be eligible for listing on the NRHP, but have not been evaluated.

Unavoidable direct impacts may occur to known archaeological resources within and in the vicinity of the Avoidance Alternative #1 during construction. Any ground-disturbing activity has the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads. Adverse effects to individual sites cannot be precisely identified for all substation components until the detailed engineering plans for all roads, transmission lines, and facilities are completed, and final NRHP eligibility of cultural resources has been assessed (as required under Mitigation Measure C-1a). For purposes of this impact analysis, it is presumed that all archaeological sites in the alternative area are CRHR-eligible historical resources, and that construction impacts cannot be avoided.

In many cases, direct impacts may be avoided through minor design modifications and project effects would be reduced to a less than significant level (Class II) through implementation of the following mitigation measures: Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (Develop and implement Historic Properties Treatment Plan), C-1e (Monitor construction), and C-1f (Train construction personnel). However, it is important to note that if direct impacts to NRHP properties eligible under Criterion d (significant data potential) are unavoidable, mitigation through data recovery would reduce impacts (under Mitigation Measure C-1d), but, under the NHPA regulations, effects would still be considered significant (Class I). Likewise, for properties eligible for the NRHP under Criteria a, b, or c, data recovery could not reduce impacts to a less than significant level and effects would be considered significant (Class I).

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.

C-1f Train construction personnel.

Impact C-2: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or No Impact)

The potential to discover unanticipated cultural resources during construction exists throughout Avoidance Alternative #1 and could result in adverse effects to cultural resources. If unanticipated sites, features, and/or artifacts were discovered as a result of construction, and those are determined to be NRHP-eligible at the time of discovery, there would be an adverse effect. Adverse effects could be reduced by data-recovery investigations, but, by virtue of the fact that such resources would be discovered after final project design and engineering, avoidance and protection of such resources would be infeasible. Therefore, if NRHP-eligible resources are impacted during construction, even after data recovery, effects would be considered significant (Class I), under the regulations in the NHPA.

The potential to discover unknown buried Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features during construction could exist, resulting in adverse effects. If unanticipated buried Native American human remains or sacred features were discovered as a result of construction, then there would be a significant and unavoidable impact to the remains (Class I), a significant adverse effect under the regulations in the NHPA.

Although impacts would be significant and unavoidable, implementation of the following mitigation measures would reduce the severity of impacts to the extent feasible. Mitigation Measures 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) and C-2a (Consult agencies and Native Americans) from the DPV2 Final EIR/EIS shall be implemented by the Applicant to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites and buried Native American human remains.

Mitigation Measures for Impact C-2: Construction of the project could 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-1e Monitor construction.

C-1f Train construction personnel.

C-2a Consult agencies and Native Americans.

Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I, Class II or No Impact)

The BLM, as the federal Lead Agency under NEPA, has initiated required 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 TCPs in this alternative to the Proposed Project that could be affected and the significance of any project effects. Implementation of Mitigation Measure C-3a (Complete consultation with Native American and other Traditional Groups) would reduce impacts to TCPs to a level that is less than significant (Class II); however, in some cases impacts to TCPs would remain significant (Class I), even after mitigation. This mitigation measure would require Native American consultation and appropriate treatment of Native American resource values.

Mitigation Measure for Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-3a Complete consultation with Native American and other Traditional Groups.

Operational Impacts

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

There are three known archaeological sites within the Avoidance Alternative #1; others may be identified during additional surveys or during construction. Some sites that can be successfully protected from direct construction impacts could be impacted by operation, maintenance, and long-term presence of the Proposed Project. Direct impacts could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. This impact is potentially significant, but would be mitigated to a level that is less than significant (Class II) through implementation of Mitigation Measure C-5a (Protect and monitor NRHP-eligible properties), in addition to Mitigation Measures C-2a (Consult agencies and Native Americans) and C-3a (Complete consultation with Native American and other Traditional Groups) from the DPV2 Final EIR/EIS (CPUC, 2006).

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-2a Consult agencies and Native Americans.

C-3a Complete consultation with Native American and other Traditional Groups.

C-5a(rev) Protect and monitor NRHP-eligible properties.

D.3.8 Avoidance Alternative #2

Environmental Setting

Based on the complete intensive pedestrian surveys performed by Applied Earthworks in December 2010 through January 2011,[9] the Avoidance Alternative #2 has a potential for causing a significant

[9] A cultural report entitled "Class III Cultural Resources Survey for the Colorado River Substation Alternatives Analysis" has been prepared by Applied Earthworks (March 2011). The survey report is in draft form and will be finalized as soon as site numbers are obtained from the Eastern Information Center.

impact on one archaeological resource within the site itself and three known archaeological resource in the study area buffer,[10] Site AE-DEV-20H, a small scatter of milled lumber and a few historic-period artifacts would need to be actively avoided. None of the four resources have been formally evaluated for eligibility for listing on the NRHP or the CRHR. If they are found to be eligible and cannot be avoided, construction impacts may need to be mitigated. For this analysis, it is presumed that all archaeological sites in the alternative area are CRHR-eligible.

The Avoidance Alternative #2 footprint would have fewer impacts to cultural resources than the Proposed Project substation footprint itself. It would impact only one unevaluated site, while the Proposed Project would impact four unevaluated site (7 total documented resources). However, within the study area that includes the transmission and gen-tie interconnections and access roads, the Proposed Project and Avoidance Alternative #2 would both impact four unevaluated resources.

In addition to the sites described above, the Proposed Project and all alternatives would directly impact five resources. These resources have not yet been formally evaluated for eligibility. They are located along the Wiley Well access road west of the proposed CRS site (see Table D.3-1). Because these sites would be impacted for the Proposed Project and all alternatives, they are not included in the comparative discussion of cultural resources in Section F or Appendix 1 (Alternatives Screening Report).

Environmental Impacts and Mitigation Measures for Avoidance Alternative #2

Construction Impacts

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

One cultural resource potentially eligible for National Register listing occurs in an area that could be impacted by ground-disturbing activities for Avoidance Alternative #2. This site could be impacted by one or more of the following actions: construction of the new substation, placement of transmission poles, excavation for transmission lines, construction and use of access through-roads, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. This site may be eligible for listing on the NRHP, but has not been evaluated.

Unavoidable direct impacts may occur to the known archaeological resource within the Avoidance Alternative #2 during construction. Any ground-disturbing activity has the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads. Adverse effects to individual sites cannot be precisely identified for all substation components until the detailed engineering plans for all roads, transmission lines, and facilities are completed, and final NRHP eligibility of cultural resources has been assessed (as required under Mitigation Measure C-1a). For purposes of this impact analysis, it is presumed that all archaeological sites in the affected area are CRHR-eligible historical resources, and that construction impacts cannot be avoided.

In many cases, direct impacts may be avoided through minor design modifications and project effects would be reduced to a less than significant level (Class II) through implementation of the following mitigation measures: Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (Develop and implement Historic Properties Treatment Plan), C-1e (Monitor construction), and C-1f (Train

[10] The overall area surveyed for alternatives includes the site as well as the area of potential access road expansion and gen-tie/transmission interconnection. Because the specific locations of these features have not yet been defined for alternatives, survey results include resources within a buffer around the substation site.

construction personnel). However, it is important to note that if direct impacts to NRHP properties eligible under Criterion d (significant data potential) are unavoidable, mitigation through data recovery would reduce impacts (under Mitigation Measure C-1d), but, under the NHPA regulations, effects would still be considered significant (Class I). Likewise, for properties eligible for the NRHP under Criteria a, b, or c, data recovery could not reduce impacts to a less than significant level and effects would be considered significant (Class I).

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.

C-1f Train construction personnel.

Impact C-2: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or No Impact)

The potential to discover unanticipated cultural resources during construction exists within the Avoidance Alternative #2 and could result in adverse effects to cultural resources. If unanticipated sites, features, and/or artifacts were discovered as a result of construction, and those are determined to be NRHP-eligible at the time of discovery, there would be an adverse effect. Adverse effects could be reduced by data-recovery investigations, but, by virtue of the fact that such resources would be discovered after final project design and engineering, avoidance and protection of such resources would be infeasible. Therefore, if NRHP-eligible resources are impacted during construction, even after data recovery, effects would be considered significant (Class I), under the regulations in the NHPA.

The potential to discover unknown buried Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features during construction could exist, resulting in adverse effects. If unanticipated buried Native American human remains or sacred features were discovered as a result of construction, then there would be a significant and unavoidable impact to the remains (Class I), a significant adverse effect under the regulations in the NHPA.

Although impacts would be significant and unavoidable, implementation of the following mitigation measures would reduce the severity of impacts to the extent feasible. Mitigation Measures 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) and C-2a (Consult agencies and Native Americans) from the DPV2 Final EIR/EIS shall be implemented by the Applicant to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites and buried Native American human remains.

Mitigation Measures for Impact C-2: Construction of the project could 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-1e Monitor construction.

C-1f Train construction personnel.

C-2a Consult agencies and Native Americans.

Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I, Class II or No Impact)

The BLM, as the Lead Agency under NEPA, has initiated required 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 TCPs in this alternative to the Proposed Project that could be affected and the significance of any project effects. Implementation of Mitigation Measure C-3a (Complete consultation with Native American and other Traditional Groups) would reduce impacts to TCPs to a level that is less than significant (Class II); however, in some cases impacts to TCPs would remain significant (Class I), even after mitigation. This mitigation measure would require Native American consultation and appropriate treatment of Native American resource values.

Mitigation Measure for Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-3a Complete consultation with Native American and other Traditional Groups.

Operational Impacts

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

There is one known archaeological site within Avoidance Alternative #2; others may be identified during additional surveys or during construction. Some sites that can be successfully protected from direct construction impacts could be impacted by operation, maintenance, and long-term presence of the Proposed Project. Direct impacts could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. This impact is potentially significant, but would be mitigated to a level that is less than significant (Class II) through implementation of Mitigation Measure C-5a (Protect and monitor NRHP-eligible properties), in addition to Mitigation Measures C-2a (Consult agencies and Native Americans) and C-3a (Complete consultation with Native American and other Traditional Groups) from the DPV2 Final EIR/EIS.

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-2a Consult agencies and Native Americans.

C-3a Complete consultation with Native American and other Traditional Groups.

C-5a(rev) Protect and monitor NRHP-eligible properties.

D.3.9 Avoidance Alternative #3

Environmental Setting

Based on the complete, intensive pedestrian surveys performed by Applied Earthworks in December 2010 through January 2011,[11] the Avoidance Alternative #3 proposed Colorado River Substation Expansion would have a significant direct impact on eight known archaeological resources within the site itself and seven known archaeological resource in the study area buffer,[12] Three of the sites are low-density lithic scatters (AE-DEV-07, AE-DEV-13, and AE-DEV-14), three are small DTC refuse scatters, and two others (AE-DEV-11/H and AE-DEV-12/H) contain both DTC refuse and sparse lithic scatters. Most of these sites would be destroyed during construction of the substation. None of the 15 resources evaluated in this document have been formally evaluated for eligibility for listing on the NRHP or the CRHR. Five are potential contributors to the DTC Cultural Landscape, and as such may be eligible for listing on the NRHP and CRHR. Construction damage may need to be mitigated if the sites are determined to be eligible for the NRHP or CRHR. For this analysis, it is presumed that all archaeological sites in the alternative area are CRHR-eligible.

The Avoidance Alternative #3 footprint would have substantially more impact to cultural resources than the Proposed Project substation footprint. It would impact 15 unevaluated sites, while the Proposed Project would impact four. In addition to the sites described above, the Proposed Project and all alternatives would directly impact five resources. These resources have not yet been formally evaluated for eligibility. They are located along the Wiley Well access road west of the proposed CRS site (see Table D.3-1). Because these sites would be impacted for the Proposed Project and all alternatives, they are not included in the comparative discussion of cultural resources in Section F or Appendix 1 (Alternatives Screening Report).

Environmental Impacts and Mitigation Measures for Avoidance Alternative #3

Construction Impacts

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

Eight cultural resources potentially eligible for National Register listing occur within and adjacent to areas that could be impacted by ground-disturbing activities for Avoidance Alternative #3. Some of these sites would be impacted by one or more of the following actions: construction of the new substation, placement of transmission poles, excavation for transmission lines, construction and use of access through-roads, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. Some of these sites may be eligible for listing on the NRHP, but have not been evaluated.

[11] A cultural report entitled "Class III Cultural Resources Survey for the Colorado River Substation Alternatives Analysis" has been prepared by Applied Earthworks (March 2011). The survey report is in draft form and will be finalized as soon as site numbers are obtained from the Eastern Information Center.

[12] The overall area surveyed for alternatives includes the site as well as the area of potential access road expansion and gen-tie/transmission interconnection. Because the specific locations of these features have not yet been defined for alternatives, survey results include resources within a buffer around the substation site.

Unavoidable direct impacts may occur to known archaeological resources within and in the Avoidance Alternative #3 during construction. Any ground-disturbing activity has the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads. Adverse effects to individual sites cannot be precisely identified for all substation components until the detailed engineering plans for all roads, transmission lines, and facilities are completed, and final NRHP eligibility of cultural resources has been assessed (as required under Mitigation Measure C-1a). For purposes of this impact analysis, it is presumed that all archaeological sites in the alternative site area are CRHR-eligible historical resources, and that construction impacts cannot be avoided.

In many cases, direct impacts may be avoided through minor design modifications and project effects would be reduced to a less than significant level (Class II) through implementation of the following mitigation measures: Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (Develop and implement Historic Properties Treatment Plan), C-1e (Monitor construction), and C-1f (Train construction personnel). However, it is important to note that if direct impacts to NRHP properties eligible under Criterion d (significant data potential) are unavoidable, mitigation through data recovery would reduce impacts (under Mitigation Measure C-1d), but, under the NHPA regulations, effects would still be considered (Class I). Likewise, for properties eligible for the NRHP under Criteria a, b, or c, data recovery could not reduce impacts to a less than significant level and effects would be considered significant (Class I).

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.

C-1f Train construction personnel.

Impact C-2: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or No Impact)

The potential to discover unanticipated cultural resources during construction exists throughout Avoidance Alternative #3 and could result in adverse effects to cultural resources. If unanticipated sites, features, and/or artifacts were discovered as a result of construction, and those are determined to be NRHP-eligible at the time of discovery, there would be an adverse effect. Adverse effects could be reduced by data-recovery investigations, but, by virtue of the fact that such resources would be discovered after final project design and engineering, avoidance and protection of such resources would be infeasible. Therefore, if NRHP-eligible resources are impacted during construction, even after data recovery, effects would be considered significant (Class I), under the regulations in the NHPA.

The potential to discover unknown buried Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features during construction could exist, resulting in adverse effects. If unanticipated buried Native American human remains or sacred features were discovered as a result of construction, then there would be a significant and unavoidable impact to the remains (Class I), a significant adverse effect under the regulations in the NHPA.

Although impacts would be significant and unavoidable, implementation of the following mitigation measures would reduce the severity of impacts to the extent feasible. Mitigation Measures 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) and C-2a (Consult agencies and Native Americans) from the DPV2 Final EIR/EIS shall be implemented by the Applicant to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites and buried Native American human remains.

Mitigation Measures for Impact C-2: Construction of the project could 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-1e Monitor construction.

C-1f Train construction personnel.

C-2a Consult agencies and Native Americans.

Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I, Class II or No Impact)

The BLM, as the federal Lead Agency under NEPA, has initiated required 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 TCPs in this alternative to the Proposed Project that could be affected and the significance of any project effects. Implementation of Mitigation Measure C-3a (Complete consultation with Native American and other Traditional Groups) would reduce impacts to TCPs to a level that is less than significant (Class II); however, in some cases impacts to TCPs would remain significant (Class I), even after mitigation. This mitigation measure would require Native American consultation and appropriate treatment of Native American resource values.

Mitigation Measure for Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-3a Complete consultation with Native American and other Traditional Groups.

Operational Impacts

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

There are 8 known archaeological sites within Avoidance Alternative #3; others may be identified during additional surveys or during construction. Some sites that can be successfully protected from direct construction impacts could be impacted by operation, maintenance, and long-term presence of the Proposed Project. Direct impacts could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. This impact is potentially significant, but would be mitigated to a level that is less than significant (Class II) through implementation of Mitigation Measure C-5a (Protect and monitor NRHP-eligible properties), in addition to Mitigation Measures C-2a (Consult agencies

and Native Americans) and C-3a (Complete consultation with Native American and other Traditional Groups) from the DPV2 Final EIR/EIS (CPUC, 2006).

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-2a Consult agencies and Native Americans.

C-3a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP-eligible properties.

D.3.10 Southern Alternative

Environmental Setting

Based on the complete, intensive pedestrian surveys performed by Applied Earthworks in December 2010 through January 2011,[13] the Southern Alternative would have a significant direct impact on five known archaeological resources within the site itself as well as five known archaeological resource in the study area buffer,[14] In addition, two prehistoric isolated artifacts within the site and one in the buffer study area were found that are not significant. One site (AE-DEV-49) is a prehistoric ceramic scatter, one is a DTC can scatter (AE-DEV-01H), and three are multi-component sites (AE-DEV-02/H, AE-DEV-48/H, and AE-DEV-50/H) that contain DTC refuse and either prehistoric ceramic or lithic scatters. All five resources would likely be destroyed during substation construction.

None of the ten resources for the Southern Alternative have been formally evaluated for eligibility for listing on the NRHP or the CRHR. Four are potential contributors to the DTC Cultural Landscape, and as such may be eligible for listing on the NRHP and CRHR. Construction damage may need to be mitigated if the sites are determined to be eligible for the NRHP or CRHR. For this analysis, it is presumed that all archaeological sites in the alternative site area are CRHR-eligible.

The Southern Alternative footprint would have more impact to cultural resources than the Proposed Project substation footprint. It would impact 10 unevaluated sites, while the Proposed Project would impact four. In addition to the sites described above, the Proposed Project and all alternatives would directly impact five resources. These resources have not yet been formally evaluated for eligibility. They are located along the Wiley Well access road west of the proposed CRS site (see Table D.3-1). Because these sites would be impacted for the Proposed Project and all alternatives, they are not included in the comparative discussion of cultural resources in Section F or Appendix 1 (Alternatives Screening Report).

[13] A cultural report entitled "Class III Cultural Resources Survey for the Colorado River Substation Alternatives Analysis" has been prepared by Applied Earthworks (March 2011). The survey report is in draft form and will be finalized as soon as site numbers are obtained from the Eastern Information Center.

[14] The overall area surveyed for alternatives includes the site as well as the area of potential access road expansion and gen-tie/transmission interconnection. Because the specific locations of these features have not yet been defined for alternatives, survey results include resources within a buffer around the substation site.

Environmental Impacts and Mitigation Measures for the Southern Alternative

Construction Impacts

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

Five cultural resources potentially eligible for National Register listing occur within and adjacent to areas that could be impacted by ground-disturbing activities for the Southern Alternative. Some of these sites would be impacted by one or more of the following actions: construction of the new substation, placement of transmission poles, excavation for transmission lines, construction and use of access through-roads, transportation, storage, and maintenance of construction equipment and supplies, staging area and material yard preparation and use, and use or improvement of existing access roads. Some of these sites may be eligible for listing on the NRHP, but have not been evaluated.

Unavoidable direct impacts may occur to known archaeological resources within and in the vicinity of the Southern Alternative during construction. Any ground-disturbing activity has the potential to disturb known cultural resources. Impacts could also result from inadvertent trespass out of designated work areas or roads. Adverse effects to individual sites cannot be precisely identified for all substation components until the detailed engineering plans for all roads, transmission lines, and facilities are completed, and final NRHP eligibility of cultural resources has been assessed (as required under Mitigation Measure C-1a). For purposes of this impact analysis, it is presumed that all archaeological sites in the alternative site area are CRHR-eligible historical resources, and that construction impacts cannot be avoided.

In many cases, direct impacts may be avoided through minor design modifications and project effects would be reduced to a less than significant level (Class II) through implementation of the following mitigation measures: Mitigation Measures C-1b (Avoid and protect potentially significant resources), C-1c (Develop and implement Historic Properties Treatment Plan), C-1e (Monitor construction), and C-1f (Train construction personnel). However, it is important to note that if direct impacts to NRHP properties eligible under Criterion d (significant data potential) are unavoidable, mitigation through data recovery would reduce impacts (under Mitigation Measure C-1d), but, under the NHPA regulations, effects would still be considered significant (Class I). Likewise, for properties eligible for the NRHP under Criteria a, b, or c, data recovery could not reduce impacts to a less than significant level and effects would be considered significant (Class I).

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.

C-1f Train construction personnel.

Impact C-2: Construction of the project could cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains (Class I or No Impact)

The potential to discover unanticipated cultural resources during construction exists throughout the Southern Alternative and could result in adverse effects to cultural resources. If unanticipated sites, features, and/or artifacts were discovered as a result of construction, and those are determined to be NRHP-eligible at the time of discovery, there would be an adverse effect. Adverse effects could be reduced by data-recovery investigations, but, by virtue of the fact that such resources would be discovered after final project design and engineering, avoidance and protection of such resources would be infeasible. Therefore, if NRHP-eligible resources are impacted during construction, even after data recovery, effects would be considered significant (Class I), under the regulations in the NHPA.

The potential to discover unknown buried Native American human remains or sacred features, in the form of primary inhumations, cremations, ceremonial bundles, or mourning ceremony features during construction could exist, resulting in adverse effects. If unanticipated buried Native American human remains or sacred features were discovered as a result of construction, then there would be a significant and unavoidable impact to the remains (Class I), an significant adverse effect under the regulations in the NHPA.

Although impacts would be significant and unavoidable, implementation of the following mitigation measures would reduce the severity of impacts to the extent feasible. Mitigation Measures 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) and C-2a (Consult agencies and Native Americans) from the DPV2 Final EIR/EIS shall be implemented by the Applicant to ensure discovery, evaluation, and treatment of unknown buried prehistoric and historical archaeological sites and buried Native American human remains.

Mitigation Measures for Impact C-2: Construction of the project could 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-1e Monitor construction.

C-1f Train construction personnel.

C-2a Consult agencies and Native Americans.

Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties (Class I, Class II or No Impact)

The BLM, as the federal Lead Agency under NEPA, has initiated required 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 TCPs in this alternative to the Proposed Project that could be affected and the significance of any project effects. Implementation of Mitigation Measure C-3a (Complete consultation with Native American and other Traditional Groups) would reduce impacts to TCPs to a level that is less than significant (Class II); however, in some cases impacts to TCPs would remain significant (Class I), even after mitigation. This mitigation measure would require Native American consultation and appropriate treatment of Native American resource values.

Mitigation Measure for Impact C-3: Construction of the project could cause an adverse change to Traditional Cultural Properties

C-3a Complete consultation with Native American and other Traditional Groups.

Operational Impacts

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

There are five known archaeological sites within the Southern Alternative; others may be identified during additional surveys or during construction. Some sites that can be successfully protected from direct construction impacts could be impacted by operation, maintenance, and long-term presence of the Southern Alternative. Direct impacts could result from maintenance or repair activities, while increased erosion could result as an indirect project impact. This impact is potentially significant, but would be mitigated to a level that is less than significant (Class II) through implementation of Mitigation Measure C-5a (Protect and monitor NRHP-eligible properties), in addition to Mitigation Measures C-2a (Consult agencies and Native Americans) and C-3a (Complete consultation with Native American and other Traditional Groups) from the DPV2 Final EIR/EIS (CPUC, 2006).

Mitigation Measures for Impact C-5: Operation and long-term presence of the project could cause an adverse change to known historic properties

C-2a Consult agencies and Native Americans.

C-3a Complete consultation with Native American and other Traditional Groups.

C-5a Protect and monitor NRHP-eligible properties.

D.3.11 No Project Alternative

Environmental Setting

The environmental setting of the scenario defined for the No Project Alternative (Section C.6) would incorporate the project area of the proposed substation expansion, as well as the project areas for the interconnecting solar projects (BSPP and GESP) and the transmission line routes between those solar fields and the CRS. These environmental setting defined in Section D.3.1 applies to this area as well as to the Proposed Project.

Environmental Impacts and Mitigation Measures for the No Project Alternative

The "No Project" analysis compares the environmental effects of constructing the Colorado River Substation as previously approved against environmental effects which would occur if the proposed expansion is approved. The environmental effects of constructing the substation as previously approved and associated mitigation are described in Section D of the original DPV2 EIR/EIS (CPUC/BLM, 2006).

In addition to the construction of the already-approved 44-acre substation at the CRS site, the No Project scenario would require additional construction for expanded substations at the solar project sites or adjacent to existing Blythe area substations. It would also require revised and likely expanded rights-of-way for 500 kV transmission gen-tie lines (rather than the 230 kV gen-tie lines that are proposed).

The approved 500 kV transmission from Colorado River Substation to Devers Substation would be constructed as already approved by the CPUC (and as anticipated to be approved by the BLM). These impacts are defined in the DPV2 Final EIR/EIS.

Although it is not possible to define these impacts with any specificity because no designs are available to identify the impact areas, the No Project Alternative would require construction of additional and higher voltage transmission lines and substation expansions with impacts similar to those described for the Proposed Project. While the CRS expansion would not occur in this scenario, the required replacement infrastructure would be substantially more extensive, because it would not be centralized at this one substation. In the No Project scenario, there is the likelihood that both the GSEP and BSPP developers would have to construct separate 220/500 kV substations, and also additional transmission lines would have to be constructed from those substations to the CRS. In addition, SCE, Western Area Power Administration, or the solar generators may pursue the expansion of an existing substation in the Blythe area (the Buck and Blythe Substations are located near the Blythe power plant). This expanded substation could transform the gen-tie lines from 230 to 500 kV, and then a new 500 kV line would be constructed to the CRS.

All of these actions would result in additional ground disturbance, which would increase the chance of encountering cultural resources during construction and would result in more severe cultural resources impacts than for the Proposed Project.

D.4 Hydrology and Water Resources

D.4.1 Environmental Setting for the Proposed Project

Climate and General Setting

The Proposed Project refinements are located in the southern California's Colorado Desert, southwest of Blythe. Climate in this area is characterized by relatively high daytime temperatures, large variations in relative humidity, large and rapid diurnal temperature changes, occasional high winds, and sand, dust, and thunderstorms characterize the climate of the Colorado Desert area (CEC, 2010a). The highest monthly average high temperature in Blythe is 109°F in July and the lowest average monthly low temperature is 39°F in January and December (WC, 2010). Total rainfall in Blythe averages just less than four inches per year with about 50% of the total rainfall occurring during the December through March winter rainy season, and about 30% occurring during the August/September summer monsoon season. Rainfall during the summer monsoon is characterized by brief, intense, local summer thunderstorms. Winter storms are more widespread, longer in duration, and generally with relatively lower rainfall temperatures.

Wind data from the Blythe Airport for the years 2002 to 2004 indicates the highest wind direction frequencies for the annual, winter, spring, and fall periods are from the west through the southwest (CEC, 2010a).

Surface Water

Surface water in the project area includes both ephemeral/seasonal features as well as perennial features. Perennial water is limited to McCoy Spring in the McCoy Mountains, north of the project refinements, and the Colorado River, approximately 17 miles east of the expansion project. Streams and watercourses in the area are primarily desert washes with no water during most of the year. These desert washes are typically sandy or rocky bed streams lined on the sides with desert riparian vegetation. The washes can be very numerous across the alluvial plains downstream of area mountains. Adjacent washes

on these alluvial "fans" may all have the same mountain source, with flow from the mountains potentially entering many channels that run adjacent to each other. Flow in these alluvial plain washes is typically heavily laden with sediment, and erosion of the wash banks and shifting of channel beds is common. The desert valleys are generally wide and flat, with watercourses, particularly in areas with large drainage areas, being hundreds of feet wide. Flows on these washes are very shallow, although there is generally one or more incised channel. Channel bed material and sides in the valley bottoms can be very fine silts and clays, with potential for erosion on very large flows in the incised channels.

Floodplains

In addition to the surface waters described above, floodplains are an important part of the hydrologic network. A floodplain is a geographic area of relatively level land that is occasionally subject to inundation by surface water from rivers or streams that occur within the floodplain. A "100-year flood" refers to the maximum level of water that is expected to inundate a floodplain ten times every 1,000 years. The Federal Emergency Management Agency (FEMA) has estimated boundaries for 100-year floodplains and created Flood Insurance Rate Maps (FIRMs), which define the predicted boundaries of 100-year floods. FEMA refers to 100-year floodplains as "Flood Hazard Areas." All natural watercourses have floodplains, whether delineated or not. The Proposed Project site has not been mapped as a FEMA-designated Flood Hazard Area. However, the absence of a delineated floodplain does not necessarily mean the flood or erosion hazard is nonexistent.

Groundwater

The Proposed Project is located within the boundaries of the Chuckwalla Valley Groundwater Basin, which would be used to meet the project's water demand. The Chuckwalla Valley Groundwater Basin underlies the Palen and Chuckwalla Valleys in eastern Riverside County, and has a surface area of approximately 940 square miles, of 605,000 acres. The basin is bounded by consolidated rocks of the Chuckwalla, Little Chuckwalla, and Mule Mountains on the south, of the Eagle Mountains on the west, and of the Mule and McCoy Mountains on the east. Rocks of the Coxcomb, Granite, Palen, and Little Maria Mountains bound the valley on the north. Water-bearing features include Pliocene to Quaternary age continental deposits divided into Quaternary alluvium, the Pinto Formation, and the Bouse Formation. (DWR, 2004)

Groundwater Budget. The total storage capacity of the Chuckwalla Valley Groundwater Basin, or the maximum amount of water that can be stored in an aquifer, is estimated by the California Department of Water Resources (DWR) to be approximately 9,100,000 acre-feet (af) (DWR, 2004). The DWR also estimates that approximately 900,000 af of groundwater were available in storage within the upper 100 feet of saturated sediments in 1975 (DWR, 2004). The DWR also reports that in 1952, extractions from the Chuckwalla Valley Groundwater Basin totaled 11 af, increasing to 9,100 af in 1966 (DWR, 2004), representing an increase of approximately 816 percent in 14 years. However, the DWR presents no estimate of safe yield for the Chuckwalla Valley Groundwater Basin. Safe yield is the amount of groundwater that can be withdrawn from an aquifer on a sustained basis, economically and legally, without impairing groundwater quality or creating an undesirable effect such as environmental damage (C. W. Fetter, 2001).

Factors that have developed since 1975 that could affect the quantity of groundwater currently in storage include but are not limited to: climatic conditions, ground cover and/or land use patterns, and new groundwater uses. In order to estimate the safe yield of a groundwater basin, the basin's hydrologic budget should be characterized. The "hydrologic budget" is the accounting for all inflows to, outflows from, and storage within a defined unit. Environmental analyses conducted for other projects located within the surface area of the Chuckwalla Valley Groundwater Basin have characterized the hydrologic budget and safe yield for the basin using more recent data than the DWR's 1975 Bulletin 118, noted

above. The Revised Staff Assessment prepared by the California Energy Commission (CEC) for the GSEP (CEC, 2010b) describes the safe yield was estimated to be between 10,000 and 20,000 acre-feet per year (afy) in 1992, although this estimation is low because it only considered recharge from precipitation in a portion of the basin (CEC, 2010b).

In order to develop a realistic estimate of safe yield, CEC conducted a detailed hydrologic budget analysis of the Chuckwalla Valley Groundwater Basin, using data compiled from published literature, the DWR, and the California State Prison Authority,[15] and accounting for all potential sources of inflow and outflow to the basin. This analysis accounted for inflow from the following sources: recharge from precipitation; subsurface flow from adjacent/hydrologically connected groundwater basins; agricultural return flow (infiltration of irrigation water); and return flow from treated wastewater disposal. Outflow was accounted for by assessing the following: current uses of groundwater (agricultural, state prisons, Tamarisk Lake development and golf course, domestic, and utilities); subsurface outflow to adjacent / hydrologically connected groundwater basins; rates of surface water runoff (used to calculate rates of infiltration); and evapotranspiration at Palen Lake. The results of this comprehensive analysis are presented in Table D.4-1. (CEC, 2010b).

The analysis summarized in Table D.4-1 reasonably characterizes the current hydrologic budget for the Chuckwalla Valley Groundwater Basin by accounting for all sources of inflow and outflow to the basin, including other uses of groundwater that have developed since the DWR's 1975 Bulletin 118, and by utilizing all available sources of data relevant to the basin (CEC, 2010b, pages C.9-19 – C.9-27). Table D.4-1 indicates that the budget balance, or total outflow subtracted from total inflow, is approximately 2,608 afy. This means that each year, approximately 2,608 afy of water may be withdrawn from the basin without resulting in overdraft conditions. In other words, the current safe yield of the Chuckwalla Valley Groundwater Basin is 2,608 afy. This figure is used in the analysis below to determine whether sufficient groundwater is currently available to meet the demands of the Proposed Project.

Table D.4-1. Estimated Budget for the Chuckwalla Valley Groundwater Basin

Budget Components	Acre-Feet per Year
Inflow	
Recharge from Precipitation	8,588
Underflow from Pinto Valley and Orocopia Valley Groundwater Basins	3,500
Irrigation Return Flow	800
Wastewater Return Flow	831
Total Inflow	13,719
Outflow	
Groundwater Extraction	–10,361
Underflow to Palo Verde Mesa Groundwater Basin	–400
Evapotranspiration at Palen Dry Lake	–350
Total Outflow	–11,111
Budget Balance (Inflow – Outflow)	2,608

Source: CEC, 2010b.

[15] The Chuckwalla State Prison was constructed in 1988 and the Ironwood State Prison became operational in 1994; both of these prisons are located within the surface area of the Chuckwalla Valley Groundwater Basin and use unlined ponds to dispose of treated wastewater, which infiltrates into the subsurface and recharges groundwater supplies in the Chuckwalla Valley Groundwater Basin (CEC, 2010b).

Groundwater level trends in the Proposed Project area appear to have been stable between the years of approximately 2000 and 2009, and groundwater levels do not decline during a below-normal hydrologic cycle, indicating that the Chuckwalla Groundwater Basin is not in overdraft conditions (overdraft conditions occur when the quantity of water removed from a groundwater basin exceeds the rate of recharge to that basin). This conclusion is also supported by the estimated groundwater budget provided in Table D.4-1 (Estimated Budget for the Chuckwalla Valley Groundwater Basin), which indicates an available supply of approximately 2,600 afy.

Groundwater Quality. Groundwater quality varies throughout the Chuckwalla Valley Groundwater Basin. South and west of Palen Lake, groundwater is typically sodium chloride to sodium sulfate-chloride in character. Total Dissolved Solids (TDS) concentrations across the basin range from 274 to 12,300 mg/L (DWR, 2004). Detected concentrations of TDS in the basin range from 274 milligrams per liter (mg/L) to 8,150 mg/L with an average concentration of 2,100 mg/L (CEC, 2010b). Sulfate, chloride, fluoride, and TDS concentrations are high for domestic use, while boron, TDS, and sodium concentrations are high for irrigation use (DWR, 2004). Actual TDS levels in the groundwater below the CRS site would be determined during installation of the well.

Appropriative Rights. The U.S. Geological Survey (USGS) has indicated that the Chuckwalla Valley Groundwater Basin is within a basin tributary to the Colorado River, and that wells drawing groundwater within those groundwater basins could be considered to be withdrawing water from the Colorado River Aquifer (CEC, 2010b). The Colorado River is managed under numerous laws and court decisions collectively known as the "Law of the River" (USBR, 2008). Per the Law of the River, the Boulder Canyon Project Act of 1928 appropriated water in the lower basin (where the Proposed Project is located), and identified the Secretary of the Interior as the sole contracting authority for use of Colorado River water in the lower basin (USBR, 2008). This means that any use of Colorado River water must be done so under an appropriative right appointed by the Secretary of the Interior. An appropriative right is an entitlement to a specific amount of water, for a specified use, at a specific location with a definite date of priority; appropriative rights depend upon continued use of the water (rights may be lost through non-use), and these rights can generally be sold or transferred (NSTC, 2010).

As mentioned, the Chuckwalla Valley Groundwater Basin is hydrologically connected to the Colorado River and groundwater withdrawn from this basin could be considered Colorado River water. Per the discussion of inflow to the Chuckwalla Valley Groundwater Basin provided above (see "Groundwater Budget" and Table D.4-1), this groundwater basin receives inflow from multiple different sources, which indicates that groundwater in storage is not 100 percent Colorado River water, which would require an appropriative right/entitlement for use. Colorado River water is discussed below, under Impact H-7 (Construction activities would deplete groundwater supplies or interfere with groundwater recharge).

D.4.2 Applicable Regulations, Plans, and Standards

All regulations, plans, and standards relevant to hydrology and water resources as described in the 2006 Final EIR/EIS for DPV2 are applicable to this Supplemental EIR, including the following: the federal Clean Water Act (33 U.S.C. Section 1251 et seq.), California Fish and Game Code (Section 1601, California Streambed Alteration Agreement), and California Porter Cologne Water Quality Control Act. The Proposed Project is located within the jurisdiction of the County of Riverside and the Colorado River Regional Water Quality Control Board (RWQCB).

Section B.3.2 (Project Components) of this Supplemental EIR describes that the Proposed Project would include a stormwater detention basin and septic system that would be fully permitted and subject to

conditions of the County of Riverside (County). The County's Flood Control and Water Conservation District has published a Design Handbook for Stormwater Quality Best Management Practices which specifies design procedures and Best Management Practices for new development and redevelopment within the County, including for detention basins such as would be implemented under the Proposed Project (County of Riverside, 2006). In addition, under the Community Health Agency of the County, the Department of Environmental Health has published a Technical Guidance Manual for "Onsite Wastewater Treatment Systems" which provides guidance to assist contractors, designers, engineers, and installers in the design and installation of treatment systems including septic systems and leach fields (County of Riverside, 2011).

The septic system and leach fields for the Proposed Project will be constructed in accordance with all applicable requirements of Riverside County, including those listed below.

- Ordinance 650.5 (amending Ordinance 650, which regulates the discharge of sewage in unincorporated areas of the County of Riverside and incorporates by reference Ordinance 725),
- Title 15 Section 15.24.010 (the Uniform Plumbing Code) Appendix K for Private Sewage Disposal – General and Disposal Fields, and
- Title 8 Section 8.124.030 (Approval and Construction Permit for Sewage Discharge) and Section 8.124.050 (Operation Permit for Sewage Disposal).

As mentioned above and in Chapter B of this Supplemental EIR, the Proposed Project would be implemented in compliance with all applicable laws and regulations, including local policies. Potential environmental impacts associated with the detention basin and septic system are addressed under Impacts H-3 (Increased runoff from new impervious areas resulting in flooding or increased erosion downstream) and H-5 (Excavation could degrade groundwater quality), respectively.

The 2006 Final EIR/EIS did not identify local Hydrology and Water Resources regulations specific to Riverside County; therefore, County policies are addressed in this Supplemental EIR, and presented below in Table D.4-2.

Table D.4-2. Riverside County General Plan Policies Relevant to Hydrology and Water Resources

Policy #	Text	Notes
Water Supply		
OS 1.1	Balance consideration of water supply requirements between urban, agricultural, and environmental needs so that sufficient supply is available to meet each of these different demands.	Water supply is addressed under Impact H-7 (Construction activities would deplete groundwater supplies or interfere with groundwater recharge).
Water Conservation		
OS 2.2	Where feasible, decrease stormwater runoff by reducing pavement in development areas, and by design practices such as permeable parking bays and porous parking lots with bermed storage areas for rainwater detention.	Stormwater runoff is addressed under Impact H 3 (Increased runoff from new impervious areas resulting in flooding or increased erosion downstream).
OS 2.3	Encourage native, drought-resistant landscape planting.	The Proposed Project and alternatives would not include landscape planting.

Table D.4-2. Riverside County General Plan Policies Relevant to Hydrology and Water Resources

Policy #	Text	Notes
Water Quality		
OS 3.3	Minimize pollutant discharge into storm drainage systems and natural drainage and aquifers.	Water quality and stormwater runoff are addressed under Impact H 1 (Construction activity could degrade water quality due to erosion and sedimentation) and Impact H 2 (Degradation of water quality through spill of potentially harmful materials used in construction).
Groundwater Recharge		
OS 4.1	Support efforts to create additional water storage where needed, in cooperation with federal, state, and local water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed.	Groundwater storage is addressed under Impact H-7 (Construction activities would deplete groundwater supplies or interfere with groundwater recharge).
OS 4.2	Participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the County. The program shall make use of flood and other waters to offset existing and future groundwater pumping, except where: a. groundwater quality would be reduced; b. available groundwater aquifers are full; or c. rising water tables threaten the stability of existing structures.	Groundwater recharge is addressed under Impact H-7 (Construction activities would deplete groundwater supplies or interfere with groundwater recharge).
OS 4.3	Ensure that adequate aquifer water recharge areas are preserved and protected.	Groundwater recharge is addressed under Impact H-7 (Construction activities would deplete groundwater supplies or interfere with groundwater recharge).
OS 4.4	Incorporate natural drainage systems into developments where appropriate and feasible.	Drainage patterns are addressed under Impact H-3 (Increased runoff from new impervious areas resulting in flooding or increased erosion downstream) and Impact H-7 (Construction activities would deplete groundwater supplies or interfere with groundwater recharge).

Source: Riverside County, 2008.

D.4.3 Approach to Impact Assessment

Significance Criteria

The same CEQA significance criteria that were used to identify impacts in the October 2006 Final EIR/EIS are also used to identify impacts of the Proposed Project addressed in this Supplemental EIR. Hydrology and water resources impacts will be considered significant if the project meets any of the following criteria.

- Violates any water quality standards or waste discharge requirements, creates new sources of polluted runoff, or otherwise substantially degrades water quality.
- Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

- Places within a watercourse or flood hazard area structures which would impede or redirect flood flows, or otherwise substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation on- or offsite.
- Substantially increases the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or otherwise creates or contributes runoff water which would exceed the capacity of existing or planned stormwater drainage systems.
- Places housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Results in or is subject to damage from inundation by seiche, tsunami, or mudflow.

Applicant Proposed Measures and Previously Approved Mitigation Measures

Applicant Proposed Measures (APMs) were identified by SCE in its Certificate of Public Convenience and Necessity (CPCN) Application to the CPUC for DPV2. Table D.12-3, presented in the Final EIR/EIS for DPV2, lists the APMs for water resources and hydrology. These APMs were approved under the Final EIR/EIS and are considered part of the Proposed Project. In addition, all mitigation measures previously addressed and approved of in the Final EIR/EIS are considered part of the Proposed Project and would be implemented as described in the Final EIR/EIS. For the purposes of assessing potential impacts of the CRS expansion, approved APMs and mitigation measures are referenced where appropriate, and new mitigation measures are introduced where existing mitigation would not be sufficient to reduce impacts to a less than significant level.

Note: Mitigation measures modified from those presented in the Final EIR/EIS are presented with inserted text underlined, deleted text in ~~strikeout~~, and "(rev)" after the measure number. These measures supersede the original measures presented in the Final EIR/EIS. New mitigation measures presented in this SEIR (and not included in the Final EIR/EIS) are underlined in their entirety. Changes made to text excerpted from the DPV2 Final EIR/EIS (2006) are shown with double underline and ~~double strikeout~~.

Method of Analysis

This analysis first established baseline conditions for the affected environment of Hydrology and Water Quality relevant to the CRS expansion project described in Chapter B. The baseline environmental conditions are those described in the DPV2 Final EIR/EIS (2006), including a description of climate, topography, surface water resources, groundwater basins, floodplains, water quality, and land use. These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the proposed CRS expansion project. Impacts to Hydrology and Water Quality were then identified based on the predicted interaction between construction, operation, and maintenance activities associated with the proposed CRS expansion project and the affected environment described in Section D.4.1.

D.4.4 Environmental Impacts and Mitigation Measures for the Proposed Project

Section B.4 (Applicant Proposed Measures and Mitigation Measures) describes that all APMs and mitigation measures that were previously analyzed and approved in the Final EIR/EIS for the DPV2 project would be implemented as part of the project. The previously approved APMs and mitigation measures are referenced in this impact analysis, as appropriate, where they would reduce or avoid significant impacts to hydrology and water resources associated with the Proposed Project. Where previously approved

APMs and mitigation measures would not sufficiently reduce or avoid significant impacts of the Proposed Project due to project refinements, new mitigation measures are introduced, and would be implemented as part of the Proposed Project.

Impact H-1: Construction activity could degrade water quality due to erosion and sedimentation (Class III)

Construction of the Proposed Project would include soil-disturbing activities such as grading and excavation that could result in erosion and sedimentation. If disturbed soils are mobilized, either naturally or manually, and migrate to surface water or groundwater features, water quality degradation could occur through increased turbidity. Under the Proposed Project, the total area of disturbance would be approximately 131 acres, 44 acres of which were previously analyzed in the Final EIR/EIS for DPV2; of the remaining 87.8 acres, the CRS expansion area would account for 33.7 acres of temporary disturbance (to be restored following construction) and 54.1 acres of permanent disturbance.

Implementation of APMs W-1 through W-3 and W-7 through W-9, as previously approved and presented in Table D.12-3 of the Final EIR/EIS, would minimize the potential for this impact to occur by requiring the installation and regular inspection of erosion control Best Management Practices (BMPs). In addition, compliance with existing laws and regulations would include the implementation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) per Section 402 of the federal Clean Water Act (described in Section D.12.4 of the Final EIR/EIS); the SWPPP would include BMPs to avoid or minimize potential impacts associated with erosion and sedimentation. With the implementation of the APMs defined above and the required SWPPP, construction-related water quality degradation from soil erosion and sedimentation would be less than significant (Class III). No mitigation measures would be required.

Impact H-2: Degradation of water quality through spill of potentially harmful materials used in construction (Class II)

Table B-3 (Project Equipment and Labor Estimates [Preliminary]), presented in Section B.3.3.3 (Labor and Equipment), summarizes the types of vehicles and equipment to be used during construction of the Proposed Project. Operation of these vehicles and equipment would require the use of harmful and potentially hazardous materials, including but not limited to the following: diesel fuel, gasoline, lubrication oil, hydraulic fluids, anti-freeze, transmission fluid, lubricating grease, and other fluids. As described in the Final EIR/EIS, accidental spills/leaks or improper disposal of these materials could result in direct or indirect water quality degradation, if the released material is deposited into a surface water feature, or allowed to migrate to groundwater or downstream surface waters. The CRS expansion includes installation of a septic system, leach field, and groundwater well which were not previously addressed in the Final EIR/EIS. Implementation of these project features would require equipment use not previously addressed in the Final EIR/EIS; however, with implementation of approved APMs and mitigation measures, as well as compliance with existing laws and regulations, the potential for this impact to occur would be the same.

APMs W-2 and W-3, as presented in Table D.12-3 of the Final EIR/EIS, would ensure that construction equipment avoid flowing stream channels to the maximum extent feasible (APM W-2), and that erosion control and hazardous material plans are incorporated into construction bidding specifications (APM W-3). In addition, the mitigation measures presented below would be implemented as part of the Proposed Project to reduce Impact H-2 to a less than significant level (Class II). The full text of these mitigation measures was originally presented in Section D.10.6.1 (Public Health and Safety) of the Final EIR/EIS and included below as well with revisions to further clarify the measures and include specific performance

standards to ensure that the impact will be reduced to below the level of significance. No additional mitigation measures would be required.

Mitigation Measures for Impact H-2: Degradation of water quality through spill of potentially harmful materials used in construction

P-1a(rev) **Develop Hazardous Substance Control and Emergency Response Plan.** A Hazardous Substance Control and Emergency Response Plan (Plan) shall be prepared by SCE for the project, and a copy shall be kept on-site ~~(or~~and in vehicles during construction and maintenance of the project. The Plan shall define an emergency response program to ensure quick and safe cleanup of accidental spills, including prescriptions for hazardous-material handling procedures to reduce the potential for a spill during construction. The Plan shall also identify areas where refueling and vehicle-maintenance activities shall occur, and Identify areas for storage of hazardous materials. The directions and requirements listed in this plan shall also be reiterated in the Stormwater Pollution Prevention Plan (SWPPP) prepared for the project. SCE shall submit the Plan ~~SCE shall document compliance by submitting the plan~~ to the CPUC or BLM or USFWS, as appropriate, for review and approval at least 60 days before the start of construction.

P-1b **Conduct environmental training and monitoring program.** An environmental training program shall be established to communicate environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and proper Best Management Practice (BMP) implementation, to all field personnel prior to the start of construction. The training program shall emphasize site-specific physical conditions to improve hazard prevention (e.g., identification of potentially hazardous substances) and shall include a review of all site-specific plans, including but not limited to, the project's Storm Water Pollution Prevention Plan and the Hazardous Substances Control and Emergency Response Plan. SCE shall document compliance by (a) submitting to the CPUC or BLM or USFWS, as appropriate, for review and approval an outline of the proposed Environmental Training and Monitoring Program, and (b) maintaining for monitor review a list of names of all construction personnel who have completed the training program.

Best Management Practices, as identified in the project Storm Water Pollution Prevention Plan and the Hazardous Substances Control and Emergency Response Plan, shall be implemented during the construction of the project to minimize the risk of an accidental release and provide the necessary information for emergency response.

P-1c(rev) **Ensure proper disposal of construction waste.** All non-hazardous construction and demolition waste, including trash and litter, garbage, and other solid waste shall be stored in totally enclosed containment, and shall be disposed of properly, through a permitted waste management provider. Petroleum products and other potentially hazardous materials shall be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. Storage of fuels and hazardous materials shall be prohibited within 200 feet of groundwater supply wells and within 400 feet of community or municipal wells. SCE shall document compliance by providing a list of permitted waste management providers and hazardous waste facilities to be used for disposal of construction and demolition waste to the CPUC or BLM or USFWS, as appropriate, for review and approval at least 60 days before the start of construction.

P-1d **Maintain emergency spill supplies and equipment.** Hazardous material spill kits shall be maintained at all construction sites for small spills. This shall include oil-absorbent material, tarps, and storage drums to be used to contain and control any minor releases. Emergency spill supplies and equipment shall be kept adjacent to all work areas and staging areas, and shall be clearly marked. Detailed information for responding to accidental spills and for handling any resulting hazardous materials shall be provided in the project's Hazardous Substances Control and Emergency Response Plan.

Impact H-3: Increased runoff from new impervious areas resulting in flooding or increased erosion downstream (Class III)

Construction of the Proposed Project could increase local runoff through creation of impervious areas and compaction of soils. As described in Section B.3.2 (Project Components), the CRS expansion area includes approximately 13 acres of enhancements outside of the perimeter wall, including flood control features such as a flood protection berm and stormwater detention basin. Surface flow would be directed around the north and east sides of the substation (CRS expansion and original footprint) as necessary to protect the site from flooding and minimize runoff-related impacts. Within the substation site, runoff would be directed towards a detention basin measuring approximately 120 feet by 200 feet, which would capture internal runoff towards the southern end of the substation and minimize potential effects associated with increased runoff. Section B.3.3.1 (Construction Activities) describes that the final site drainage design for the detention basin would be compliant with applicable standards issued by the County of Riverside. As mentioned in Section D.4.2, guidance for the design of stormwater detention basins is provided in the County's Design Handbook for Stormwater Quality Best Management Practices (County of Riverside, 2006). Although the stormwater detention basin would alter impervious surface patterns at the project site and result in site-specific alterations to drainage patterns, it would help to minimize and/or avoid potential impacts associated with increased runoff, flooding, and/or erosion.

APM W-8, as presented in Table D.12-3 of the Final EIR/EIS, would be implemented as part of the Proposed Project and would ensure that ditches and drainage features are designed with capacity for concentrated runoff, located to avoid disturbed areas, and include energy dissipaters at discharge points. In addition, compliance with existing laws and regulations would include preparation of a site-specific Stormwater Pollution Prevention Plan (SWPPP) per Section 402 of the federal Clean Water Act (described in Section D.12.4 of the Final EIR/EIS); the SWPPP would include Best Management Practices to avoid or minimize potential impacts from stormwater runoff, including as related to new impervious areas. These features of the Proposed Project would ensure that impacts associated with increased runoff would be less than significant (Class III). No mitigation measures would be required.

Impact H-4: Water quality degradation caused by accidental releases of oil from project facilities (Class II)

As described in the Final EIR/EIS for DPV2, oil from electrical equipment at the substation could be released accidentally and contaminate local surface water. All structures at the CRS would be inspected annually on the ground to detect problems with corrosion, equipment alignment, or foundations, with emergency inspections conducted as necessary. These procedures would minimize the potential for accidental releases of oil to occur. In addition, APM W-3 (see Table D.12-3 in the Final EIR/EIS) requires development of hazardous material plans that would minimize the potential for accidental releases to occur, and minimize the potential for associated water quality degradation to occur.

This impact would remain similar to Impact P-4 (Soil contamination from accidental spill or release of hazardous materials during project operations and maintenance), as addressed in Section D.10.6.1 of the Final EIR/EIS. Mitigation Measure P-4a(rev) (Provide Proof of Approved Spill Prevention, Countermeasure, and Control Plans), also addressed in Section D.10.6.1 of the Final EIR/EIS, would be implemented to reduce this potential impact to a less than significant level (Class II). It has been revised to further clarify the measure and include specific performance standards to ensure that the impact will be reduced to below the level of significance.

Mitigation Measures for Impact H-4: Water quality degradation caused by accidental releases of oil from project facilities

P-4a(rev) ~~**Prepare**~~ **Provide Proof of Approved Spill Prevention, Countermeasure, and Control Plans.** In accordance with Title 40 of the CFR, Part 112, and in order t~~T~~o minimize, avoid, and/or clean up unforeseen spill of hazardous materials during operation of the proposed facilities, the Colorado River Regional Water Quality Control Board (RWQCB) will require SCE ~~shall~~ to ~~update or~~ prepare~~, if necessary, the~~ and implement a Spill Prevention, Countermeasure, and Control (SPCC) P~~p~~lan for each substation, series capacitor~~s~~, and the switchyard. If an existing SPCC Plan is available it may be updated for compliance with this measure. In accordance with state and federal requirements, each SPCC Plan shall include engineered and operational methods for preventing, containing, and controlling potential releases, and provisions for quick and safe cleanup. SCE shall document compliance by providing a copy of the approved ~~Spill Prevention, Control, and Countermeasures~~ SPCC ~~p~~Plans to the CPUC or BLM or USFWS, as appropriate, for review and approval at least 60 days before the start of operation. For any substation, series capacitor, or switchyard that is not required by the RWQCB to possess a SPCC Plan, SCE shall submit to the CPUC or BLM or USFWS, as appropriate, at least 60 days before the start of operation, proof that a SPCC Plan is not required by the RWQCB.

Impact H-5: Excavation could degrade groundwater quality (Class II)

Section B.3.3.1 (Construction Activities) describes that below-grade facilities (those placed underground) associated with the CRS expansion area would be installed after grading of the site is complete. These underground facilities include a ground grid, underground conduit, trenches, and all required foundations. In addition, a new groundwater well and a septic system with leach field would also be installed at the Proposed Project site. Excavation activities could result in groundwater quality degradation if direct or indirect contact with groundwater resources is made, particularly if an accidental release of hazardous materials occurs. Depth to groundwater in the area is expected to vary seasonally, and depending on pumping activities at wells in the area. Hydrographs of the Chuckwalla Valley Groundwater Basin indicate that elevation of the groundwater table varies, and can range between approximately 250 and 350 feet above mean sea level (amsl) (CEC, 2010b, see Figure 3.20-7, Groundwater Level Contour Map, and Figure 3.20-8, Basin Wide Hydrographs – Chuckwalla Valley Groundwater Basin). The closest groundwater level to the proposed site was measured in Well 7S/21E-5C1, located approximately 3,000 feet away at the boundary of the Chuckwalla Valley Groundwater Basin and the Palo Verde Mesa Groundwater Basin; this well had a water surface elevation of approximately 248 feet amsl in 2006 (SCE, 2010c).

The septic tank and leach field would be within the CRS footprint, in a location determined to be appropriate based on results of the aforementioned geotechnical study. The septic system would be fully permitted and subject to conditions of the County of Riverside, including Riverside County Ordinance No. 650 (Regulating the Discharge of Sewage in the Unincorporated Areas of the County of Riverside, Incorporating Riverside County Ordinance Number 725), identified above in Section D.4.2.

The groundwater well would be installed using drilling methods, which typically use a truck-mounted drill rig and rotary or percussion drill bits; the area surrounding the drill site for the new groundwater well is not anticipated to be excavated.

During the detailed engineering and design phase for the Proposed Project, SCE would conduct a geotechnical study of the CRS expansion site that would include an evaluation of the depth to the water table, evidence of faulting, liquefaction potential, physical properties of subsurface soils, soil resistivity, slope stability, and the presence of hazardous materials. The purpose of the geotechnical study would be to ensure proper engineering and site-specific orientation of earth disturbing activities; the results of this study would be used to plan design details and construction activities to avoid the potential to encounter groundwater during excavation activities, and to minimize the potential for groundwater contamination to occur. However, due to the groundwater elevations and excavation activities described above, there would be potential to encounter groundwater during construction of the Proposed Project. Direct contact with groundwater resources could result in water quality degradation associated with erosion/sedimentation and/or accidental release of hazardous materials.

As previously described, all APMs and mitigation measures previously approved with the Final EIR/EIS for DPV2 are considered part of the Proposed Project and would be implemented as previously assessed. Mitigation Measure P-1d (Maintain emergency spill supplies and equipment) would minimize potential impacts associated with the handling and use of hazardous materials. Mitigation Measure H-5a (Construction site dewatering management) is introduced for the purposes of this Supplemental EIR and would ensure that potential water quality impacts associated with encountering groundwater at the Proposed Project site would be less than significant (Class II). Mitigation Measure H-5a would ensure that appropriate BMPs are implemented to insure that dewatering return water that has been polluted (such as by sediment or oil) would not be returned to the land or a waterbody without proper treatment to remove pollutants, such as sediment or oil.

Mitigation Measures for Impact H-5: Excavation could degrade groundwater quality

Due to the potential to encounter groundwater resources during excavation activities at the Colorado River Substation site, as characterized above for the purposed of this Supplemental analysis, new mitigation is required to ensure that potential impacts to groundwater quality remain less than significant. The mitigation measures presented below are recommended in addition to all mitigation measures previously assessed and approved under the 2006 DPV2 Final EIR/EIS.

P-1d **Maintain emergency spill supplies and equipment.**

H-5a **Construction site dewatering management.** If groundwater is unexpectedly encountered during project construction, dewatering activities shall be performed in accordance with the California Stormwater Quality Association (CASQA) Handbook for Construction or other similar guidelines, as approved by the County of Riverside. Examples of construction site dewatering Best Management Practices include but are not limited to the following: fiber rolls, gravel bag berms, straw bale barriers, sediment basins and sediment traps, weir tanks, dewatering tanks, and various filters (gravity bag filter, sand media particulate filter, pressurized bag filter, cartridge filter). The project Applicant shall notify the Colorado River Bain Regional Water Quality Control Board (RWQCB) and County at the onset of dewatering and submit written description of all executed dewatering activities, including steps taken to return encountered groundwater to the subsurface, upon the completion of dewatering activities at the affected site(s).

Impact H-6: Encroachment into a floodplain or watercourse by permanent aboveground project features resulting in flooding, flood diversions, or erosion (Class II)

Encroachment of a project structure into a water flow path could result in erosion damage to the encroaching structure. As described in Section D.3.1.1, the Proposed Project is not located within a FEMA-designated Flood Hazard Area, and watercourses in the area are primarily desert washes with no water during most of the year. Section B.3.3.1 describes that although no designated blue-line streams are located within the Proposed Project site, there is evidence of stormwater runoff through the site. APMs W-4 through W-6, introduced in the Final EIR/EIS for DPV2, would be implemented as part of the Proposed Project and would minimize potential adverse effects related to floodplain encroachment by avoiding watercourses where possible, ensuring foundations are adequate to resist scour, and constructing diversion dikes in severe cases. As mentioned, there are no designated blue-line streams located within the Proposed Project site; therefore, no project features would be placed within a designated watercourse. In addition, Mitigation Measure H-6a (Design diversion dikes or other site remediation to avoid damage to adjacent property), which was introduced in the Final EIR/EIS for DPV2 and would be implemented as part of the Proposed Project, would ensure that diversion dikes be designed to avoid damage to adjacent properties, as necessary. With implementation of previously approved APMs and mitigation measures, Impact H-6 would be less than significant (Class II).

Mitigation Measures for Impact H-6: Encroachment into a floodplain or watercourse by permanent aboveground project features resulting in flooding, flood diversions, or erosion

H-6a **Design diversion dikes or other site remediation to avoid damage to adjacent property.** Where diversion dikes are required to protect towers or other project structures from flooding or erosion, these dikes shall be designed to avoid increasing the risk of erosion or flooding onto adjacent areas where life or property could be threatened. Diversion dike designs shall be submitted to the CPUC and BLM for review and approval at least 60 days prior to construction.

Impact H-7: Construction activity would deplete groundwater supplies or interfere with groundwater recharge (Class II)

The 2006 Final EIR/EIS for DPV2 described water demand associated with each section of the project in Section D.14 (Socioeconomics), which also identified potential water service providers and indicated the percentage of each water service provider's total capacity represented by each respective section of the project. As described in the 2006 Final EIR/EIS, existing water service providers have sufficient supply capacity to meet the needs of the approved DPV2, with no need for new or expanded water facilities. Water service providers that would be used to meet project water requirements may have expanded their service area and/or number of connections since approval of the Final EIR/EIS in 2006; however, as described in Section D.14 (Socioeconomics) of the 2006 Final EIR/EIS, DPV2 water requirements represent a minute fraction of the capacities of water service providers in the area, including the Metropolitan Water District (MWD). Water supply requirements of the approved DPV2 have not changed since 2006, and with the exception of the new groundwater well proposed at the CRS site, no new groundwater wells would be installed by SCE to meet water demand requirements of the approved DPV2 (SCE, 2010d). Although groundwater may be used as a portion of project supply (as described in the 2006 Final EIR/EIS), it would be provided through existing water utilities, municipalities, and conservation districts addressed in Section D.14 of the Final EIR/EIS, and would be delivered by these water service providers only if sufficient capacity under the responsible provider is available.

As described above, water requirements of the approved DPV2 and water service providers that would be used to meet those requirements are the same as assessed in the 2006 Final EIR/EIS. Therefore, for the purposes of this Supplemental EIR, potential water supply effects captured under Impact H-7 are specific to the proposed CRS expansion, including the telecommunications facilities, and the new proposed groundwater well. Section B.3.2 (Project Components) describes that under the Proposed Project SCE would construct and operate a groundwater well and a temporary water storage tank at the CRS site. The water from this well would be used to meet temporary water demand for soil conditioning and dust control, and long-term water demand for lavatory purposes (non-potable uses). The estimated water demand during construction ~~and operation~~ of CRS is summarized below in Table D.4-3. A description of operational water requirements is provided following Table D.4-3.

Table D.4-3. Estimated Construction Water Demand at CRS

Gallons/Day	Duration (months)	Total Gallons	Total Acre-Feet
300,000	4–6	36,000,000–54,000,000	110.5–165.7
120,000	18	64,800,000	198.9
Total	22–24	100,800,000–118,800,000	309.3–364.6

Source: SCE, 2010b.

Table D.4-3 describes that total estimated water demand during construction activities at the CRS site would range from 309.3 to 364.6 acre-feet over approximately 22 to 24 months. Depending on whether the construction period is 22 or 24 months, this water demand equates to approximately 198.9 acre-feet per year (afy) for the first year and 110.5 afy for the next 10 months (total demand of 309.3 acre-feet), or 232 afy for the first year and 132.6 afy for the second year (total demand of 364.6 acre-feet). In addition, during substation operations it is estimated that up to 750 gallons per month, or approximately 0.03 afy would be required for non-potable uses.

Section D.4.1 (Groundwater) describes that the estimated groundwater budget for the Chuckwalla Valley Groundwater Basin is approximately 2,608 afy, accounting for existing rates of groundwater extraction, underflow to the Palo Verde Mesa Groundwater Basin, and evapotranspiration at Palen Dry Lake. Therefore, available annual supply in the Chuckwalla Valley Groundwater Basin is sufficient to account for water demand associated with construction of the Proposed Project Table D.4-4, provided below, indicates the percentage of available water supply represented by project water demand.

Table D.4-4. Construction Water Demand / Supply Comparison

Construction Duration	22 months (Year 1 / Year 2)	24 months (Year 1 / Year 2)
Annual Demand (afy)	198.9 / 110.5	232.0 / 132.6
Percent of Available Supply	7.6% / 4.2%	8.9% / 5.1%

Table D.4-4 indicates that the highest construction demand anticipated to occur would be during the first year of a 24-month construction schedule, representing approximately 8.9 percent of available supply. Conversely, the lowest construction demand would occur during the second year of a 22-month construction period, representing approximately 4.2 percent of available supply. As mentioned above, following the end of the 22-month or 24-month construction period, approximately 0.03 afy would be required

for operational purposes at the CRS site. This operational water demand is equivalent to approximately 0.0015 percent of the estimated annual available supply.

Interference with other wells. As described by the Applicant, the minimum well completion depth of the project's new groundwater well is expected to range from 450 to 600 feet below ground surface (bgs), but could be deeper depending on subsurface conditions (SCE, 2010a). The Applicant estimates that a flow rate of just over 200 gallons per minute (gpm) would be required of the new groundwater well, and that the well would be placed at a depth to facilitate this rate of delivery. Based on the estimated project water demand of 300,000 gpd at the proposed CRS well during the initial construction period, the required pumping rate is estimated to range from 208 gpm for a 24-hour daily operational period to 500 gpm for a 10-hour daily operational period. The estimated project water demand for the last 18 months of construction would require an estimated pumping rate of approximately 69 gpm for a 24-hour daily operational period and 167 gpm for a 10-hour daily operational period. If the new well installed for the Proposed Project does not produce sufficient flow rates to meet construction requirements, a secondary water supply well may be required to supplement flow rates and avoid drawdown impacts to existing groundwater wells in the vicinity of the primary supply well (see Mitigation Measure H-7a, below); the use of a secondary supply well would not increase water requirements of the Proposed Project, but rather would allow for the delivery of the described amount of water using two wells instead of one. Temporary water storage facilities such as Baker tanks, pillow tanks, and/or an open top reservoir) would be used as a supplemental inventory, so the actual pumping rate requirement would fall between the ranges (SCE, 2010c).

Well log information collected from the project vicinity indicates that alluvial deposits in the project area may have a saturated thickness of approximately 400 feet. Using a reported average transmissivity value of approximately 74,000 gpd/ft (SCE, 2010c, per CEC, 2010b) for alluvial deposits and a saturated thickness of 400 feet, the proposed CRS well, which would be located in the Quaternary Alluvial deposits above the Pliocene Bouse Formation, would have an estimated well pumping rate capacity of more than 500 gpm with 12 feet of drawdown at the well. (SCE, 2010c)

The closest existing groundwater well to the proposed CRS well site is located roughly 4,800 feet northeast of the new project well (not the CRS border), and is identified as State Well Number 7S/21E-5F1. The use of this existing well is unknown, but it does not appear to be connected to any structures. All other existing wells in the area are located more than one mile from the proposed CRS well. Assuming a pumping rate of 208 gpm for the initial five-month period, drawdown at Well 7S/21E-5F1 would range from approximately 0.4 feet to 0.44 feet over the course of five months (SCE, 2010c, per CEC, 2010b). There is a well located approximately 3.4 miles (17,952 feet) southeast of the proposed CRS well that would experience less drawdown. (SCE, 2010c)

Table D.4-5 provides estimates of drawdown at existing wells located 4,800 and 17,952 feet away from the proposed CRS well, under several different conditions respective to pumping rate and duration of pumping.

Table D.4-5. Estimated Drawdown at Existing Groundwater Wells

Distance to Well (ft)	Transmissivity (T) (gpd/ft)*	Time Since Pumping Started (days)	Pumping Rate(gpm)	Drawdown (ft)
4,800	74,000	150	208	0.40
			500	0.97
		365	208	0.65
			500	1.57
	21,500	150	208	0.44
			500	1.06
		365	208	1.08
			500	2.59
17,952	74,000	150	208	0.00
			500	0.01
		365	208	0.06
			500	0.14
	21,500	150	208	0.00
			500	0.00
		365	208	0.01
			500	0.01

Source: SCE, 2010c; CEC, 2010b.

The estimates provided in Table D.4-5 indicate that under the varying conditions considered, drawdown in surrounding wells from pumping at the proposed CRS groundwater well would be up to 2.59 feet. Drawdown would be temporary, and drawdown conditions resulting from the Proposed Project would reverse after project-related pumping has ended. Drawdown occurs as a result of groundwater pumping at nearby wells, so once pumping at the new Proposed Project well ceases, the inflow and outflow balance of underlying groundwater resources would naturally return to pre-project conditions.

As described above, the estimated pumping capacity of the proposed CRS well could be more than 500 gpm, which would satisfy the project requirements of 208-500 gpm. However, if the daily yield (rate of groundwater production, or how fast groundwater can be pumped out of the ground) of the project's new groundwater well are inadequate or become inadequate during project construction, interruption to project water supply could occur, and other wells in the project area could be affected by over-pumping. The production capacity described above is an estimation based on assumptions and therefore, mitigation measures are required to minimize or avoid potential impacts associated with groundwater drawdown and interference with other groundwater wells. As described above, the use of a secondary water supply well may be required to supplement flow rates and would not increase water requirements of the Proposed Project, but rather would allow for the delivery of the described amount of water using two wells instead of one.

A new mitigation measure, Mitigation Measure H-7a (Develop a water supply contingency plan for construction) is recommended (full text below) to ensure that SCE installs a secondary groundwater well if needed, should pumping capacity for the proposed well be insufficient or become insufficient to meet project needs. If a secondary supply well becomes necessary as a result of insufficient pumping rates in the primary well, the installation of the secondary well would minimize and/or avoid potential environmental impacts associated with drawdown resulting from over-pumping the primary well. In other words, the secondary well would relieve strain on the primary well (If required), also relieving associated adverse impacts. As previously mentioned, well installation typically utilizes drilling techniques as opposed

to conventional excavation techniques. Particularly considering the well depth that would be required (450 to 600 feet bgs, noted above), drilling techniques would be required for installation of groundwater wells. Installation of the secondary well would not have significant impacts to Hydrology and Water Quality. A second new mitigation measure, Mitigation Measure H-7b (Groundwater Monitoring and Reporting Plan) is also recommended to assess and resolve any potential effects that project pumping may have on other wells in the area, to avoid the consumption of Colorado River water, and to avoid significant impacts to groundwater supply.

Perched groundwater. Should groundwater be encountered during construction-related excavation, dewatering of the construction site would be required. Excavation activities would be required during some construction activities, such as the installation of the proposed septic system and leach field (as mentioned under Impact H-5, installation of the proposed groundwater well would be conducted using drilling techniques, not conventional excavation techniques). If project excavation results in the unexpected encountering of perched groundwater, a zone of saturation separated from the main groundwater table by a typically impermeable divide, dewatering activities would be performed in compliance with Best Management Practices (BMPs) identified in accredited professional publications, such as the California Stormwater Quality Association (CASQA) Handbook for Construction (CASQA, 2003), which provides general guidance for selecting and implementing BMPs to eliminate or reduce the discharge of pollutants from construction sites to waters of the state. Mitigation Measure H-5a, presented under Impact H-5 and listed below, would ensure compliance with dewatering BMPs, thus ensuring that construction-related interference with groundwater recharge associated with the potential encountering of perched groundwater would not result in a significant impact.

Use of appropriated water from the Colorado River. A discussion of appropriative rights, or entitlements, associated with the use of Colorado River water is provided in Section D.4.1. As described, the USGS has indicated that the Chuckwalla Valley Groundwater Basin is hydrologically connected to the Colorado River Aquifer, meaning that this groundwater basin receives inflow (recharge) from the Colorado River Aquifer. All Colorado River water is appropriated and cannot be used without designated right/entitlement to the water. However, the Chuckwalla Valley Groundwater Basin receives recharge from precipitation, infiltration of surface water runoff, and inflow of treated wastewater, in addition to hydrologic connectivity with other groundwater basins. It is therefore possible to withdraw groundwater from the Chuckwalla Valley Groundwater Basin that did not originate from the Colorado River Aquifer. As a result, it is possible to use the Chuckwalla Valley Groundwater Basin as a water supply for the Proposed Project without using appropriated Colorado River water. In order to do so, it must be verified that water for the Proposed Project is pumped from above the "accounting surface" of the Colorado River. As described by the USGS per Water Resources Investigation Report 94-4005 (SCE, 2010c):

> *The accounting surface represents the elevation and slope of the unconfined static water table in the river aquifer outside the flood plain and the reservoirs of the Colorado River that would exist if the river were the only source of water to the river aquifer . . . . This method provides an organized way to identify those wells presumed to yield water that will be replaced by water from the river by determining if the elevation of the static water table at a well is above or below the accounting surface.*

The USGS describes that the Colorado River accounting surface, as defined above, for waters in the Chuckwalla Valley Groundwater Basin is approximately 234 feet above mean sea level (amsl). This means that groundwater resources located at or below an elevation of 234 feet amsl are recharged by the adjudicated Colorado River, while groundwater resources located above an elevation of 234 feet amsl are recharged via other sources such as infiltration of precipitation and surface water runoff.

The closest groundwater level to the proposed site was measured in Well 7S/21E-5C1, located approximately 3,000 feet away at the boundary of the Chuckwalla Valley Groundwater Basin and the Palo Verde Mesa Groundwater Basin; this well had a water surface elevation of approximately 248 feet amsl in 2006, approximately 14 feet above the Colorado River accounting surface of 234 ft amsl for the Chuckwalla Valley Groundwater Basin (SCE, 2010c).

The DWR reported in the latest Bulletin 118 Update (2004) that the upper 100 feet of saturated sediments in the Chuckwalla Valley Groundwater Basin are estimated to have a storage capacity of approximately 900,000 acre-feet, per the 1975 version of DWR Bulletin 118 (DWR, 2004). Based on this estimation, the upper 14 feet of sediments between the water surface elevation at Well 7S/21E-5C1 (noted above) and the Colorado River accounting surface could contain up to 126,000 acre-feet of water, assuming 900,000 acre-feet in the upper 100 feet, divided by 100 feet, then multiplied by 14 feet (SCE, 2010c). Therefore, sufficient groundwater could be in storage above the Colorado River accounting surface to meet the Proposed Project's water requirements identified in Table D.4-3 (Estimated Construction Water Demand at CRS).

Hydrostratigraphic cross-sections developed for the GSEP, also located within the Chuckwalla Valley Groundwater Basin, indicate varying sub-surface conditions relevant to grain size and static groundwater levels (CEC, 2010b; see Soil and Water Figure 8, Hydrostratigraphic Cross-Section A-A', Figure 9, Hydrostratigraphic Cross-Section B-B', and Figure 10, Hydrostratigraphic Cross-Section Lines, pages 944-946 of 1380). The volume of water in storage within saturated sediments above the Colorado River accounting surface, and the distribution or availability of water stored in saturated sediments, may be less than indicated by the estimates described above. Groundwater monitoring would be required to verify the current quantity of groundwater in storage above the Colorado River accounting surface prior to and during pumping activities for the Proposed Project (see Mitigation Measure h-7b, below). If insufficient water is available above the accounting surface to meet the Proposed Project requirements, additional measures would be required to ensure that compensatory actions are taken to replace the full quantity of any groundwater pumped from below the Colorado River accounting surface (see Mitigation Measure H-7c, below).

The use of appropriated Colorado River water without designated right/entitlement to such use is both a legal issue, per the Law of the River (see Section D.4.1), and an environmental issue, associated with the re-distribution of a water supply intended for other purposes. In other words, consuming appropriated water without designated right/entitlement to the water could result in a water shortage or overdraft conditions at another location, where uses with appropriative rights/entitlements in place are located. As mentioned above, mitigation measures would ensure that Colorado River water would not be used for the Proposed Project or, if the use of Colorado River water is unavoidable, that compensatory measures are implemented to ensure no net loss in Colorado River water associated with the Proposed Project.

With implementation of the mitigation measures presented below, potential water supply impacts resulting from the connectivity between the Colorado River and the Chuckwalla Valley Groundwater Basin would be less than significant (Class II).

Mitigation Measures for Impact H-7: Construction activity could deplete groundwater supplies or interfere with groundwater recharge

As previously described, all APMs and mitigation measures previously approved with the Final EIR/EIS for DPV2 are considered part of the Proposed Project and would be implemented as previously assessed.

Impact H-7 (Construction activity could deplete groundwater supplies or interfere with groundwater recharge) was not identified in the Final EIR/EIS for DPV2 and, as characterized above for the purposed of this Supplemental analysis, new mitigation measures are required to ensure that potential impacts to groundwater supply remain less than significant.

The three mitigation measures presented below are recommended in addition to all APMs and mitigation measures previously assessed and approved under the 2006 DPV2 Final EIR/EIS.

H-5a Construction site dewatering management. (Full text provided under Impact H-5)

H-7a Groundwater Well Contingency Plan. Prior to issuance of construction permits, the Applicant shall prepare a Groundwater Well Contingency Plan (Plan) to drill and construct a secondary supply well that would supplement groundwater production rates from the primary supply well, should the pumping capacity (daily yields) of the primary well become inadequate to meet the project requirements. The Plan shall identify the following features of the secondary supply well, should it be needed:

- location within the Colorado River Substation (CRS) site;
- proximity to existing wells (private and/or municipal);
- estimated total depth, well screen depth, diameter, and estimated yield; and
- time required to have the well drilled, constructed, developed and fully operational.

The secondary supply well may be installed at any time prior to or during construction, as long as it is consistent with features identified in the Plan, as described above. In addition to the above, t~~T~~he Plan shall also specify what conditions would trigger use of the second supply well, as well as the person responsible for determining when to utilize the second supply well. The County of Riverside shall be notified prior to installation of the secondary supply well, should it be necessary. The Applicant shall submit the Groundwater Well Contingency Plan to the CPUC and the County of Riverside for review and approval thirty (30) days before the start of extraction of groundwater for construction or operation.

H-7b Groundwater Monitoring and Reporting. Prior to issuance of construction permits and prior to any groundwater pumping activities, a Groundwater Monitoring and Reporting Plan (Plan) shall be prepared by a Certified Hydrogeologist (CHG) and submitted by the Applicant (SCE) to the California Public Utilities Commission (CPUC) for review and approval. The Plan shall provide detailed methodology for monitoring background and site groundwater levels, water quality, and flow.

Monitoring shall be performed during pre-construction, construction, and project operation with the intent to establish pre-construction and project-related groundwater level and water quality trends that can be quantitatively compared against observed and simulated trends near the project pumping well(s). During pre-construction monitoring, it shall be determined whether groundwater can be pumped from above the Colorado River accounting surface of 234 feet above mean sea level (amsl). If it is not possible to verify that groundwater for the Proposed Project would be exclusively pumped from above the Colorado River accounting surface, then Mitigation Measure H-7c (Water Supply Plan for Use of Colorado River Water) would be required.

The monitoring wells shall include the following: SCE's primary supply well (proposed), SCE's secondary supply well (per Mitigation Measure H-7a), State Well Number 7S/21E-5F1 (approx-

imately 4,800 feet northeast of the new project well), and at least one off-site down-gradient well. ~~locations up-gradient, lateral, and down-gradient of all project supply wells and a minimum of three offsite down-gradient wells.~~ Water quality monitoring shall include annual sampling and testing for Total Dissolved Solids (TDS), which include minerals, salts, and metals dissolved in water. Water quality samples shall be drawn from each of the aforementioned monitoring well locations. ~~project supply wells, one up-gradient well, and a minimum of two down-gradient offsite wells.~~

The Plan shall include a schedule for submittal of both quarterly ~~(construction only)~~monitoring data reports during construction (one report every three months, from the onset of construction activities), and annual ~~(operations)~~ monitoring data reports during construction, operation, and maintenance (one report every twelve months, from the onset of construction, for a duration of at least five years, described below). Monitoring data reports shall be submitted by the Applicant to the CPUC for review and approval, as specified in the Plan.

Quarterly and annual reports shall include ~~During the project construction period, quarterly~~ water level monitoring data and water quality monitoring data. ~~reports shall be submitted to CPUC for review and approval. In addition, for at least the first 5 years of the project from the initiation of project construction, annual summary reports shall also be submitted to CPUC for review and approval. At a minimum, these a~~Annual summary reports shall include but are not limited to the following:

- Daily usage, monthly range, and monthly average of daily water usage in gallons per day;
- Total water used on a monthly and annual basis in acre-feet;
- Summary of all water level and water quality data; and
- Identification of trends that indicate potential for offsite wells to experience deterioration of water level or water quality.

Based on the results of the quarterly and annual trend analyses during the first 5 years of the project from the initiation of project construction, the Applicant shall determine if the project pumping has resulted in water level decline of 5 feet or more below the baseline trend at nearby private wells. If drawdown of 5 feet or more occurs at off-site wells, the Applicant shall immediately reduce groundwater pumping until water levels stabilize or recover, sustaining drawdown of less than 5 feet. Alternatively, the Applicant shall provide compensation to the well owner, including reimbursement of increased energy costs, or deepening the well or pump setting.

After the first 5 years of project, the Applicant and CPUC shall jointly evaluate the effectiveness of the Groundwater Monitoring and Reporting Plan and determine if monitoring frequencies, laboratory testing program, or procedures should be revised or eliminated.

The Applicant shall file an annual "Notice of Extraction and Diversion of Water" with the State Water Resources Control Board in accordance with Water Code Sections 4999 et seq. The Applicant shall include a copy of the filing in the annual compliance report. The report will allow the CPUC to review submitted data monitoring reports for compliance. Following review and approval of the fifth annual summary report, the CPUC will determine whether groundwater wells surrounding the project site are affected by project activities in a way that requires additional mitigation and, if so, shall determine what measures are needed.

H-7c **Water Supply Plan for Use of Colorado River Water.** If pre-construction groundwater monitoring conducted in compliance with Mitigation Measure H-7b (Groundwater Monitoring and Reporting Plan) indicates that groundwater pumping for the Proposed Project would draw water from below the Colorado River accounting surface of 234 feet above mean sea level (amsl), the Applicant (SCE) shall undertake one or more of the activities identified below to mitigate project impacts to flows in the Colorado River. These activities shall result in replacement of water used by the project over the life of the project. Measures of water conservation should be considered in the following order of priority:

- Payment for irrigation improvements in Palo Verde Irrigation District (PVID);
- Purchase of water allotments within the Colorado River Basin that will be held in reserve;
- Use of tertiary treated water;
- Implementation of water conservation programs in the floodplain communities of the Chuckwalla Valley Groundwater Basin, the Palo Verde Mesa Groundwater Basin, and/or Colorado River; and/or
- Participation in the U.S. Bureau of Land Management's (BLM) Tamarisk Removal Program.

If the Applicant has filed an application to the U.S. Bureau of Reclamation (USBR) to obtain an allocation of water from the Colorado River, these allocations can be used to satisfy some or all of the water offsets needed to comply with this condition on an acre-foot per acre-foot basis. Use of any other options for water offsets will require the Applicant to demonstrate to the satisfaction of CPUC that the appropriate amounts of water will be conserved. The activities proposed for mitigation will be outlined in a Water Supply Plan that will be provided to the CPUC for review and approval prior to the onset of groundwater pumping at the project site. The Water Supply Plan shall include the following at a minimum:

- Identification of water offset activities and associated water source(s) to replace the quantity of water diverted from the Colorado River over the life of the project on an acre-foot per acre-foot basis;
- Demonstration of the Applicant's legal entitlement to the water or ability to conduct the activity;
- Include a discussion of any needed governmental approval of the identified activities, including a discussion of whether that approval that requires;
- Discuss whether any governmental approval of the identified activities will be needed, and, if so, whether that additional approval will require compliance with CEQA or NEPA;
- Demonstration of how water diverted from the Colorado River will be replaced for each identified activity;
- An estimated schedule of completion for each identified activity;
- Performance measures that would be used to evaluate the amount of water replaced by each identified activity;
- Monitoring and Reporting Plan outlining the steps necessary and proposed frequency of reporting to show that each identified activity is achieving the intended benefits and replacing Colorado River diversions; and

- If the application for allocation from the Colorado River is accepted by the USBR, the Applicant shall submit to the CPUC for their approval, a copy of a water allocation from the Colorado River issued by the appropriate agency.

The Applicant shall implement the activities reviewed and approved in the Water Supply Plan in accordance with the agreed upon schedule in the Water Supply Plan. If agreement on identification or implementation of mitigation activities cannot be achieved, the Applicant shall immediately halt construction or operation until assurance that the agreed upon activities can be identified and implemented.

The Applicant shall submit the Water Supply Plan to the CPUC for review and approval thirty (30) days before the start of extraction of groundwater for construction or operation.

D.4.5 Connected Actions

Section B.4 describes two solar power projects — BSPP and GSEP — that currently have Power Purchase Agreements and would interconnect at the CRS. As such, they are considered part of the proposed action to expand the CRS Substation. As explained in Section A, both BSPP and GSEP were previously evaluated under CEQA and NEPA, and those analyses are incorporated into this Supplemental EIR by reference. The impacts of those projects, as described in the prior environmental analysis, are summarized here.

The sections of the CEC analyses that are referenced in these summaries are as follows:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section C.9.3.4, Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section C.9.4.2 (Soil and Water Resources), Assessment of Impacts and Discussion of Mitigation.

D.4.5.1 Blythe Solar Power Project

Construction Impacts

The potential direct effects of the BSPP project on local water resources are those associated with using groundwater for construction (specifically for demands during site grading). No surface water would be used for construction of the BSPP, though project construction may have an effect on the ephemeral washes traversing the site.

Potential impacts on water resources during construction include drawdown and related impacts, depletion of water resources, water quality impacts, erosion, and drainage impacts. These potential impacts are summarized below.

Soil Erosion. Water erosion from sheet and rill erosion under the present undisturbed conditions can be considered negligible except for wash areas in the central portion of the site where soils are potentially more erosive due to higher silt content. When soils are disturbed during construction erosion rates may increase slightly which may pose a potential impact. Grading of the BSPP site would result in a less than 1% slope downward from the west to the east of the site. Earthwork associated with the BSPP would include excavation for foundations and underground systems, and the total earth movement that would occur is approximately 8.3 million cubic yards. During construction, the project site, and those portions of the project ROW supporting off-site linear facilities would be disturbed. At that time, the surface of the disturbed areas would be devoid of vegetation and there would be the highest potential for erosion, as well as associated effects including soil loss and increased sediment yields downstream from dis-

turbed areas. With the implementation of Best Management Practices as specified in the Drainage Erosion and Sedimentation Control Plan (detailed within the CEC Staff Assessment), construction impacts associated with soil erosion are anticipated to be less than significant. Earth movement would be balanced on-site; no fill material would be imported or exported.

Groundwater Basin Balance. There is concern that the amount of groundwater used for both construction and operations would place the groundwater basin into overdraft. For purposes of impact analysis, it is assumed that any withdrawals that exceed the average natural recharge and exceeds a significant percentage of the total amount of groundwater in storage would be a significant impact. It is anticipated that groundwater extraction during construction (~820 afy) and operation (600 afy) would exceed the subsurface inflow and place the basin into overdraft conditions. Total groundwater expected to be extracted from the PVMGB by the BSPP from construction through operation is approximately 22,100 af. The Palo Verde Mesa Groundwater basin has approximately 5,000,000 acre-feet in storage. The total amount extracted equates to approximately 0.44% of the available water in storage. Impacts to basin groundwater storage are considered to be insignificant.

However, the project's pumping could have an effect on the Colorado River by inducing flow into the Palo Verde Mesa and as such those effects could be significant. Implementation of water conservation programs (such as BLM's Tamarisk Removal Program) is anticipated to reduce the potential for impacts to the Colorado River below the level of significance.

***Groundwater Levels*.** The BSPP has the potential to lower groundwater levels as a result of water production during both construction and operations. The lowering of groundwater levels could create a significant impact if the lowering the groundwater levels: (1) impacts existing water wells in the basin; (2) impacts existing springs, seeps or other surface water discharges, and/or (3) lowers the water table in areas where deep-rooted phreatophytes are prevalent. The modeling results suggest that during the life of the BSPP, groundwater level declines of five feet or more would be located at a distance of less than 1,100 feet from the proposed production well. The closest existing well is located at a distance of 9,000 feet. Consequently, the potential impact to water levels in existing wells appears to be insignificant. By providing proof of compliance with all applicable well construction permits and requirements, limiting groundwater use to 4,100 af for the whole of project construction (and to 600 af, or some other amount as determined by detailed Colorado River water supply analysis, for each of the anticipated 30 years of operation), and through submittal of a Groundwater Level Monitoring, Mitigation, and Reporting Plan (detailed within the CEC Staff Assessment), impacts to groundwater levels are expected to be reduced below the level of significance.

***Groundwater Quality*.** There is a potential that significant groundwater quality impacts could occur during construction if contaminated or hazardous materials used during construction were to be released and migrate to the groundwater table. Given the distance to the groundwater table (195 feet bgs) and the proposed implementation of a hazardous material management plan during construction, potential impacts to groundwater quality are expected to be maintained below the level of significance.

Alteration of Drainage Patterns. The impacts of the BSPP on the local surface water hydrology are directly related to proposed onsite grading and the construction of a network of engineered collector/channels. These channels will be designed for the purpose of protecting the project from flooding and erosion related to the conveyance of runoff from offsite watersheds across the project. The BSPP would change both the extent and physical characteristics of the existing floodplain within the project site and downstream of the project site, as well as change the sediment transport and depositional characteristics of the project site. All existing washes and floodplains within the project boundary

would be completely eliminated by the grading of approximately 7,000 acres to provide the flat, uniform and vegetation-free topography required for the construction and operation of the solar mirror array. Onsite stormwater from the project would be discharged directly offsite without the use of detention basins or any other means to capture, control, or retain onsite flows.

The exception to the impacts discussed above is along the linear facilities, which in the case of this project, will be limited to the transmission line corridor. There will likely be localized grading at the drainages which cross the transmission line corridor alignment to allow vehicular access during construction and operation of the facility. Localized grading along linear facilities can impact offsite portions of the existing drainages if not properly stabilized. Diversion and/or channelization of existing drainages should not occur. The impact to onsite drainage patterns would be significant.

The BSPP would not impact the existing natural drainage system upstream of the project boundary as there are no plans for any diversions, basins, dams or other surface water controls beyond the upstream limits of the project. However, there is the potential for erosion of offsite areas upstream due to the formation of headcuts which could migrate laterally from the engineered channels if they are not stabilized and protected.

Physical modifications to the natural drainage system downstream of the BSPP boundary are not proposed. However, there would be changes to both the existing drainage patterns and sediment transport characteristics as the result of the upstream diversion of flows and the subsequent release of those flows at discreet locations on the downstream side of the project. Certain downstream areas would receive more flow than under existing conditions, while other areas may no longer receive any surface flow beyond what may be the result of direct precipitation. The concentration of flows at the proposed diffuser structures may have the potential for increased erosion. Submittal of a revised Drainage Report and detailed hydraulic analysis (as described in the CEC Staff Assessment) is anticipated to minimize impacts related to surface drainage associated with construction and operation of the project to below the level of significance.

Flood Hazards. The BSPP would be protected from flooding from offsite sources through the construction of engineered channels along upstream Project boundaries. These channels would capture and convey up to the 100-year flow through and around the project and discharge it at four discreet locations on the downstream (east) project boundary. Protection of the facility from flooding and erosion related to onsite runoff will be accomplished through appropriate grading and the construction of engineered swales and channels. The proposed drainage plan when completed and implemented consistent with the requirements of a revised Drainage Report, detailed hydraulic analysis, proper drainage channel design, and appropriate channel erosion protection, would adequately protect the facility from significant damage due to flooding and erosion associated with events up to the 100-year discharge as defined in the approved project Drainage Report.

Surface Water Quality. Project storm water may encounter soil or chemicals deleterious to aquatic and terrestrial plant and wildlife. The project applicant (Solar Millennium) proposes to implement BMPs for managing potentially harmful storm water and protect water quality. The project would alter natural storm water drainages and use BMPs to reduce potentially significant impacts related to concentrated drainage and ensuing soil erosion and sediment transport offsite. Potential threats to surface water quality related to construction includes: potential increases in sediment loads to adjacent streams and washes, and accidental spills of hydrocarbon fuels and greases associated with construction equipment. The implementation of BMPs as defined in Drainage Erosion and Sedimentation Control Plan would reduce potential water quality impacts to insignificant. No significant impacts are anticipated related to surface

water quality. Submittal of proof of compliance with Waste Discharge Requirements and evidence of appropriate channel erosion protection is anticipated to further minimize potential for impacts related to surface water quality associated with construction and of the project.

Operational Impacts

The potential direct effects of the BSPP on local water resources are those associated with the plant's operational process water demand. No surface water would be used for operation of the project, though BSPP operation may have an effect on the ephemeral washes traversing the site. Potential impacts on water resources during operation include drawdown and related impacts, depletion of water resources, water quality impacts, erosion, and drainage impacts.

Groundwater Basin Balance. The discussion of this potential impact under Construction Impacts above applies to operations as well.

Groundwater Levels. The BSPP has the potential to lower groundwater levels as a result of water production during both construction and operations. Please see the discussion of this impact under Construction Impacts above.

***Groundwater Quality*.** Groundwater quality in the vicinity of the BSPP site could be impacted as a result of the operation of the LTU, surface evaporation impoundments and septic fields. Preliminary studies and calculations have been made to assess the potential for impact. These studies suggest that there is a low potential to impact groundwater quality in the vicinity of the project site.

The Applicant will operate a Land Treatment Unit (LTU) on the BSPP site to process soil that is impacted with Therminol® VP1 HTF as a result of minor leaks or spills that occur during the course of daily operational or maintenance activities. Due to the viscosity of HTF at ambient temperatures, the insolubility of HTF, the depth of the water table, and the placement of protective berms around the LTU, it is expected that surface water and groundwater quality beneath the site would not be impacted by LTU operation.

The BSPP will include four evaporation ponds that will be used to dispose of wastewater associated with the project. The ponds will be designed and permitted as Class II Surface Impoundments in accordance with CRBWQCB requirements, as well as the requirements of the California Integrated Waste Management Board (CIWMB). Monitoring of the evaporation ponds will be required to detect the presence of liquid and/or constituents of concern. Due to the aforementioned construction and operational procedures of the surface impoundments along with submittal of proof of compliance with Waste Discharge Requirements, groundwater quality is not anticipated to be affected as a result of disposal of this waste stream and impacts to groundwater quality would be below the level of significance.

Individual septic systems and leach fields are planned for each of the four power blocks and the project's maintenance facility for a total of five septic systems and leach fields. Operation of the septic systems and leach fields are not expected to impact surface and groundwater quality.

Due to the uncertainty associated with the potential to impact groundwater quality and the regulatory requirements for operation of the LTU, surface evaporation impoundments, and stormwater and septic system operations, submittal of proof of compliance with Waste Discharge Requirements and septic system and leach field requirements, as well as submittal of a Groundwater Quality Monitoring and Reporting Plan (as detailed within the Staff Assessment), are required to minimize impacts below a level of significance.

***Flood Hazards*.** During operation, the proposed collector and conveyance channels around the periphery of the BSPP would be exposed to incoming side flows along much of their extents. This would be of most

significant concern along the North, West and South channels. These inflows would include concentrated runoff at the more defined drainages, shallow sheet flow across much of the project boundary, and smaller localized flows. All of these elements have the ability to cause significant erosion of unprotected channel banks as well as to create headcutting which would extend roughly perpendicular from the outer channel bank into the adjacent floodplain. These headcut features have the potential to achieve the same depth as the main collector channel and can extend upstream for several hundred feet over time due to numerous smaller flow events, or can occur very quickly from a single large event depending on the magnitude of flow at a given location. Significant impacts to areas beyond the project boundaries can occur due to these erosional features. Appropriate bank stabilization measures must be implemented to ensure that headcutting is prevented at all locations where flow enters the engineered channels. The project owner is required to submit proof of adequate channel erosion protection.

Operation of the proposed offsite and onsite channels would require significant inspection and maintenance over the life of the facility to ensure that the channels are operating as intended and that potential and observed erosion issues are addressed promptly to minimize damage to the facility and areas beyond the BSPP boundary.

Implementation of the Drainage Erosion and Sedimentation Control Plan, as well as additional requirements listed below, is anticipated to minimize impacts related to flood hazards associated with operation of the project to below the level of significance. Additional requirements include proper bank protection to minimize erosion and headcutting of collector and conveyance channels, proper monitoring and maintenance of channels throughout the life of the project, and completion and submittal of proper drainage and hydraulic analyses.

Surface Water Quality. Potential threats to surface water quality related to operations includes: potential increases in sediment loads to adjacent washes; accidental spills of hydrocarbon fuels and greases (including HTF fluid) associated with operations equipment; and accidental releases from HTF treatment area and the surface impoundments that include auxiliary equipment cooling blowdown and RO reject water. Potentially significant water quality impacts could occur during operations if contaminated or hazardous materials used during operations were to contact storm water and drain offsite.

A Drainage Erosion and Sedimentation Control Plan would be required prior to onsite operations and will reduce the potential for increased sediment loads to less than significant. Potential spills will be managed through hazardous materials management. The operation of the surface impoundments will include two feet of freeboard to minimize the potential for overtopping during 100-year precipitation event. In addition, the LTU and surface impoundments would operate under the Waste Discharge Requirements that include operational and leak detection monitoring and would reduce the potential for impacts to surface water quality to less than significant. No significant impacts are anticipated related to surface water quality.

D.4.5.2 Genesis Solar Energy Project

Construction Impacts

The direct potential effects of the GSEP on local water resources are those associated with using groundwater for construction (specifically for demands during site grading). No surface water will be used, though project construction may have an effect on the ephemeral washes traversing the site, or springs and wet playas.

Potential impacts on water resources during construction include soil erosion, geomorphology, groundwater basin balance, groundwater levels, groundwater quality, surface water hydrology, and surface water quality impacts.

***Soil Erosion*.** Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Due to generally flat terrain, the GSEP site is not prone to significant mass wasting (gravity driven erosion and non-fluvial sediment transport). Grading of the project site will result in a less than one percent slope downward from the north to the south of the site. Earthwork associated with the GSEP will include excavation for foundations and underground systems, and the total earth movement that will occur is approximately 1,000,000 cubic yards. The vast majority of project grading and excavation will occur on the GSEP site with only minor grading and excavation needed for the transmission line as well as the gas pipeline and access road. Cut and fill will be balanced on site and there will be no need to either import or export earthen material.

During construction, the surface of the disturbed areas will be devoid of vegetation and there will be the highest potential for erosion, as well as associated effects including soil loss and increased sediment yields downstream from disturbed areas. The area of the GSEP site and project-related off-site linears has a moderate to high potential for wind and water erosion. The Wind Erosion Prediction System (WEPS) model was used to estimate soil loss due to wind erosion. Wind erosion rates at this project are an order of magnitude higher than soil erosion by rainfall runoff at this location due to the relatively low annual rainfall amount and the presence of fine, sandy soils.

Roads and paved areas will be kept free of dust, dirt and visible soil materials. Materials will be kept on site to implement temporary control measures during the operational life of the project. Implementation of BMPs (such as straw bales, silt fences, and limiting exposed areas) and conditions of certification would reduce the impacts to insignificant. Implementation of the Drainage Erosion and Sedimentation Control Plan (as detailed in the Decision), appropriate drainage channel design and erosion protection, submittal of a detailed flow analysis, and implementation of a channel maintenance program would ensure there would be no potential for impacts to soils related to water erosion.

Wind Transport Corridor Disruption. Portions of the solar array and project-related off-site linears would be placed within active wind corridors. These project components could interfere with sand and sediment transport within the wind corridors. However, reduction in sediment transport capacity is not considered a significant impact. However, although the magnitude of impact to the entire wind transport corridor is relatively low, the area of off-site impacts immediately downwind of the project is large: the combined area impacted by intrusions into wind corridors is 453 acres. This area would be expected to experience deflation (loss of sand from the existing vegetated dunes over time) and armoring (coarsening of the sand and gravel as fine sand is eroded by the wind).

Most wind-borne transport of sand occurs within 3 feet of the ground, so infrastructure should be constructed flush with the surrounding ground surface and without ground level obstructions. Power pylons should not pose a significant problem due to their small surface area at ground level. Water and gas pipelines should be buried below ground. Road surfaces should be flush with the ground surface. The amount and quantity of drainage ditches running perpendicular to the wind direction (approximately north-south in the northern section of the lateral route, shifting to west-east in the southern area) should be minimized. The Drainage Erosion and Sedimentation Control Plan (as detailed in the Decision) will address issues related to minimizing/eliminating creation of barriers to wind and water transport. In addition, the Channel Maintenance Program will address concerns related to infilling of channels by wind transport of sediment. Consequently, potential impacts to drainage channels related to location in

sand transport areas is believed to be mitigated to less than significant with implementation of the above-mentioned Conditions of Certification.

Groundwater Basin Balance. The project has proposed to utilize underlying groundwater to supply project water needs during construction. There is a concern that the water demand of the project will exceed the groundwater basin budget and lead to overdraft conditions. A comparison was made between the average annual basin budget with the anticipated project water production requirements. Currently, the CVGB balance is positive by approximately 2,608 afy whereby inflow (approximately 13,719 afy) to the basin is slightly greater than estimated outflows (approximately 11,111 afy) to the basin.

All water used in association with the GSEP project would be derived from local groundwater aquifers associated with the Bouse Formation and/or the underlying fanglomerate deposits. Based on the currently proposed dry cooling system for the GSEP, the evidence indicates that proposed groundwater used during project construction (between approximately 616 and 1,368 acre-feet per year (AFY) and operation (202 AFY) will not exceed the positive yearly balance of 2,600 AFY. Accordingly, Project-related impacts to the local groundwater basin balance will be less than significant.

The GSEP's pumping could also have an effect on the adjacent Palo Verde Mesa Groundwater Basin by inducing flows from the Colorado River. Given the location of the project and the anticipated annual water requirements, it is anticipated that the GSEP may have a significant impact on the adjacent (Palo Verde Mesa) groundwater basin. The U.S. Geological Survey (USGS) has indicated that the PVMGB and the CVGB lie within a basin tributary to the Colorado River and that wells drawing groundwater within those groundwater basins could be considered to be withdrawing water from the Colorado River Aquifer. Consequently, GSEP has the potential to indirectly divert Colorado River water without any entitlement to the water, and all groundwater production at the site could be considered Colorado River water. The project owner will be required to replace the quantity of water contributed by the Colorado River from the GSEP's proposed groundwater extraction.

Under the Conditions of Certification, the project applicant (NextEra) is required to develop a Water Supply Plan that includes water conservation projects such as use of ZLD systems, payment for irrigation improvements in Palo Verde Irrigation District purchase of water rights within the Colorado River Basin that will be held in reserve, and/or participation in BLM's Tamarisk Removal Program. The project applicant could choose to conduct a refined analysis of the quantity of water contributed by the Colorado River from project groundwater extraction. This analysis may be used to revise the volume of water that must be replaced in accordance with the Water Supply Plan.

Groundwater Levels. The GSEP has the potential to lower groundwater levels as a result of water production during both construction and operations. The lowering of groundwater levels could have a significant impact if the lowering of the groundwater levels: (1) impacts existing water wells in the basin; (2) lowers the water table in areas where deep-rooted phreatophytes are prevalent (see Section C.2 for impacts related to biological resources, (3) affects surface water features including springs and/or 4) induces permanent ground subsidence. Phreatophyte trees such as Mesquite, Ironwood or Palo Verde have deep root systems that can extend tens of feet below the ground surface to the underlying water table. In addition, wet playas can harbor halophyte plant communities that depend on a shallow water table for their moisture. Lowering of the water table below the root depth of these plants could result in stress or death. If this impact affects sensitive species, it is significant and requires mitigation. The nearest potential wetland or halophyte communities are near Palen Lake. BLM has identified an ironwood woodland community approximately 5 miles north of the GSEP site. Predicted water table drawdowns

beneath this woodland are in the range of 0.05 to 0.2 feet. The Biological Resources analysis describes potential impacts to vegetation that may be dependent on shallow groundwater table conditions.

Preliminary investigations conducted at the GSEP site suggest that the aquifer proposed for development is under confined to semi-confined conditions and is separated in part from the shallow alluvial groundwater system by low permeability sediments. The potential for significant subsidence associated with the pumping of groundwater for the project is considered low. However, due to the uncertainty related to conditions at the GSEP site, a monitoring program will be implemented to assess long term changes that may occur as a result of groundwater pumping in the area. The project owner will be required to implement a Subsidence Monitoring and Action Plan to assess and mitigate potential effects of non-elastic subsidence associated with groundwater extraction in the vicinity of the proposed production wells.

Given the current understanding of the hydrogeology of the Quaternary Alluvium, the Bouse Formation and the Fanglomerate, as well as the current understanding concerning existing wells that may be affected by Project-induced drawdown, it is unlikely that groundwater pumping for the GSEP would cause any nearby wells to go dry or be severely impaired or rendered unusable by declining groundwater levels.

Groundwater levels near the GSEP's water supply wells will decline during the project pumping. Local decline of groundwater levels within the cone of depression could affect nearby wells. While preliminary studies and calculations have been made to assess the potential for impact, the quantification of the impact is considered an estimate and will not be able to be accurately quantified until actual long-term groundwater production occurs. Implementation of a Groundwater Monitoring, Mitigation, and Reporting Plan is expected to minimize impacts to groundwater levels below the level of significance.

Groundwater Quality. There is a potential that significant groundwater quality impacts could occur during construction if contaminated or hazardous materials used during construction were to be released and migrate to the groundwater table. Given the distance to the groundwater table (70 to 90 feet bgs) and the proposed implementation of a hazardous material management plan during construction it is expected that impacts to groundwater quality will be below the level of significance.

There is a potential that project extraction of groundwater may induce vertical flow of high saline groundwater from beneath Ford Dry Lake to lower aquifers being used for water production located beneath the site. Slight lateral transport of high TDS groundwater may occur as a result of the project and the vertical transport of high saline groundwater downward may slightly increase TDS concentrations in some limited areas.

The impact upon water quality due to project pumping was completed by simulating transport of chloride in groundwater using the MT3D transport model. During the 33-year pumping simulation, chloride concentrations are projected to decrease slightly, from a baseline concentration of approximately 1,600 mg/L to approximately 1,470 mg/L at the end of the simulation. This is a decrease of approximately 8 percent and is likely due to the dilution of groundwater in the project area by lower TDS groundwater drawn in from the north and east of the GSEP site. However, due to the uncertainty associated with the amount of information available concerning shallow groundwater quality, continuity of confining layers and on vertical migration, implementation of a Groundwater Quality Monitoring and Reporting Plan is expected to minimize impacts to groundwater quality below the level of significance.

With regard to the operation of the Land Treatment Unit (LTU) on the project site, the material that will be placed in the LTU consists of soil that is contaminated with Therminol® VP1 HTF as a result of minor

leaks or spills that occur during the course of daily operational or maintenance activities. The LTU will cover an area of approximately 600 feet by 725 feet, including the staging area, and will cater to both 125 MW units. The LTU will be constructed with a prepared base consisting of two feet of compacted, low permeability, lime treated material and be surrounded on all sides by a minimum two foot high compacted earthen berm with slopes of approximately 3:1 (horizontal:vertical) that will serve as a protective barrier to the downward movement of contaminants from the LTU. Moreover, should any contaminants escape the LTU, the water table is approximately 70 to 90 feet beneath the LTU. Operation of an LTU is not expected to impact surface water or groundwater quality beneath the site.

In addition, the GSEP owner will be required to comply with specific waste discharge requirements that detail construction performance standards, expected operational requirements of the LTU, groundwater and leak detection monitoring requirements and action requirements associated with the operation of the LTU. Compliance with Waste Discharge Requirements would minimize potential impacts to groundwater quality to below the level of significance. In summary, because of the viscosity of HTF at ambient temperatures, the insolubility of HTF, the depth of the water table, and the placement of protective berms around the LTU, and the waste discharge requirements set forth in the Conditions of Certification, it is expected that surface water and groundwater quality beneath the site will not be impacted by LTU operation.

Each of the proposed 125 MW units will have one, approximately 5-acre, evaporation pond to dispose of wastewater from sources including reverse osmosis (RO) reject water and the air-cooled condenser (ACC), with a total pond area of approximately 10 acres for the entire project site. The ponds will be designed and permitted as Class II Surface Impoundments in accordance with applicable regulatory requirements. Multiple ponds are planned to allow continued plant operations during activities such as pond maintenance. Pond dimensions will be designed to provide adequate surface area and depth to accommodate proposed wastewater inflow and precipitation rates over the life of the project (approximately 30 years), as well as to provide adequate freeboard for direct precipitation from large storm events (i.e., to prevent overflow).

The precipitated solids will be sampled and analyzed to meet the characterization requirements of the receiving disposal facility, with the nature of the solids to determine the transportation and disposal methodology. Monitoring of the evaporation ponds will be required during project operation to detect the presence of liquid and/or solid constituents of concern. Based on the described design criteria and monitoring program, as well as the additional requirements which mandate compliance with applicable waste discharge standards and implementation of an approved Groundwater Quality Monitoring and Reporting Plan, potential groundwater quality impacts associated with the evaporation ponds will be mitigated less than significant.

The use and application of septic fields is an established practice as a method of wastewater treatment. The closest septic field to a privately owned parcel of land is in excess of one-half mile. The septic system will have no effect on the surface water in or around the GSEP site. The septic system will be installed approximately 5 to 6 feet deep. In addition, the Riverside County Department of Environmental Health has a Technical Guidance manual for Onsite Wastewater Treatment Systems and this requires a setback of 100 feet between this type of system and the nearest groundwater well. It is assumed that individual septic systems and leach fields are planned for each of the two power blocks in support of the GSEP's administrative, warehouse, and control room and facilities. The proposed septic systems and leach fields for the various facilities are hydraulically up-gradient approximately 3 miles from the nearest offsite well. Therefore, operation of the septic systems and leach fields from these areas are not expected to impact groundwater quality at the nearest offsite wells.

Groundwater quality in the vicinity of the project site could be impacted as a result of the operation of the LTU, surface impoundments and septic fields. Preliminary studies and calculations have been made to assess the potential for impact. These studies suggest that there is a low potential to impact groundwater quality in the vicinity of the project site. Due to the uncertainty associated with the potential to impact groundwater quality and the regulatory requirements for operation of the LTU, surface impoundments as well as stormwater and potentially septic system operations, implementation of specific monitoring and mitigation will be required. Implementation of Conditions of Certification, including Waste Discharge Requirements and Septic System and Leach Field Requirements, are anticipated to minimize impacts below a level of significance.

Alteration of Drainage Patterns. All existing washes and floodplains within the GSEP boundary will be completely eliminated by the grading of approximately 1,800 acres to provide the flat, uniform and vegetation-free topography required for the construction and operation of the solar mirror array. The existing natural drainage system will be replaced with a system of constructed swales and channels designed to collect and convey onsite flows to designated points of discharge from the project. Onsite stormwater from the GSEP will be discharged offsite through constructed detention basins which will provide for attenuation of increased discharges due to site development. The impact to onsite drainage patterns will be significant. The project will not impact the existing natural drainage system upstream of the GSEP boundary as there are no plans for any diversions, basins, dams or other surface water controls beyond the upstream limits of the project. However, there is the potential for erosion of offsite areas upstream due to the formation of headcuts which could migrate laterally from the engineered channels if they are not stabilized and protected. Physical modifications to the natural drainage system downstream of the GSEP boundary are not proposed. However, there will be changes to both the existing drainage patterns and sediment transport characteristics as the result of the concentration and diversion of flows upstream of the project, and the subsequent release of those flows at discreet locations on the downstream side of the project. Certain downstream areas will receive more flow than under existing conditions, while other areas may no longer receive any surface flow beyond what may be the result of direct precipitation. The release of concentrated flows at the proposed dispersion structures may have the potential for increased erosion. The assessment of the impacts to the existing surface flow patterns requires a detailed analysis utilizing FLO-2D or a similar model to clearly delineate the pre- and post-project conditions. Information obtained from such an analysis is critical to assess the extent and adequacy of the proposed flood control measures on the northern eastern project boundaries as well as along the downstream project boundary where flow is released from the engineered channels onto existing ground.

The design for the outlet structures from the downstream engineered channel will allow for flexibility for where flow is released and how much is released at discreet locations. Implementation of Conditions of Certification is anticipated to minimize impacts related to surface drainage associated with construction and operation of the GSEP to below the level of significance. These conditions require drainage and flow analysis, and provide specific guidance and requirements for channel and erosion protection design that will minimize erosion resulting from flow within and into the channel for the adjacent floodplain.

Flood Hazards. The GSEP will be protected from flooding from offsite sources through the construction of engineered channels along upstream project boundaries. These channels will capture and convey up to the 100-year flow through and around the project and discharge it along the southern project boundary. The Concept Drainage Study and Conceptual Grading Plans for the project provide information on the layout and geometry of the proposed channels as well as the design discharges for each reach. Cross-sections for each channel were also provided which show how the channels will tie into existing grade and into the proposed facility. Given the extremely flat nature of the site, there do not appear to

be any major grading related issues that would favor erosion, such as large cut slopes to accommodate a terraced project design.

Protection of the facility from flooding and erosion related to onsite runoff will be accomplished through appropriate grading and the construction of engineered swales and channels. The Conceptual Grading Plan provided in the DESCP indicates finished grades within the solar array of less than 0.3 percent. The relatively flat slopes and grading will prevent runoff from concentrating, resulting in shallow sheet flow which will minimize the potential for surface erosion and sediment transport. Drainage channels will be placed at within the facility to collect and convey onsite flows. These channels will be constructed at a slope of approximately 0.40 percent which should result in non-erosive velocities. Collector channels will discharge into detention basins which will subsequently discharge offsite at the property boundary. The proposed drainage plan when completed and implemented consistent with the requirements of Conditions of Certification would adequately protect the facility from significant damage due to flooding and erosion associated with events up to the 100-year discharge as defined in the approved project Drainage Report. These conditions provide specific requirements for flow velocities and bank protection that will minimize channel erosion, as well as require studies and analysis to verify and document the appropriateness of the drainage design.

Surface Water Quality. Project stormwater may encounter soil or chemicals deleterious to aquatic and terrestrial plant and wildlife. The GSEP applicant proposes to implement BMPs for managing potentially harmful storm water and protect water quality. Potentially significant water quality impacts could occur during operations if contaminated or hazardous materials used during operations were to contact storm water and drain offsite. The GSEP would alter natural storm water drainages and use BMPs to reduce potentially significant impacts related to concentrated drainage and ensuing soil erosion and sediment transport offsite.

Potential threats to surface water quality related to construction on the project site as well as linear features and would include: potential increases in sediment loads to adjacent streams and washes; accidental spills of hydrocarbon fuels and greases associated with construction equipment. Potential increased sediment loads will be mitigated through development and implementation of a Drainage Erosion and Sedimentation Control Plan (DESCP). Proper implementation of the DESCP ensures proper protection of water quality and soil resources, including provisions for sediment and stormwater retention from the power block, solar fields and transmission right of way. Accidental spills of hydrocarbon fuels and greases associated with construction equipment will be mitigated by development and implementation of a Spill Prevention, Control and Countermeasure (SPCC) Plan. The SPCC Plan sets forth spill prevention methods as well as actions to be taken in the event of an accidental spill or release of hazardous materials. Implementation of Conditions of Certification would reduce potential water quality impacts to insignificant.

Operational Impacts

The direct potential effects of the GSEP on local water resources are those associated with using groundwater for the plant's operational process water demand. No surface water will be used, though Project operation may have an effect on the ephemeral washes traversing the site, or springs and wet playas.

Potential impacts on water resources during operation include soil erosion, geomorphology, groundwater basin balance, groundwater levels, groundwater quality, surface water hydrology, and surface water quality impacts.

Soil Erosion. Impacts of project operations on the proposed rerouted desert washes are discussed in the Biological Resources analysis. As discussed in the Air Quality analysis, by its nature, a solar thermal proj-

ect must keep dust to a minimum, as a film on the collectors of the solar array will reduce their efficiency for power production. Dust control will be achieved by a combination of soil stabilizers, water from the collector washing and waste cooling water, and compaction of the driving surface over time. Therefore, operational controls designed to control dust are expected to reduce the overall soil erosion in the area. Therefore, potential construction- and operation-related impacts to onsite soils would be confined to the GSEP site and related off-site linears. With implementation of BMPs as detailed in the DESCP, erosion is expected to be mitigated to a less than significant level.

To address the management of sediment transport, erosion, and sedimentation during operation, the project design will incorporate diversion berms, channels, and detention basins. Dirt roads and exposed surfaces will be periodically treated with dust palliatives as needed to reduce wind erosion. Construction and maintenance of the proposed drainage and sediment management system at the GSEP site is expected to reduce water and wind erosion at, and downstream of, the GSEP site to less than significant levels.

Flood Hazards. During operation, the proposed collector and conveyance channel along the west project boundary will be exposed to incoming side flows along most of its extent. These inflows could include concentrated runoff at the more defined drainages, shallow sheet flow, and smaller more localized flows. All of these elements have the ability to cause significant erosion of unprotected channel banks as well as to create headcutting which will extend roughly perpendicular from the outer channel bank into the adjacent floodplain. These headcut features have the potential to achieve the same depth as the main collector channel and can extend upstream for several hundred feet over time due to numerous smaller flow events, or can occur very quickly from a single large event depending on the magnitude of flow at a given location. Significant impacts to areas beyond the project boundaries can occur due to these erosional features. Appropriate bank stabilization measures must be implemented to ensure that headcutting is prevented at all locations where flow enters the engineered channels.

Operation of the proposed channels and erosion mitigation measures will require significant inspection and maintenance over the life of the facility to ensure that the channels are operating as intended and that potential and observed erosion issues are addressed promptly to minimize damage to the facility and areas beyond the project boundary. Relatively small problems and erosional features which develop during smaller more frequent event can become the focal point for problems during larger events. The applicant has prepared a Draft Channel Maintenance Plan which addresses some of the potential issues associated with long term operation of the channels. The requirement for adequate channel erosion protection is addressed in a Condition of Certification that provides specific requirements for where and under what conditions channel protection must be provided, ensuring that the potential for channel erosion is eliminated or minimized.

The GSEP applicant shall develop and implement a Channel Maintenance Program that provides a framework for routine channel maintenance projects and ensures compliance with conditions of certification in a feasible and environmentally-sensitive manner. The Channel Maintenance Program would be a process document prepared by the project owner, which would be reviewed and approved by the CPM. The Channel Maintenance Program provide long-term guidance for the implementation of routine channel maintenance projects and comply with GSEP's related biological and flood protection conditions of certification. The main goals of the Channel Maintenance Program would be to maintain the diversion channels to meet its original design to provide flood protection, protect offsite areas form erosion, support project mitigation, protect wildlife habitat and movement/migration, and maintain groundwater recharge. Compliance with the Channel Maintenance Program, channel design criteria and erosion protection, as well as submittal of a detailed flow analysis, would reduce the impacts below the level of significance.

Surface Water Quality. Project stormwater may encounter soil or chemicals deleterious to aquatic and terrestrial plant and wildlife. The GSEP applicant proposes to implement BMPs for managing potentially harmful storm water and protect water quality. Potentially significant water quality impacts could occur during operations if contaminated or hazardous materials used during operations were to contact storm water and drain offsite. The GSEP would alter natural stormwater drainages and use BMPs to reduce potentially significant impacts related to concentrated drainage and ensuing soil erosion and sediment transport offsite.

Potential threats to surface water quality related to operations include: potential increases in sediment loads to adjacent washes; accidental spills of hydrocarbon fuels and greases (including HTF fluid) associated with operations equipment; and accidental releases from HTF treatment area and the surface impoundments that includes wastewater from the pre-treatment and RO reject water. A DESCP would be required prior to onsite operations and will reduce the potential for increased sediment loads to less than significant. Potential spills will be managed through hazardous materials management, as described in the hazardous materials analysis. The operation of the surface impoundments will include 2 feet of freeboard to minimize the potential for overtopping during 100-year precipitation event.

In addition, the LTU and surface impoundments would operate under the waste discharge requirements that include operational and leak detection monitoring and would reduce the potential for impacts to surface water quality to less than significant. Implementation of Conditions of Certification is anticipated to reduce impacts to surface water quality to below the level of significance associated with operation of the GSEP.

D.4.6 All Substation Site Alternatives

Environmental Setting

As described in Section D.4.1 (Environmental Setting for the Proposed Project), the environmental setting relevant to water supply is characterized by the following primary features: climate, surface water, floodplains, and groundwater. Due to the close proximity of the Proposed Project site to the Partial Avoidance Alternative site, the Avoidance Alternative #1 site, the Avoidance Alternative #2 site, the Avoidance Alternative #3 site, and the Southern Alternative site, characteristics of the environmental setting for Hydrology and Water Quality are essentially the same as described in Section D.4.1, with site-specific variations, as described in this section.

Regarding surface waters, the alternative sites, and especially the Southern Alternative site, are farther away from McCoy Spring and slightly closer to the Colorado River than the Proposed Project site. However, this difference has no effect on the aforementioned surface waters, as neither the Proposed Project nor any of the identified alternatives would result in direct impacts to McCoy Spring or the Colorado River. The alignment and patterns of surface water drainages vary across the Proposed Project site and alternative sites; however, surface water drainage patterns on each identified site are ephemeral desert washes with no water during most of the year. The characteristics of these drainages are the same on the Proposed Project and alternative sites.

The Proposed Project and each of the alternatives would be located within the Chuckwalla Valley Groundwater Basin, and the affected environment relevant to groundwater is the same.

Environmental Impacts and Mitigation Measures for All Substation Site Alternatives

The Applicant Proposed Measures (APMs) identified in Table D.12-3, presented in the Final EIR/EIS for DPV2, were approved under the Final EIR/EIS and are considered part of the Proposed Project and each alternative. In addition, all applicable regulations, plans, and standards described in the 2006 Final EIR/EIS for DPV2 are applicable to these alternatives.

As described in Section 4.2.1 of Appendix 1 (Alternatives Screening) and portrayed on Figure Ap.1-1, the Partial Avoidance Alternative and Avoidance Alternatives #1, #2, and #3 would be rotated in orientation, compared to the Proposed Project and the prevailing wind, and would be large enough to accommodate a substation orientation either parallel or perpendicular to the sand transport corridor, thus encouraging sand transport through the substation site and minimizing the potential for sand to accumulate against permanent infrastructure installed on the site. The Partial Avoidance Alternative is located within the sand migration corridor, whereas the Avoidance Alternatives #1, #2, and #3 and the Southern Alternative are not. Due to the revised substation orientation within the sand migration corridor that would occur under the Partial Avoidance Alternative, wind- and/or water-transported sand may accumulate on the site and/or along project infrastructure at different rates than would occur under the Proposed Project. Although the Avoidance Alternatives #1, #2, and #3 are not located within the sand migration corridor, their rotated alignment compared to the Proposed Project may also result in wind- and/or water-transported sand accumulating on the site and/or along project infrastructure at different rates than would occur under the Proposed Project. The Southern Alternative, located outside of the sand migration corridor but with the same orientation as the Proposed Project, could result in the less sand accumulation than the Proposed Project. However, as mentioned above, all APMs identified for the Proposed Project would be implemented as part of the Partial Avoidance Alternative, and all applicable regulations, plans, and standards would be complied with. The magnitude of potential water quality impacts that may occur as a result of erosion, sedimentation, or stormwater runoff associated with site orientation and proximity to the sand transport corridor would be effectively the same for the Proposed Project and alternatives.

The temporary earth-disturbing activities, new permanent infrastructure, and water supply requirements that would occur under each of the alternatives are the same as would occur under the Proposed Project. Therefore, all hydrology and water quality impacts identified for the Proposed Project (Impacts H-1 through H-7) would be the same for the alternatives, and associated mitigation measures would be implemented as described in Section D.4.4.

D.4.7 No Project Alternative

Environmental Setting

The environmental setting of the scenario defined for the No Project Alternative (Section C.6) would incorporate the project area of the proposed substation expansion, as well as the project areas for the interconnecting solar projects (BSPP and GESP) and the transmission line routes between those solar fields and the CRS. These environmental setting defined in Section D.4.1 applies to this area as well as to the Proposed Project.

Environmental Impacts and Mitigation Measures for the No Project Alternative

The “No Project” analysis compares the environmental effects of constructing the Colorado River Substation as previously approved against environmental effects which would occur if the proposed expansion

is approved. The environmental effects of constructing the substation as previously approved and associated mitigation are described in Section D of the original DPV2 EIR/EIS (CPUC/BLM, 2006).

In addition to the construction of the already-approved 44-acre substation at the CRS site, the No Project scenario would require additional construction for expanded substations at the solar project sites or adjacent to existing Blythe area substations. It would also required revised and likely expanded rights-of-way for 500 kV transmission gen-tie lines (rather than the 230 kV gen-tie lines that are proposed). It is not possible to define these impacts with any specificity because no designs are available, but the types of impacts occurring during construction at those sites would be similar to those occurring at the Proposed Project site. Because additional ground disturbance could be required at multiple expanded substation sites, and additional right-of-way would be required for the additional GESP transmission line, impacts to surface water quality would likely be more severe than for the Proposed Project. In addition, larger amounts of water for dust control and substation operation would be required given the larger surface areas affected.

D.5 Socioeconomics and Utilities

This section is included in the SEIR because of the potential water supply and utility impacts associated with water usage at the substation site, as described in Section D.4 (Water Resources). The new groundwater well would place new demands on local water supply that what was evaluated under Socioeconomics and Utilities in the DPV2 Final EIR/EIS (2006).

D.5.1 Environmental Setting for the Proposed Project

The Colorado River Substation would be located 1.5 miles south of Interstate 10 and 4.75 miles east of Wiley Well Road, in the County of Riverside. As the CRS is located at the western end of the Palo Verde Valley but northwest of the original Midpoint Substation location, the substation setting is described in Sections D.14.2.4 and D.14.2.6 of the DPV2 Final EIR/EIS (CPUC, 2006). Tables D.14-6 and D.14-8 in the Final EIR/EIS provide public service and utility data for Riverside County in the vicinity of the CRS project. Within eastern Riverside County, the Final EIR/EIS states that water would be obtained from the municipal sources and residential wells (Palo Verde Valley).

Table D.4-2 in Section D.4 of this SEIR describes the new groundwater usage requirements for construction of the expansion project. SCE has proposed drilling groundwater wells for water supply at the CRS, which differs from the original municipal source analyzed in the DPV2 Final EIR/EIS.

D.5.2 Applicable Regulations, Plans, and Standards

All regulations, plans, and standards relevant to socioeconomics are described in the 2006 Final EIR/EIS for DPV2; however, none of the listed regulations in the DPV2 Final EIR/EIS specifically apply to water supply or usage, which are addressed in this Focused SEIR.

D.5.3 Approach to Impact Assessment

Significance Criteria

The same CEQA Significance Criteria that were used to identify impacts in the October 2006 DPV2 Final EIR/EIS are also used to identify impacts of project refinements addressed in this Supplemental EIR. Socioeconomic impacts will be considered significant if the project meets any of the following criteria

- The Proposed Project would displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere
- The Proposed Project would cause a substantial change in revenue for local businesses, government agencies, or Indian tribes
- The Proposed Project would disrupt existing utility systems or would cause a collocation accident
- The Proposed Project would require water, or would generate solid waste or wastewater that exceeds the ability of existing facilities to accommodate the new capacities
- The Proposed Project would require the construction of new public service facilities or require the expansion of existing facilities to accommodate an increased need for fire protection, police protection, schools, or other public services
- The Proposed Project would conflict with applicable land use plans and policies associated with socio-economics, public services, or utilities.

Applicant Proposed Measures and Previously Approved Mitigation Measures

As described in Section B.4 of this SEIR, Applicant proposed measures (APMs) were presented in Tables B-10 through B-18 in Section B.5 of the Final EIR/EIS, and they also apply to the proposed CRS expansion. Similarly, the mitigation measures presented in the Final EIR/EIS for the DPV2 project would also apply to the CRS expansion, as appropriate.

Note: Mitigation measures modified from those presented in the Final EIR/EIS are presented with inserted text underlined, deleted text in ~~strikeout~~, and "(rev)" after the measure number. These measures supersede the original measures presented in the Final EIR/EIS. New mitigation measures presented in this SEIR (and not included in the Final EIR/EIS) are underlined in their entirety. Changes made to text excerpted from the DPV2 Final EIR/EIS (2006) are shown with double underline and ~~double strikeout~~.

Method of Analysis

This section analyzes the potential for direct and indirect impacts of construction and operation of the Proposed Project to socioeconomics and provides mitigation, as necessary, to reduce the severity of potentially adverse impacts. This analysis is based on a review of environmental analyses, including recently prepared environmental review documents that are incorporated by reference herein and as described in Section A.5.2.

D.5.4 Environmental Impacts and Mitigation Measures for the Proposed Project

The DPV2 EIR/EIS previously analyzed impacts on socioeconomics, public services and utilities based on the significance criteria listed in Section D.5.3. The revised water supply for the CRS would use more groundwater than was previously evaluated; however, this modification would not change the previous analysis and conclusions for any of the significance criteria except the following, which is discussed herein (Impact S-2: Project construction would place demands on local water or solid waste utilities).

- The Proposed Project would require water, or would generate solid waste or wastewater that exceeds the ability of existing facilities to accommodate the new capacities

Impact S-2: Project construction would place demands on local water or solid waste utilities (Class II)

The 2006 Final EIR/EIS for DPV2 described water demand associated with each section of the project in Section D.14 (Socioeconomics), which also identified potential water service providers and indicated the percentage of each water service provider's total capacity represented by each respective section of the project. The DPV2 Final EIR/EIS estimated that substation construction would use approximately 0.9 af of water, which would represent 0.00005 percent of the 1.7 million af available annually from Metropolitan Water District (MWD) supplies in Riverside County.

The DPV2 2006 Final EIR/EIS concluded that existing water service providers have sufficient supply capacity to meet the needs of the approved DPV2, with no need for new or expanded water facilities. Although groundwater may be used as a portion of project supply, it would be provided through existing water utilities, municipalities, and conservation districts addressed in Section D.14 of the Final EIR/EIS, and would be delivered by these water service providers only if sufficient capacity under the responsible provider is available.

However, the revised water usage for the expanded CRS estimates that 309.3 to 364.6 million af would be used over approximately 22 to 24 months from groundwater wells (see Table D.4-3 under Impact H-7). The revised water source would avoid impacts to municipal water supplies, but instead water usage during construction activities would potentially deplete groundwater supplies or interfere with groundwater recharge (see Impact H-7), which in turn may affect water availability for other users in the area.

As described in detail in Section D.4.4, the following mitigation measures would be necessary to reduce potential impacts to groundwater supply and ensure that there would not be a net deficit in aquifer volume or a lowering of the local groundwater table level. Mitigation Measure H-7a (Develop a water supply contingency plan for construction) would be required to ensure that a Contingency Plan is in place to install an additional project well should pumping capacity for the proposed well be insufficient or become insufficient to meet project needs. Mitigation Measure H-7b (Groundwater Monitoring and Reporting Plan) would be required to assess any potential effects that project pumping may have on other wells in the area, and adjust project pumping as necessary. Finally, Mitigation Measure H-7c (Water Supply Plan for Use of Colorado River Water) would be required to ensure that compensatory measures would be implemented to avoid water supply impacts associated with use of appropriated Colorado River water. With implementation of these measures, impacts to groundwater supply would be less than significant (see Impact H-7), and as a result, impacts to local water supply, wells and users would also be less than significant (Class II).

With the exception of the water supply defined for the proposed substation construction, water supply impacts to local wells and users described in the 2006 Final EIR/EIS for DPV2 have not changed since approval of the final document.

Mitigation Measures for Impact S-2: Project construction would place demands on local water or solid waste utilities

H-7a Groundwater Well Contingency Plan.

H-7b Groundwater Monitoring and Reporting.

H-7c Water Supply Plan for Use of Colorado River Water.

D.5.5 Connected Actions

Section B.4 describes two solar power projects — BSPP and GSEP — that currently have Power Purchase Agreements and would interconnect at the CRS. As such, they are considered part of the proposed action to expand the CRS Substation. As explained in Section A, both BSPP and GSEP were previously evaluated under CEQA and NEPA, and those analyses are incorporated into this Supplemental EIR by reference. The impacts of those projects, as described in the prior environmental analysis, are summarized here.

The sections of the CEC analyses that are summarized below are the following:

- Blythe Solar Power Project: Revised Staff Assessment, Part 2, Section C.8.4.2, Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment Supplement, July 2010, Section C.8.4.2, Assessment of Impacts and Discussion of Mitigation.

D.5.5.1 Blythe Solar Power Project

Construction Impacts

Induce substantial population growth. Under the BSPP, the peak number of workers required for construction would be approximately 1,001 laborers. Based on estimated commute distances and labor supply in the regional study area, it is expected that the majority of construction workers would come from the regional study area, and that up to 15 percent of these workers (approximately 150 workers) would seek local lodging during the workweek. Based on the number of local hotel/motel rooms in the local area in 2008 and the 2007 average occupancy rate for San Bernardino and Riverside Counties, approximately 256 unoccupied rooms would be available in Blythe, and up to 2,202 unoccupied rooms would be available within a 1.5- to 2-hour drive from the BSPP site. Additionally, based on 2008 housing data, approximately 876 vacant housing units were available in Blythe and approximately 1,594 vacant housing units were available in Ehrenberg and Quartzsite, AZ. While there are 10 recreational vehicle (RV) parks in the vicinity of Blythe, with a combined capacity of 800 spaces, many of these spaces are used by year-round residents or are privately owned and would not be available for use by the construction workforce. Additionally, between October and March, these spaces are typically occupied by tourists. As such, any construction workers seeking RV and campground lodging would find limited availability in the local study area during the winter months. Comparing the estimated workforce that would relocate to the local area during the workweek to the local hotel/motel vacancies and housing unit vacancy rates, ample temporary housing would be available for these workers. As such, the BSPP would not result in substantial population in-migration to the local or regional study area.

***Displace existing housing*.** Under the BSPP, no housing would exist within the project site and required infrastructure ROW that would need to be removed. As described above, local hotel/motel and vacancy rates indicate ample temporary housing for the assumed maximum of 15 percent of construction workers that may seek temporary local housing during the workweek. As such, temporary in-migration would not trigger the need for new housing in the local study area based on available hotel/motel rooms and vacant housing units within the local study area. Therefore, the project would not displace any housing during construction, nor would any existing housing be displaced to provide worker housing during construction.

Result in substantial physical impacts to government facilities. Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the

demand for a particular service and lead to the need for expanded or new facilities. Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. Public service providers serving the BSPP site are located within Riverside County only and represent the local study area. Therefore, the study area for the public services analysis is limited to Riverside County.

During BSPP construction, the site would include security fencing. In addition, during construction on-site security would include trained, uniformed, unarmed personnel whose primary responsibility would be to control ingress and egress of personnel and vehicles, perform fire and security watch during off hours, and perform security badge administration, all of which would minimize the need for the Riverside County Sheriff's Department assistance. As discussed above, during the peak construction month (worst-case scenario) up to 150 workers would seek local lodging. This number of local study area temporary population increase is considered less than significant as these workers are assumed to already live within the regional study area and are currently a part of the Riverside County Sheriff's Department population served. While the BSPP would increase the number of individuals within the local study area during construction, current law enforcement capacity should be sufficient to handle emergencies at the site. Furthermore, there would be no permanent population in-migration occurring from BSPP construction that would increase the local population or would require the need for new or expanded law enforcement facilities or staff levels within the BSPP regional or local study areas.

As discussed above, the construction workforce for the BSPP would be hired from within the available regional workforce, with up to 15 percent of workers seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent population in-migration occurring from BSPP construction into the PVUSD. It is not anticipated that any construction workers seeking local temporary housing would bring school aged children seeking enrollment within the PVUSD. Consequently, construction of the BSPP would not require the need for new or expanded PVUSD school facilities or staff levels.

The Proposed Project site is currently undeveloped and inaccessible except by foot. While recreational use of the area is allowed under the BLM California Desert Conservation Area (CDCA) it is infrequent given its remote nature. The nearest park facilities to the BSPP site are located within the city of Blythe, located approximately 30 miles east of the BSPP site. The City of Blythe Parks Department is responsible for the maintenance and upkeep of the area's seven parks and one pocket park. As discussed above, the construction workforce for the BSPP would be hired from within the available regional workforce, with up to 15 percent of workers seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent population in-migration occurring from BSPP construction onto either the local or regional study areas. As discussed above, camping and RV facility use would not be available for BSPP construction workers seeking local area housing during winter months. Therefore, BSPP construction employment would not require the need for new or expanded recreational facilities or staff levels within the BSPP regional or local study areas.

Construction of the proposed BSPP would last 69 months, and include an average of 604 daily construction workers, peaking with a daily workforce of 1,001 workers during month 16 of construction. In the event an on-site accident occurs during project construction, both private ambulance service and Riverside County Fire Department (RCFD) firefighters would provide first responder emergency medical care services. Local area emergency medical facilities are expected to adequately handle any worksite accidents requiring their attention. Furthermore, the local and regional hospitals that would serve the BSPP site all stated construction of the project would not have a significant impact on their ability to serve the

community. No additional constraints or physical impacts would occur to the local study area healthcare services or facilities serving the BSPP site.

As described above, it is assumed that all required construction workforce of the BSPP would be found in the regional study area and no permanent in-migration would occur. In the event construction workers choose to temporarily seek short-term housing during the workweek (assumed up to 15 percent), these workers would not impact local public service ratios or capacities. Therefore, no new population in-migration would occur from construction that would decrease existing public service providers service levels and ratios, response times, capacities, or require new or expanded facilities serving the BSPP regional or local study areas.

Operational Impacts

Induce substantial population growth. It is assumed that operation of the BSPP would require approximately 221 operational employees, of which up to 55 would relocate to the area. With Blythe's 2008 housing vacancy rate of 16.1 percent, and Ehrenberg's 2000 housing vacancy rate of 34.9 percent, a total of approximately 6,268 housing units would be available. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, local area available housing described above would be sufficient to accommodate these workers and would not permanently induce substantial growth or concentration of population in excess of available housing or growth forecasts.

***Displace existing housing*.** Under the BSPP, no housing would exist within the project site and required infrastructure ROW that would require removal. As discussed above, it is possible that up to 55 operational employees would choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, local area housing would be sufficient to accommodate these employees and no existing housing would be displaced. Based on these conclusions, operation of the BSPP would not induce substantial population growth in excess of available local and regional study area housing. Therefore, the project would not displace any housing during operation nor would it displace any populations, and it would not necessitate construction of replacement housing elsewhere.

Result in substantial physical impacts to government facilities. Once operational, the proposed BSPP site would include security fencing, controlled access gates, and security lighting, which would minimize the need for the Riverside County Sheriff's Department assistance. As discussed above, the operational workforce for the BSPP is expected to be hired from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the BSPP would pay substantial annual property tax, which contributes to local public safety funding. Additionally, as it is likely a number of these employees already reside within Riverside County, only relocating closer to the BSPP site, they would not result in an increase over the total population policed by the Riverside County Sheriff's Department. Based on these findings, the operation of the proposed BSPP would not increase the local population or require the need for new or expanded law enforcement facilities or staff levels within the BSPP regional or local study areas.

Like all school districts in the state, the PVUSD is entitled to collect school impact fees for new construction within their district under the California Education Code Section 17620. All components of the BSPP, however, would be constructed entirely on BLM land. Therefore, no private land or lands within the

PVUSD's district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this project, resulting in no required school impact fee. Therefore, the BSPP would be in compliance with Education Code section 17620.

As discussed above, the operational workforce for the BSPP is expected to come from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the BSPP would pay substantial annual property tax, which contributes to local recreational facility funding. Therefore, permanent employment associated with the BSPP would not require the need for new or expanded parks and recreational facilities or staff levels within the BSPP regional or local study areas.

The proposed BSPP is expected to require a total of 221 permanent full-time employees. As discussed above for construction, the available emergency medical and hospital facilities serving the BSPP site and local study area are expected to adequately handle the permanent addition of the on-site staff and the long-term demands of the BSPP. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, this population would be adequately served by the local area emergency medical facilities as these facilities are privately owned and expand based on a supply and demand basis. Furthermore, the local and regional hospitals that would serve the BSPP site all stated operation of the project would be unlikely to have a significant impact on their ability to serve the community. Operation of the BSPP is not expected to significantly impact the existing service levels, response times, or capacities of the hospitals serving the BSPP.

Consequently, in the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the BSPP would pay substantial annual property tax, which contributes to local public safety, school, and recreational facility funding. As such, operation of the BSPP is not expected to significantly impact the existing service levels, response times, or capacities of the police, school, recreational facility, or hospitals serving the BSPP local study area.

D.5.5.2 Genesis Solar Energy Project

Construction Impacts

Induce substantial population growth. Under the GSEP, the peak number of workers required for construction would be approximately 1,085 laborers. Based on estimated commute distances and labor supply in the regional study area, it is expected that the majority of construction workers would come from the regional study area, and that up to 15 percent of these workers (approximately 163 workers) would seek local lodging during the workweek. Based on the number of local hotel/motel rooms in the local area in 2008 and the 2007 average occupancy rate for San Bernardino and Riverside Counties, approximately 256 unoccupied rooms would be available in Blythe, and up to 2,202 unoccupied rooms would be available within a 1.5- to 2-hour drive from the GSEP site. Additionally, based on 2008 housing data, approximately 876 vacant housing units were available in Blythe and approximately 1,594 vacant housing units were available in Ehrenberg and Quartzsite, AZ. While there are 10 recreational vehicle

(RV) parks in the vicinity of Blythe, with a combined capacity of 800 spaces, many of these spaces are used by year-round residents or are privately owned and would not be available for use by the construction workforce. Additionally, between October and March, these spaces are typically occupied by tourists. As such, any construction workers seeking RV and campground lodging would find limited availability in the local study area during the winter months. Comparing the estimated workforce that would relocate to the local area during the workweek to the local hotel/motel vacancies and housing unit vacancy rates, ample temporary housing would be available for these workers. As such, the GSEP would not result in substantial population in-migration to the local or regional study area.

***Displace existing housing*.** Under the GSEP, no housing would exist within the project site and required infrastructure ROW that would need to be removed. As described above, local hotel/motel and vacancy rates indicate ample temporary housing for the assumed maximum of 15 percent of construction workers that may seek temporary local housing during the workweek. As such, temporary in-migration would not trigger the need for new housing in the local study area based on available hotel/motel rooms and vacant housing units within the local study area. Therefore, the project would not displace any housing during construction, nor would any existing housing be displaced to provide worker housing during construction.

***Result in substantial physical impacts to government facilities*.** Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service and lead to the need for expanded or new facilities. Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. Public service providers serving the GSEP site are located within Riverside County only and represent the local study area. Therefore, the study area for the public services analysis is limited to Riverside County.

During GSEP construction, the site would include security fencing, which would minimize the need for the Riverside County Sheriff's Department assistance. As discussed above, during the peak construction month (worst-case scenario) up to 163 workers would seek local lodging. This temporary population increase is considered less than significant as these workers are assumed to already live within the regional study area and are currently a part of the Riverside County Sheriff's Department population served. While the GSEP would increase the number of individuals within the local study area during construction, current law enforcement capacity should be sufficient to handle emergencies at the site. Furthermore, there would be no permanent population in-migration occurring from GSEP construction that would increase the local population or would require the need for new or expanded law enforcement facilities or staff levels within the GSEP regional or local study areas.

As discussed above, the construction workforce for the GSEP would be hired from within the available regional workforce, with up to 15 percent of workers seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent population in-migration occurring from GSEP construction into the PVUSD. It is not anticipated that any construction workers seeking local temporary housing would bring school aged children seeking enrollment within the PVUSD. Consequently, construction of the GSEP would not require the need for new or expanded PVUSD school facilities or staff levels.

The Proposed Project site is currently undeveloped and inaccessible except by foot. While recreational use of the area is allowed under the BLM California Desert Conservation Area (CDCA) it is infrequent given its remote nature. The nearest park facilities to the GSEP site are located within the city of Blythe, located approximately 30 miles east of the GSEP site. The City of Blythe Parks Department is responsible for the maintenance and upkeep of the area's seven parks and one pocket park. As discussed above, the

construction workforce for the GSEP would be hired from within the available regional workforce, with up to 15 percent of workers seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent population in-migration occurring from GSEP construction onto either the local or regional study areas. As discussed above, camping and RV facility use would not be available for GSEP construction workers seeking local area housing during winter months. Therefore, GSEP construction employment would not require the need for new or expanded recreational facilities or staff levels within the GSEP regional or local study areas.

Construction of the proposed GSEP would last 39 months, and include an average of 646 daily construction workers, peaking with a daily workforce of 1,085 workers during month 23 of construction. In the event an on-site accident occurs during project construction, both private ambulance service and Riverside County Fire Department (RCFD) firefighters would provide first responder emergency medical care services. The Riverside County Fire Department and its fire stations, staff and paramedics would be augmented by a one-time and annual payment plan from GSEP to build additional facilities to provide services. Because of the high number of construction employees that would be located on-site, RCFD would receive funds to augment additional service requirement, including emergency medical. Local area emergency medical facilities are expected to adequately handle any worksite accidents requiring their attention. Furthermore, the local and regional hospitals that would serve the GSEP site all stated construction of the project would not have a significant impact on their ability to serve the community. No additional constraints or physical impacts would occur to the local study area healthcare services or facilities serving the GSEP site.

As described above, it is assumed that all required construction workforce of the GSEP would be found in the regional study area and no permanent in-migration would occur. In the event construction workers choose to temporarily seek short-term housing during the workweek (assumed up to 15 percent), these workers would not impact local public service ratios or capacities. Therefore, no new population in-migration would occur from construction that would decrease existing public service providers service levels and ratios, response times, capacities, or require new or expanded facilities serving the GSEP regional or local study areas.

Operational Impacts

***Induce substantial population growth*.** It is assumed that operation of the GSEP would require approximately 40 to 50 operational employees, of which up to 33 would relocate to the area. With Blythe's 2008 housing vacancy rate of 16.1 percent, and Ehrenberg's 2000 housing vacancy rate of 34.9 percent, a total of approximately 6,268 housing units would be available. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, local area available housing described above would be sufficient to accommodate these workers and would not permanently induce substantial growth or concentration of population in excess of available housing or growth forecasts.

***Displace existing housing*.** Under the GSEP, no housing would exist within the project site and required infrastructure ROW that would require removal. As discussed above, it is possible that up to 33 operational employees would choose to relocate to the GSEP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, local area housing would be sufficient to accommodate these employees and no existing housing would be displaced. Based on these conclusions, operation of the GSEP would not induce substantial population growth in excess of available local and regional study area

housing. Therefore, the project would not displace any housing during operation nor would it displace any populations, and it would not necessitate construction of replacement housing elsewhere.

Result in substantial physical impacts to government facilities. Once operational, the proposed GSEP site would include security fencing, controlled access gates, and security lighting, which would minimize the need for the Riverside County Sheriff's Department assistance. As discussed above, the operational workforce for the GSEP is expected to be hired from within the available regional workforce. It is possible that up to 33 operational employees would choose to relocate to the GSEP local area from more distant regional study area locations. In the event any direct operational employees or indirect employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the GSEP would pay substantial annual property tax, which contributes to local public safety funding. Additionally, as it is likely a number of these employees already reside within Riverside County, only relocating closer to the GSEP site, they would not result in an increase over the total population policed by the Riverside County Sheriff's Department. Based on these findings, the operation of the proposed GSEP would not increase the local population or require the need for new or expanded law enforcement facilities or staff levels within the GSEP regional or local study areas.

Like all school districts in the state, the PVUSD is entitled to collect school impact fees for new construction within their district under the California Education Code Section 17620. These fees are based on the project's square feet of industrial space. The GSEP AFC estimates that an $18,330 school impact fee would be paid to the PVUSD. This estimated school impact fee was based on 39,000 square feet of chargeable covered and enclosed space, with the actual determination to be made by the office issuing the building permit. Therefore, the GSEP would pay a school impact fee to the PVUSD, thus ensuring compliance with the provisions of Education Code Section 17620.

As discussed above, the operational workforce for the GSEP is expected to come from within the available regional workforce. It is possible that up to 33 operational employees would choose to relocate to the GSEP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the GSEP would pay substantial annual property tax, which contributes to local recreational facility funding. Therefore, permanent employment associated with the GSEP would not require the need for new or expanded parks and recreational facilities or staff levels within the GSEP regional or local study areas.

The proposed GSEP is expected to require a total of 40 to 50 permanent full-time employees (GSEP, 2009a). As discussed above for construction, the available emergency medical and hospital facilities serving the GSEP site and local study area are expected to adequately handle the permanent addition of 50 on-site staff and the long-term demands of the GSEP, especially given the funding for the Riverside County Fire Department. It is possible that up to 33 operational employees could choose to relocate to the GSEP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, this population would be adequately served by the local area emergency medical facilities as these facilities are privately owned and expand based on a supply and demand basis. Furthermore, the local and regional hospitals that would serve the GSEP site all stated operation of the project would not have a significant impact on their ability to serve the community. Operation of the GSEP is not expected to significantly impact the existing service levels, response times, or capacities of the hospitals serving the GSEP.

Consequently, in the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the GSEP would pay substantial annual property tax, which contributes to local public safety, school, and recreational facility funding. As such, operation of the GSEP is not expected to significantly impact the existing service levels, response times, or capacities of the police, school, recreational facility, or hospitals serving the GSEP local study area.

D.5.6 All Substation Site Alternatives

Environmental Setting

Due to the proximity of all of the site alternatives to the proposed CRS location, the environmental setting relevant to socioeconomics, including public services and utilities, is the same as is described in Section D.5.1 (Environmental Setting for the Proposed Project).

Environmental Impacts and Mitigation Measures for all Substation Site Alternatives

The water supply requirements that would occur for the alternative sites would be the same as would occur under the Proposed Project (see Section D.5.1). As described in detail in Section D.4.4 (Hydrology and Water Resources), mitigation measures would be necessary to reduce impacts to groundwater supply and ensure that there would not be a net deficit in aquifer volume or a lowering of the local groundwater table level (see Impact H-7).

With implementation of water resources Mitigation Measures H-7a (Groundwater Well Contingency Plan), H-7b (Groundwater Monitoring and Reporting), and H-7c (Water Supply Plan for Use of Colorado River Water), impacts to groundwater supply would be less than significant. As a result, impacts to local water supply, wells and users (Impact S-2) would also be less than significant (Class II). Therefore, all socioeconomic impacts identified for the Proposed Project would be the same for the all of the substation site alternatives, and associated mitigation measures would be implemented as described in Section D.5.4.

D.5.7 No Project Alternative

Environmental Setting

The environmental setting of the scenario defined for the No Project Alternative (Section C.6) would incorporate the project area of the proposed substation expansion, as well as the project areas for the interconnecting solar projects (BSPP and GESP) and the transmission line routes between those solar fields and the CRS. The environmental setting defined in Section D.5.1 applies to this area as well as to the Proposed Project.

Environmental Impacts and Mitigation Measures for the No Project Alternative

The "No Project" analysis compares the environmental effects of constructing the Colorado River Substation as previously approved against environmental effects which would occur if the proposed expansion is approved. The environmental effects of constructing the substation as previously approved and associated mitigation are described in Section D of the original DPV2 EIR/EIS (CPUC/BLM, 2006).

In addition to the construction of the already-approved 44-acre substation at the CRS site, the No Project scenario would require additional construction for expanded substations at the solar project sites or

adjacent to existing Blythe area substations. It would also required revised and likely expanded rights-of-way for 500 kV transmission gen-tie lines (rather than the 230 kV gen-tie lines that are proposed). It is not possible to define these impacts with any specificity because no designs are available. However, because additional ground disturbance could be required at multiple substation sites, and additional right-of-way would be required for the additional GESP transmission line, larger amounts of water would have to be acquired from local sources, and impacts to water supply would likely be more severe than for the Proposed Project.

D.6 Greenhouse Gas Emissions

D.6.1 Environmental Setting for the Proposed Project

Global climate change, resulting from anthropogenic emissions of greenhouse gases, may contribute to heat waves, floods, droughts, wildfires, and poor air quality in California. The setting for climate change and the analysis of greenhouse gas (GHG) emissions is defined by worldwide emissions and their global effects. Worldwide GHG emissions from human activities have grown more than 70 percent between 1970 and 2004 (IPCC, 2007). The end uses that cause about one-half of California's baseline GHG emissions are motor vehicle use and extraction or refining of oil and gas, while all other end uses make up the other half (CARB, 2008).

The State of California is leading the nation in managing GHG emissions. Accordingly, the impact analysis relies on guidelines, analyses, policy, and plans for reducing GHG emissions established by the California Air Resources Board (CARB), California Energy Commission (CEC), and CPUC. This is a cumulative impact assessment because GHG emissions contribute, by their nature on a cumulative basis, to the adverse environmental impacts of global climate change.

Globally, temperatures, precipitation, sea levels, ocean currents, wind patterns, and storm activity are all affected by the presence of GHGs. The global climate depends on the presence of GHGs to naturally provide the "greenhouse effect." The greenhouse effect is driven mainly by water vapor, aerosols, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other GHGs that trap heat radiated from the Earth's surface. The global surface temperature would be about 34°C (61°F) colder than it is now if it were not for the natural heat trapping effect of natural climate change pollutants (CAT, 2006).

California is currently responsible for approximately 500 million metric tonnes of CO_2 equivalent (500 MMTCO2e) each year or between one and two percent of about 49,000 MMTCO2e emitted globally (IPCC, 2007). Statewide GHG emissions in 1990 were 427 MMTCO2e (CARB, 2007). Electricity generation for use in California is responsible for about 80 to 90 MMTCO2e annually (depending on yearly variations) or between 20 and 25 percent of the total statewide GHG emissions.

SCE causes GHG emissions during its routine operation of the existing transmission system. For the most-recent year of available voluntary GHG emissions reporting (2007), SCE reported that it delivered electricity to end users with an average GHG intensity of 0.286 metric tonnes CO_2 per megawatt-hour (631 lb CO_2/MWh), and SCE reported the following GHG emissions from all of its activities (CCAR, 2011):

- Stationary sources (owned electricity generation) fuel combustion: 6.868 MMTCO2e;
- Indirect sources (electricity transmission losses): 1.986 MMTCO2e;
- Mobile sources (transportation) fuel combustion: 0.051 MMTCO2e; and
- Fugitive emissions (sulfur-hexafluoride or SF_6): 0.269 MMTCO2e.

D.6.2 Applicable Regulations, Plans, and Standards

The California Global Warming Solutions Act of 2006, Assembly Bill 32 (AB 32) requires that California's greenhouse gas (GHG) emissions be reduced to 1990 levels by 2020. The reduction will be accomplished through an enforceable statewide cap on global warming emissions to be phased in beginning 2012. AB 32 directs the CARB to develop regulations and a mandatory reporting system to track and monitor global warming emissions levels (AB 32, Chapter 488, Statutes of 2006). The CARB Climate Change Scoping Plan, approved December 2008, provides the framework for achieving California's goals.

In passing AB 32, the California Legislature found that:

> *Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

Many regulations implementing AB 32 have been approved by the CARB, including rules for statewide renewable energy targets, and others remain under development at this time. Implementation of the AB 32 Climate Change Scoping Plan requires careful coordination of the State's energy and transportation policies. Key elements of the Scoping Plan are a 33 percent Renewables Portfolio Standard (RPS) and Renewable Electricity Standard (RES), aggressive energy efficiency targets, and a cap-and-trade system that includes the electricity sector. Statewide plans and programs for GHG management that stem from AB 32 are within the sole jurisdiction of the CARB.

CARB Mandatory Reporting of Greenhouse Gas Emissions (Cal. Code Regs., tit. 17 §95100). Mandatory reporting of GHG emissions applies to electricity generating facilities with a nameplate capacity equal or greater than 1 MW capacity and GHG emissions exceeding 2,500 metric tonnes per year. SCE is subject to mandatory GHG reporting as a retail provider of electricity [17 CCR 95102(a)].

CARB SF_6 Regulations (Cal. Code Regs., tit. 17 §95350). CARB adopted a new regulation in February 2010 for reducing SF_6 emissions from electric power system gas insulated switchgear (CARB, 2010). The final regulation would require owners of such switchgear to: (1) annually report their SF_6 emissions; (2) emission rate; (3) provide a complete inventory of all gas insulated switchgear and their SF_6 capacities; (4) produce a SF_6 gas container inventory; and (5) keep all information current for CARB enforcement staff inspection and verification. The proposed substation would be subject to this regulation.

California Renewable Energy Programs. In 2002, California established its RPS, with the goal of increasing the percentage of renewable energy in the State's electricity mix to 20 percent by 2017. State energy agencies recommended accelerating that goal, and in November 2008, the Governor signed Executive Order S-14-08 requiring that California utilities reach the 33% renewable electricity goal by 2020. The AB32 Scoping Plan (CARB, 2008) includes the 33 percent RPS requirement, and CARB established rules in 2010 for the Renewable Electricity Standard (RES) as required by Executive Order S-21-09 of September 2009. The solar power projects that would interconnect at the CRS would be "eligible renewable resources" and electricity generating facilities that may be used by a retail seller of electricity (e.g., SCE) to satisfy its RPS or RES requirements.

D.6.3 Approach to Impact Assessment

Significance Criteria

The following greenhouse gas emissions significance criteria were derived from previous environmental impacts assessments and 2010 amendments to the CEQA Guidelines (Appendix G, Environmental Checklist Form, Section VII). Greenhouse gas emissions will be considered significant if the project meets any of the following criteria:

- Generates greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflicts with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Determining significance of GHG emissions relies upon available guidelines from State or local air quality management agencies, where available. The CPUC, as Lead Agency, has not formally adopted a threshold for what levels of GHG emissions would constitute a significant amount, nor has the Mojave Desert Air Quality Management District.

Project-level direct and indirect GHG emissions are characterized against a preliminary GHG screening level of 10,000 metric tonnes per year (10,000 MTCO2e/yr). At less than 10,000 MTCO2e/yr, an industrial project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions. California's major air quality management organizations and agencies from elsewhere in the state provide justification for this level, including the California Air Pollution Control Officers Association (CAPCOA), the Bay Area Air Quality Management District (BAAQMD), and the South Coast Air Quality Management District (SCAQMD), whose rationales are incorporated here by reference (CAPCOA, 2010; BAAQMD, 2010; SCAQMD, 2010). Global climate change is a cumulative effect of the GHG emissions from any given project. The 10,000 MTCO2e/yr screening level is used in this Supplemental EIR, although this level has not been formally adopted by the CPUC for use in other projects.

Applicant Proposed Measures and Previously Approved Mitigation Measures

The California Natural Resources Agency adopted certain amendments to the State CEQA Guidelines that became effective in early 2010 changing how public agencies review the environmental impacts of GHG emissions. Because the requirement to analyze greenhouse gas emissions in CEQA documents did not exist at the time the DPV2 EIR/EIS was completed in 2006, the Final EIR/EIS for the DPV2 project did not include any APMs or mitigation measures specifically related to greenhouse gas emissions or climate change. However, APMs and mitigation measures related to air quality, which may also serve to reduce GHG emissions, are considered part of the Proposed Project and would be implemented as described in the Final EIR/EIS. For the purposes of assessing potential impacts of the CRS expansion, approved APMs and mitigation measures are referenced where appropriate, and new mitigation measures are introduced where existing mitigation would not be sufficient to reduce impacts to a less than significant level.

Note: Mitigation measures modified from those presented in the Final EIR/EIS are presented with inserted text <u>underlined</u>, deleted text in ~~strikeout~~, and "(rev)" after the measure number. These measures supersede the original measures presented in the Final EIR/EIS. New mitigation measures presented in this SEIR (and not included in the Final EIR/EIS) are underlined in their entirety. Changes made to text excerpted from the DPV2 Final EIR/EIS (2006) are shown with <u>double underline</u> and ~~double strikeout~~.

Method of Analysis

This analysis first established what previous analysis and mitigation measures from the DPV2 Final EIR/EIS would apply to greenhouse gas emissions as well. The setting discusses the baseline greenhouse gas emissions and regulations relevant to the project refinements described in Chapter B. These baseline conditions were evaluated based on their potential to be affected by a net increase in greenhouse gas emissions during construction activities as well as during operation and maintenance activities. Impacts to GHG emissions were then identified based on the predicted interaction between construction, operation, and maintenance activities associated with project refinements and the affected environment described in Section D.6.1.

D.6.4 Environmental Impacts and Mitigation Measures for the Proposed Project

Impact GHG-1: Project activities would cause a net increase of greenhouse gas emissions (Class II)

The Proposed Project would generate GHG emissions through fossil fuel use during construction activities and operation. GHGs contribute to the warming of the earth's atmosphere. Use of motor vehicle fuels via combustion causes primarily CO_2, with much lower levels of N_2O and CH_4. Direct emissions from gas insulated switchgear at the substation would also include SF_6, from transformers and circuit breakers.

Table D.6-1 illustrates the various activities that would generate GHG emissions directly related to project approval, taking into account the previously-approved measures from the DPV2 Final EIR/EIS for reducing emissions of air pollutants.

The period of construction would be short-term, and construction-phase GHG emissions would occur directly from the off-road heavy-duty equipment and the on-road motor vehicles needed to mobilize crew, equipment, and materials, to prepare the site, and to complete the towers, power lines, small equipment buildings, and access roads. The construction GHG emissions would be minimized by APM A-1 to properly tune and maintain heavy duty off-road diesel engines to manufacturers' specifications to ensure minimum emissions under normal operations, as well as mitigation measures from the DPV2 Final EIR/EIS, including: Mitigation Measure AQ-1c (Restrict engine idling); Mitigation Measure AQ-1d (Use lower emitting off-road diesel-fueled equipment); Mitigation Measure AQ-1e (Use on-road vehicles that meet California on-road standards); Mitigation Measure AQ-1f (Use lower emitting off-road gasoline-fueled equipment); and Mitigation Measure AQ-1g (Reduce helicopter use during construction).

Table D.6-1. Estimated GHG Emissions Inventory

Emission Source	Construction-Phase GHG Emissions (MTCO2e/yr)	Operation-Phase GHG Emissions (MTCO2e/yr)
Colorado River Substation		
On-site Construction Equipment	521.1	—
On-site Motor Vehicles	65.4	—
Off-site Motor Vehicles	878.3	—
Maintenance Vehicles and Equipment Leakage (SF_6)	—	< 100
Total	1,465	< 100

Source: Supporting emission calculations.

During operation, no stationary sources would be associated with the project other than SF_6 leaks from transformers. The substation would be unstaffed, therefore there would be no emissions associated with regular commuting to and from the substation. Emissions would result from the operation of vehicles used

for periodic visits for electrical switching and routine maintenance. All structures at the CRS would be inspected annually on the ground to detect problems with corrosion, equipment alignment, or foundations. Routine substation inspection includes inspection of hardware, insulator keys, and conductors. Emergency inspections would occur as necessary. The GHG emissions caused by project vehicular traffic for operations and maintenance would be essentially negligible (under 100 MTCO2e/yr) compared to those caused during construction.

A direct impact of transmission system operation would be the potential escape of SF_6, a potent greenhouse gas, used in operation of the electrical switchgear equipment and circuit breakers. SF_6 is a potent GHG with a global warming potential (GWP) of 23,900. Sealing and leak detection for SF_6 containment ensures proper insulation of the equipment, which is essential for avoiding failures (overheating, melting, and fires), and the electric utility industry is taking steps to reduce use of SF_6 and identify alternative insulating gases. Despite these efforts, because of the high global warming potential of SF_6 even small quantities of emissions could result in a significant impact. CARB expects to adopt final regulations in 2011 for detection, repair, and recycling of existing electrical equipment for SF_6 capture (CARB, 2010). All SF_6 emissions would be recordable and minimized through compliance with CARB regulations adopted (17 CCR 95350). In advance of the effective date for these GHG regulations, achieving feasible equipment design standards would avoid the potential for a significant GHG impact.

The GHG emissions would be dominated by the construction phase for CRS, with the minor GHG emissions during routine operation and maintenance of the proposed substation, including potential SF_6 escape, would be well below 10,000 MTCO2e per year. The potential service life for the proposed substation would be several decades, and the direct GHG emissions from substation construction, operation, and maintenance would be less than significant for any year of the life of the substation.

Standard equipment design and field maintenance policies should provide an SF_6 fugitive emissions leak rate of less than one percent a year. Mitigation Measure GHG-1 (Avoid sulfur hexafluoride emissions) would ensure that the GHG emissions are reported and the potential for long-term SF_6 leaks is minimized according to a leak reduction standard that would be consistent with feasible equipment design standards, resulting in a less than significant impact.

Mitigation Measures for Impact GHG-1: Project activities would cause a net increase of greenhouse gas emissions

GHG-1 **Avoid sulfur hexafluoride emissions.** SCE shall ensure that project equipment, specifically the circuit breakers at the Colorado River Substation, maintains a leakage rate of 0.5 percent per year or less for sulfur hexafluoride (SF_6). To accomplish this, SCE shall include this limit as a performance specification for the gas insulated switchgear that would be installed as part of the project. Maintenance, repair, and replacement of all gas insulated switchgear shall be consistent with manufacturer's recommendations for achieving this performance specification and in compliance with CARB regulations for reducing sulfur hexafluoride emissions from gas insulated switchgear (17 CCR 95350).

Impact GHG-2: Project would conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases (No Impact)

Construction and operation of the Proposed Project would not be inconsistent with the CARB Climate Change Scoping Plan, which was approved by the CARB on December 12, 2008. The AB 32 Climate Change Scoping Plan requires achieving a 33 percent Renewable Electricity Standard. Upon operation of the pro-

posed substation, SCE would be subject to the CARB regulations requiring reporting and management of SF_6 from the equipment at the CRS, and other GHG requirements, such as mandatory reporting would continue to apply to SCE without change. Because of its role in interconnecting renewable energy resources, construction and operation of the Proposed Project would facilitate implementation of the Scoping Plan, which is based on expanding access to renewable energy and continuing the reliable delivery of electricity to customers in California. Therefore, the project would result in no impact under this criterion.

D.6.5 Connected Actions

Section B.4 describes two solar power projects that currently have Power Purchase Agreements and would interconnect at the CRS. The impacts of those projects are summarized here so the CPUC decision-makers can consider these impacts along with those of the CRS expansion itself.

D.6.5.1 Blythe Solar Power Project

Construction and operation of the BSPP would create greenhouse gas emissions in order to deliver electricity to California customers.

Construction Impacts

Emissions of greenhouse gases would occur during BSPP construction, which requires use of various equipment and vehicles that are powered by internal combustion engines. Table D.6-2 presents a breakdown of construction greenhouse gas emission sources and their quantities expected over an anticipated duration of 69 months. Almost all of the construction-related greenhouse gas emissions are from use of diesel and motor gasoline fuels by vehicles and equipment. Total construction emissions would be 103,900 metric tonnes of carbon dioxide equivalent units (MTCO2e) or an average of 18,070 MTCO2e per each year of BSPP construction.

Table D.6-2. Estimated Blythe Solar Power Project Construction Greenhouse Gas Emissions

Equipment	BSPP 69-month Construction CO_2-Equivalent (MTCO2e)[1,2,3]
On-site Construction Equipment	70,700
On-site Motor Vehicles	1,800
Off-site Motor Vehicles	31,400
Construction Total	103,900

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.
1 - One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms
2 - The vast majority of the CO_2e emissions, over 99 percent, is CO_2 from construction combustion sources
3 - This does not include the revised construction description that now includes an on-site concrete batch plant and on-site fuel depot, which does not significantly impact the totals

The greenhouse gas emission increases from BSPP construction activities would exceed the significance threshold defined in Section D.6.3 above. Project construction would occur over a period of nearly 6 years and the emissions intermittent during that period, not ongoing during the operating life of the project. While the BSPP applicant would implement best practices control measures, such as limiting idling times and requiring equipment that meets the latest emissions standards, to reduce greenhouse gas emissions, these emissions would still exceed 10,000 MTCO2e/year. Therefore, the impact from BSPP construction is considered to be significant.

Operational Impacts

Operation of the BSPP would cause greenhouse gas emissions from its auxiliary boilers, fire water pump engines, emergency generator engines, maintenance fleet and employee trips, and sulfur hexafluoride emissions from new electrical component equipment. Table D.6-3 presents the estimated operating greenhouse gas emissions of the BSPP.

Table D.6-3. Estimated Blythe Solar Power Project Operating Greenhouse Gas Emissions

Equipment	Annual CO_2-Equivalent (MTCO2e/yr)
Auxiliary Boilers	12,847
Emergency Generators	289
Fire Pumps	31
Maintenance Vehicles	226
Delivery Vehicles	164
Employee Vehicles	1,208
Equipment Leakage (SF_6)	24
Total Project Greenhouse Gas Emissions	14,789

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

Operational greenhouse gas emissions are dominated by CO_2 emissions from carbon-based fuels; other sources of greenhouse gases are typically small and also are more likely to be easily controlled or reused/. For generating electricity, the primary fuel, solar energy, is greenhouse gas free, but there is natural gas used in the four auxiliary boilers used for morning startup and heat transfer fluid freeze protection, and gasoline and diesel fuel use in the maintenance vehicles, offsite delivery vehicles, staff and employee vehicles, four emergency fire water pump engines, and four emergency generator engines. Another greenhouse gas emission source for BSPP is SF_6 from electrical equipment leakage.

Natural Carbon Uptake Reduction. The BSPP would cause the clearing of land and removal of vegetation, which would reduce the ongoing natural carbon uptake by vegetation. A study of the Mojave Desert indicated that the desert may uptake carbon in amounts as high as 100 grams per square meter per year (Wohlfahrt et al., 2008, cited in CEC, 2010a). This would equate to a maximum reduction in carbon uptake, calculated as CO_2, of 1.48 MT of CO_2 per acre per year for areas with complete vegetation removal. For this 5,950-acre project, which does require the complete removal of vegetation over most of the project site, the maximum equivalent loss in carbon uptake would be 8,806 MT of CO_2 per year, which would correspond to 0.004 MT of CO_2 per MWh generated.

Conclusion on BSPP Operation. The direct sources of GHG associated with BSPP operation (Table D.6-3) would exceed the preliminary GHG screening level of 10,000 MTCO2e/yr resulting in a significant increase of GHG.

D.6.5.2 Genesis Solar Energy Project

Construction and operation of the GSEP would create greenhouse gas emissions in order to deliver electricity to California customers.

Construction Impacts

Emissions of greenhouse gases would occur during GSEP construction, which requires use of various equipment and vehicles that are powered by internal combustion engines. Table D.6-4 presents a breakdown of construction greenhouse gas emission sources and their quantities expected over an anticipated duration of 37 months. Almost all of the construction-related greenhouse gas emissions are from use of diesel and motor gasoline fuels by vehicles and equipment. Total construction emissions would be 52,974 metric tonnes of carbon dioxide equivalent units (MTCO2e) or an average of 17,180 MTCO2e per each year of GSEP construction.

Table D.6-4. Estimated Genesis Solar Energy Project Construction Greenhouse Gas Emissions

Equipment	GSEP 37-month Construction CO_2-Equivalent (MTCO2e)[1,2]
On-site Equipment	24,094
Gas Pipeline Equipment	1,544
Access Road Equipment	564
Transmission Line Equipment	1,185
Delivery Vehicles	3,520
Construction Worker Vehicles	22,067
Entire Construction Period Total	52,974

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.
1 - One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms
2 - The vast majority of the CO_2e emissions, over 99 percent, is CO_2 from construction combustion sources

The greenhouse gas emission increases from GSEP construction activities would exceed the significance threshold defined in Section D.6.3 above. The period of construction would be about 3 years and the emissions intermittent during that period. However, even with implementation of best practices control measures, such as limiting idling times and requiring equipment that meets the latest emissions standards, greenhouse gas emissions during GSEP construction would exceed the 10,000 MTCO2e/year threshold and would be a significant increase in GHG.

Operational Impacts

Operation of the GSEP would cause greenhouse gas emissions from its auxiliary boilers, fire water pump engines, emergency generator engines, maintenance fleet and employee trips, and sulfur hexafluoride emissions from new electrical component equipment. Table D.6-5 presents the estimated operating greenhouse gas emissions of the GSEP.

Table D.6-5. Estimated Genesis Solar Energy Project Operating Greenhouse Gas Emissions

Equipment	Annual CO_2-Equivalent (MTCO2e/yr)
Auxiliary Boilers	3,520
Emergency Generators	83.9
Fire Pumps	17.5
Maintenance Vehicles	194.1
Delivery Vehicles	42
Employee Vehicles	272.3
Equipment Leakage (SF_6)	3.4
Total Project Greenhouse Gas Emissions	4,133

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

Operational greenhouse gas emissions are dominated by CO_2 emissions from carbon-based fuels; other sources of greenhouse gases are typically small and also are more likely to be easily controlled or reused/. For generating electricity, the primary fuel, solar energy, is greenhouse gas free, but there is natural gas used in the two auxiliary boilers used for morning startup and heat transfer fluid freeze protection, and gasoline and diesel fuel use in the maintenance vehicles, offsite delivery vehicles, staff and employee vehicles, two emergency fire water pump engines, and two emergency generator engines. Another greenhouse gas emission source for GSEP is SF_6 from electrical equipment leakage.

***Natural Carbon Uptake Reduction*.** The GSEP would cause the clearing of land and removal of vegetation, which would reduce the ongoing natural carbon uptake by vegetation. A study of the Mojave Desert indicated that the desert may uptake carbon in amounts as high as 100 grams per square meter per year (Wohlfahrt et al., 2008, cited in CEC, 2010b). This would equate to a maximum reduction in carbon uptake, calculated as CO_2, of 1.48 MT of CO_2 per acre per year for areas with complete vegetation removal. For this 1,887-acre project, which does require the complete removal of vegetation over most of the project site, the maximum equivalent loss in carbon uptake would be 2,793 MT of CO_2 per year, which would correspond to 0.005 MT of CO_2 per MWh generated.

Conclusion on BSPP Operation. The direct sources of GHG associated with GSEP operation (Table D.6-5) would not exceed the preliminary GHG screening level of 10,000 MTCO2e/year, so the operational impact alone would not create a significant increase in GHG.

D.7 Connected Action Impact Summaries

Section B.4 describes two solar power projects — BSPP and GSEP — that currently have Power Purchase Agreements and would interconnect at the CRS. As such, they are considered part of the proposed action to expand the CRS Substation. As explained in Section A, both BSPP and GSEP were previously evaluated under CEQA and NEPA, and those analyses are incorporated into this Supplemental EIR by reference. The impacts of those projects, as described in the prior environmental analyses, are summarized here for the environmental disciplines that are not addressed in Sections D.2 through D.6.

This section includes the following analyses:

- Section D.7.1, Air Quality
- Section D.7.2, Geology, Paleontology, and Minerals
- Section D.7.3, Land Use, Recreation and Wilderness

- Section D.7.4, Public Health and Safety
- Section D.7.5, Noise and Vibration
- Section D.7.6, Traffic and Transportation
- Section D.7.7, Visual Resources

D.7.1 Air Quality

This summary provided in this section relies on information in the following sections of the following Energy Commission documents:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section C.1.4.2 (Air Quality), Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section C.1.4.2 (Air Quality), Assessment of Impacts and Discussion of Mitigation.

D.7.1.1 Blythe Solar Power Project

Construction Impacts

The total duration of project construction for BSPP would be approximately 69 months and would include the construction of the solar field and the four identical units, each with its own power block. The total fenced facility would cover 5,950 acres, and the permanent disturbance area of the Proposed Project would be approximately 7,044 acres, including rerouted drainage channels and access roads outside of the fence line. Construction elements of the BSPP would include the four solar power plant blocks, an approximately 2-mile natural gas supply pipeline, an electric transmission line to a substation located approximately five miles to the southwest, access roads, and rerouted drainage channels.

Combustion emissions would result from the off-road construction equipment, including diesel construction equipment used for site grading, excavation, and construction of onsite structures; off-road construction equipment used at the onsite batch plant; and on-road vehicles, including heavy duty diesel trucks used to deliver materials, other on-road diesel trucks used during construction, and worker personal vehicles and pickup trucks used to transport workers to and from and around the construction site. Fugitive dust emissions would result from site grading/excavation activities; construction of power plant facilities, roads, and switchyard; the use of an onsite batch plant; the installation of the new transmission line, the new gas pipeline, and the new onsite water pipelines; and vehicle travel on paved and unpaved roads. There will also be emissions associated with the use of an onsite fuel depot. Table D.7-1 and Table D.7-2 present daily and annual emissions for each source.

The annual emissions for the shorter duration offsite construction activities are based on the following construction durations:

- Access Road Construction – 2 months
- Gas Pipeline Construction – 4 months
- Transmission Line Construction – 8 months

Table D.7-1. Estimated Blythe Solar Power Project Daily Construction Emissions (lbs/day)

	NOx	VOC	CO	PM10	PM2.5	SOx
Power Block Onsite Emissions	878.24	95.28	488.82	920.90	186.15	1.89
Power Block On-road Equipment (Offsite)	327.28	45.67	403.89	101.98	51.66	0.77
Access Road Construction (Offsite)	211.84	24.20	92.78	114.92	39.87	0.45
Gas Pipeline Construction (Offsite	14.83	1.99	8.79	7.85	2.78	0.03
Transmission Line Construction (Offsite)	13.67	1.55	15.81	8.30	3.02	0.03

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

Table D.7-2. Estimated Blythe Solar Power Project Annual Construction Emissions (tons/year)

	NOx	VOC	CO	PM10	PM2.5	SOx
Power Block Onsite Emissions	101.86	11.45	57.70	103.19	21.20	0.22
Power Block On-road Equipment (Offsite)	34.60	5.00	43.97	11.19	5.71	0.08
Access Road Construction (Offsite)	4.66	0.53	2.04	2.53	0.88	0.01
Gas Pipeline Construction (Offsite	0.64	0.09	0.38	0.34	0.12	0.00
Transmission Line Construction (Offsite)	0.87	0.10	1.10	0.63	0.23	0.00

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

In order to determine the impact significance of the Proposed Project, the project's construction emissions presented in Table D.7-1 and Table D.7-2 are modeled for different averaging periods as shown in Table D.7-3.

Table D.7-3. Maximum Blythe Solar Power Project Construction Impacts

Pollutants	Avg. Period	Project Impact (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Standard (µg/m³)	Percent of Standard
NO_2	1-hr	335.9	NA	335.9	339	99%
	Annual	4.3	19	23.3	57	41%
CO	1-hr	1,068.70	2,645	3,714	23,000	16%
	8-hr	423.6	877	901	10,000	9%
PM10	24-hr	43	83	126	50	252%
	Annual	3.9	30.5	34.4	20	172%
PM2.5	24-hr	14.4	20.5	34.9	35	99%
	Annual	0.6	8.7	9.3	12	77%
SO_2	1-hr	3.4	23.6	27.0	665	4%
	3-hr	2.3	15.6	17.3	1,300	1%
	24-hr	0.6	13.1	13.7	105	13%
	Annual	0.01	3.5	3.5	80	4%

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

This modeling analysis indicates, with the exception of PM10, that the Proposed Project would not create new exceedances or contribute to existing exceedances for any of the modeled air pollutants. The conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions when worst-case background is expected. Although the PM10 emissions after mitigation is not expected to contribute substantially to existing exceedances, in light of the existing PM10 non-attainment status for the project site area, PM10 emissions would be significant. Mitigation requires on-site Air Quality Construction Mitigation Manager (AQCMM) and Air Quality Construction Mitigation Plan (AQCMP) which

would include specific measures for construction fugitive dust control and monitoring of all construction activities for visible dust plumes to reduce particulate matter emissions to the maximum extent feasible. Similarly, considering that the project site area is designated non-attainment for ozone, the construction NOx and VOC emissions, as ozone precursor, would also be significant. Mitigation requires AQCMP to include off-road diesel construction equipment mitigation measures to reduce NOx emissions to the maximum extent feasible.

Operational Impacts

The BSPP facility would be a nominal 1,000 MW solar electrical generating facility. The direct air pollutant emissions from power generation are negligible; however, there are auxiliary equipment and maintenance activities necessary to operate and maintain the facility as follows.

Stationary emission sources (total equipment for all four power blocks):

- Auxiliary Boiler (4 total): 35 MMBtu per hour natural gas–fired auxiliary boiler used for start up. Maximum daily operation would be limited to 12 hours per day at full load and 5 hours per day at 25% load. Annual operation would be limited to 5,100 hours (600 hours at a full load and 4,500 hours at 25% load).
- Emergency fire water pump engine (4 total): 300 hp diesel-fired engine. Tested once a week, up to one-hour test, not to exceed 50 hours per year.
- Emergency generator engine (4 total): 2,922 hp diesel-fired engine. Tested once a week, up to one-hour test, not to exceed 50 hours per year.
- Two-cell auxiliary wet cooling tower (4 total two-cell units): 6,034 gallons per minute cooling tower to remove residual heat from balance of plant (BOP) equipment. Each cooling tower would have a maximum run time of 24 hours per day and 8,760 hours per year.
- One Fuel Depot consisting of two, 2,000 gallon on-road vehicle diesel tanks, two 8,000-gallon off-road vehicle diesel tanks, one 500-gallon gasoline tank, and a wash water holding tank. The fuel farm would include secondary spill containment, a covered maintenance area, also with secondary containment, and a concrete pad for washing vehicles.
- HTF ullage system (4 total). Vented up two hours per day and 400 hours per year.
- HTF piping system (4 total). Assumes 3,050 valves, 4 pump seals, 7,594 connectors, and 10 pressure relief valves each.

In addition to the operating equipment described above, the operation of the Proposed Project would require operational vehicle trips. These mobile emission sources would include employee vehicle trips for 221 employees per day and vehicle uses for operational and maintenance activities, such as mirror washing. The Proposed Project's onsite stationary and onsite/offsite mobile source emissions are estimated and summarized in Table D.7-4 and Table D.7-5 below.

Table D.7-4. Estimated Blythe Solar Power Project Daily Operation Emissions (lbs/day)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Operation Emissions						
Auxiliary Boilers	20.61	9.28	69.69	18.55	18.55	0.50
Emergency Fire Pump Engines	7.53	0.40	6.87	0.40	0.40	0.01
Emergency Generators	117.39	6.18	66.94	3.86	3.86	0.12
Auxiliary Cooling Towers	—	—	—	2.90	2.90	—
HTF Vents	—	185.78	—	—	—	—
HTF Piping Fugitives	—	17.51	—	—	—	—
Onsite Maintenance Vehicles	2.25	0.23	1.34	809.84	81.06	0.02
Fuel Depot	—	0.48	—	—	—	—
Subtotal of Onsite Emissions	147.78	219.86	144.84	835.55	106.77	0.66
Offsite Emissions						
Delivery Vehicles	8.30	0.61	2.32	0.62	0.44	0.01
Employee Vehicles	4.72	4.94	47.02	9.74	4.56	0.07
Subtotal of Offsite Emissions	13.02	5.55	49.34	10.36	5.00	0.08
Total Maximum Daily Emissions	160.80	225.41	194.18	845.91	111.77	0.74

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

Table D.7-5. Estimated Blythe Solar Power Project Annual Operation Emissions (tons/year)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Operation Emissions	1.34	0.60	4.54	1.21	1.21	0.03
Auxiliary Boilers	0.19	0.01	0.17	0.01	0.01	0.0003
Emergency Fire Pump Engines	2.93	0.15	1.67	0.1	0.1	0.0031
Emergency Generators	—	—	—	0.53	0.53	—
Auxiliary Cooling Towers	—	0.6	—	—	—	—
HTF Vents	—	33.9	—	—	—	—
HTF Piping Fugitives	0.22	0.02	0.15	72.69	7.28	0.00
Onsite Maintenance Vehicles	—	0.09	—	—	—	—
Fuel Depot	4.68	35.37	6.53	74.54	9.12	0.04
Subtotal of Onsite Emissions						
Offsite Emissions	1.52	0.11	0.42	0.12	0.08	0.00
Delivery Vehicles	0.86	0.9	8.58	1.78	0.83	0.01
Employee Vehicles	2.38	1.01	9.00	1.90	0.91	0.01
Subtotal of Offsite Emissions	7.06	36.38	15.53	76.44	10.04	0.06
Total Maximum Annual Emissions	1.34	0.6	4.54	1.21	1.21	0.03

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

In order to determine the impact significance of the Proposed Project during operation, the project's peak onsite hourly, daily, and annual operating emissions are modeled for different averaging periods as shown in Table D.7-6.

Table D.7-6. Maximum Blythe Solar Power Project Operation Impacts

Pollutants	Avg. Period	Project Impact (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Standard (µg/m³)	Percent of Standard
NO_2	1-hr	168.5	119	288	339	85%
	Annual	0.9	19	19.9	57	35%
CO	1-hr	267.6	2,645	2,913	23,000	13%
	8-hr	86.5	878	965	10,000	10%
PM10	24-hr	22.3	83	105.3	50	211%
	Annual	2.7	30.5	33.2	20	166%
PM2.5	24-hr	2.9	20.5	23.4	35	67%
	Annual	0.8	8.7	9.5	12	79%
SO_2	1-hr	7.4	23.6	31	665	5%
	3-hr	3.1	15.6	18.7	1,300	1%
	24-hr	0.8	13.1	13.9	105	13%
	Annual	0.1	3.5	3.6	80	5%

Source: CEC, 2010a. Blythe Solar Power Project Revised Staff Assessment.

This modeling analysis indicates, with the exception of 24-hour and annual PM10 impacts that the Proposed Project would not create new exceedances or contribute to existing exceedances for any of the modeled air pollutants. Although the project's PM10 emissions together with the background concentration would exceed the thresholds, it should be noted the conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions when worst-case background is expected. In addition, the project's mitigation measures, including Operations Dust Control Plan, would mitigate operational particulate matter emissions to the maximum extent feasible. Considering the effectiveness of the mitigation measures required the operation impacts would not contribute substantially to existing exceedances. However, in light of the existing PM10 non-attainment status for the project site area, PM10 emissions would be significant. Since the project area is designated as non-attainment for ozone, NOx and VOC emissions generated during the project operation would also be significant worsening the existing non-attainment status for ozone. In order to reduce NOx emissions, mitigation requires that operation/ maintenance on-road or off-road vehicles meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the latest model year available when obtained.

D.7.1.2 Genesis Solar Energy Project

Construction Impacts

The total duration of project construction for Genesis Solar Energy Project would be approximately 37 months. Different areas within the project site and the construction laydown areas would be disturbed at different times over the construction period. Total construction disturbance area would be approximately 1,800 acres, and the permanent disturbance area of the project operations would be approximately 1,360 acres. The maximum acreage disturbed on any one day during construction would be 160 acres.

Combustion emissions would result from the off-road construction equipment, including diesel construction equipment used for site grading, excavation, and construction of onsite structures, and water and soil binder spray trucks used to control construction dust emissions. Fuel combustion emissions also would result from exhaust from on-road construction vehicles, including heavy duty diesel trucks used to deliver materials, other diesel trucks used during construction, and worker personal vehicles and pickup trucks used to transport workers to and from and around the construction site. Fugitive dust emissions would result from site grading/excavation activities, installation of new transmission lines, water and gas pipelines, construction of power plant facilities, roads, and substations, and vehicle travel on paved and unpaved roads.

The shorter duration offsite construction activities are based on the following construction durations and construction period timeframes:

- Access Road Construction – 3 months (Months 1-3)
- Gas Pipeline Construction – 5 months (Months 15-19)
- Transmission Line Construction – 6 months (Months 4-9)

The maximum daily and total construction period emission estimates are provided below in Table D.7-7 and Table D.7-8.

Table D.7-7. Estimated Genesis Solar Energy Project Daily Construction Emissions (lbs/day)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Emissions	445.80	0.50	220.30	71.20	73.90	35.30
Access Road Construction (Offsite)	97.30	0.10	48.50	14.40	7.40	6.70
Gas Line Construction (Offsite)	110.90	0.10	63.90	18.80	8.00	6.90
Transmission Line Construction (Offsite)	73.70	0.10	38.60	11.70	5.50	4.50
Delivery Hauling Exhaust (Offsite)	74.97	0.09	26.40	5.72	3.41	3.42
Worker Travel Exhaust (Offsite)	71.80	0.65	716.50	59.50	5.82	5.81
Fugitive Dust (Offsite)	—	—	—	—	211.50	22.00

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

Table D.7-8. Estimated Genesis Solar Energy Project Annual Construction Emissions (tons/year)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Emissions	109.7	0.12	54.2	17.5	24.84	10.09
Access Road Construction (Offsite)	2.50	0.00	1.30	0.40	0.20	0.18
Gas Line Construction (Offsite)	5.80	0.01	3.30	1.00	0.42	0.36
Transmission Line Construction (Offsite)	4.50	0.01	2.40	0.70	0.34	0.29
Delivery Hauling Exhaust (Offsite)	30.50	0.04	10.74	2.33	1.39	1.39
Worker Travel Exhaust (Offsite)	29.20	0.30	291.60	24.20	2.40	2.40
Fugitive Dust (Offsite)	—	—	—	—	11.90	1.57

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

In order to determine the impact significance of the Proposed Project, the estimated peak onsite hourly, daily and annual construction equipment exhaust emissions are modeled for different averaging periods as shown in Table D.7-9.

Table D.7-9. Maximum Genesis Solar Energy Project Construction Impacts

Pollutants	Avg. Period	Project Impact (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Standard (µg/m³)	Percent of Standard
NO_2	1-hr	84.1	119	203.1	339	60%
	Annual	0.34	19	19.3	57	34%
CO	1-hr	41.6	2,645	2,687	23,000	12%
	8-hr	10.8	878	889	10,000	9%
PM10	24-hr	45	83	128	50	256%
	Annual	0.47	30.5	31	20	155%
PM2.5	24-hr	9.5	20.5	30	35	86%
	Annual	0.11	8.7	8.8	12	73%
SO_2	1-hr	0.09	23.6	23.7	665	4%
	3-hr	0.06	15.6	15.7	1,300	1%
	24-hr	0.02	13.1	13.1	105	12%
	Annual	<0.001	3.5	3.5	80	4%

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

This modeling analysis indicates, with the exception of PM10 that the Proposed Project would not create new exceedances or contribute to existing exceedances for any of the modeled air pollutants. The project's PM10 emissions together with the background concentration are expected to exceed the standard, but it should be noted the conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions when worst-case background is expected. In addition, mitigation requires on-site Air Quality Construction Mitigation Manager (AQCMM) and Air Quality Construction Mitigation Plan (AQCMP) which would include specific measures for construction fugitive dust control and monitoring of all construction activities for visible dust plumes to reduce particulate matter emissions to the maximum extent feasible. Therefore, the project's contribution to exceedances of PM10 standards would be not substantial. However, in light of the existing PM10 and ozone non-attainment status for the project site area, the construction NOx, VOC, and PM10 emissions would be significant. In order to mitigate NO emissions, mitigation also requires AQCMP include off-road diesel construction equipment mitigation measures to reduce NOx emissions to the maximum extent feasible.

Operational Impacts

The GSEP facility would be a nominal 250 MW solar electrical generating facility. The direct air pollutant emissions from power generation are negligible; however, there are auxiliary equipment and maintenance activities necessary to operate and maintain the facility as follows.

Stationary emission sources at GSEP would consist of two 125 MW power plant units at the facility, each of which consists of the following equipment and emission estimate bases:

- Auxiliary Boiler: 30.0 MMbtu/hr, fired on natural gas. Emissions estimate is based on 14 hr/day, and 1,000 hr/year of full load operation each.
- Cooling tower: seven cell wet cooling tower unit that provides steam cycle and auxiliary plant cooling. Water recirculation rate of 94,623 gallons/minute, maximum recirculating water total dissolved solids content of 5,000 ppm, and mist eliminator efficiency of 0.0005 percent. Emissions are based on 15 hr/day and 3,200 hr/year of operation each.

- HTF Vent Control System: Venting emission rate based on project specific HTF decomposition rate and decomposition product assumptions. Venting carbon adsorption control system would reduce emissions by 99 percent.
- HTF Piping System: 2,500 valves in service 16 hr/day, 10 pump seals in service 16 hr/day, 6,250 connectors in service 16 hr/day, and 10 pressure relief valves in service 8 hr/day.
- Fire pump engine: 315 horsepower (hp) diesel-fired engine. One hour per day and 52 hours per year maximum operation.
- Emergency generator engine: 1341 hp (1000 kW) diesel-fired engine. One hour per day and 52 hours per year maximum operation.
- Gasoline tank: 2,000 gallon tank: Phase 1 vapor recovery, no Phase 2 vapor recovery. Tank annual 10,768 gallons. Daily emissions based on annual emissions divided by 365 days/year.

In addition to the operating equipment described above, the operation of the Proposed Project would require operational vehicle trips. These mobile emission sources would include employee vehicle trips and vehicle uses for operational and maintenance activities, such as mirror washing. The Proposed Project's onsite stationary and onsite/offsite mobile source emissions are estimated and summarized in Table D.7-10 and Table D.7-11 below.

Table D.7-10. Estimated Genesis Solar Energy Project Daily Operation Emissions (lbs/day)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Operation Emissions						
HTF Auxiliary Heaters	9.25	0.224	15.8	2.46	4.19	4.19
Cooling Towers	—	—	—	—	35.47	35.47
HTF Venting/Control System	—	—	—	2.95	—	—
HTF Components Fugitive	—	—	—	82.25	—	—
Emergency Fire Pump Systems	3.73	0.01	0.62	0.08	0.08	0.08
Emergency Electrical Generators	29.12	0.03	0.77	0.59	0.11	0.11
Gasoline Storage Tank	—	—	—	0.38	—	—
Onsite Operations Vehicle	0.08	0	0.05	0.01	0.01	0.01
Operations Fugitive Dust	—	—	—	—	85.4	18.1
Subtotal of Onsite Emissions	42.18	0.26	17.24	88.72	125.26	57.96
Offsite Emissions						
Delivery Vehicles	21.94	0.03	7.45	1.81	1.07	0.92
Employee Vehicles	3.52	0.05	35.11	3.69	0.45	0.29
Offsite Vehicle Fugitive Dust	—	—	—	—	8.2	0
Subtotal of Offsite Emissions	25.46	0.08	42.56	5.5	9.72	1.21
Total Maximum Daily Emissions	67.64	0.34	59.8	94.22	134.98	59.17

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

Table D.7-11. Estimated Genesis Solar Energy Project Annual Operation Emissions (tons/year)

	NOx	VOC	CO	PM10	PM2.5	SOx
Onsite Operation Emissions						
HTF Auxiliary Heaters	0.17	0	0.28	0.04	0.08	0.08
Cooling Towers	—	—	—	—	3.78	3.78
HTF Venting/Control System	—	—	—	0.54	—	—
HTF Components Fugitive	—	—	—	15.01	—	—
Emergency Fire Pump Systems	0.1	0	0.02	0	0	0
Emergency Electrical Generators	0.76	0	0.02	0.02	0	0
Gasoline Storage Tank	—	—	—	0.07	—	—
Onsite Operations Vehicle	0.35	0	0.24	0.05	0.03	0.03
Operations Fugitive Dust	—	—	—	—	15.6	3.3
Subtotal of Onsite Emissions	1.38	0.01	0.56	15.73	19.49	7.19
Offsite Emissions						
Delivery Vehicles	1.21	0	0.41	0.1	0.06	0.05
Employee Vehicles	0.64	0.01	6.41	0.67	0.08	0.05
Offsite Vehicle Fugitive Dust	—	—	—	—	1.31	0
Subtotal of Offsite Emissions	1.85	0.01	6.82	0.77	1.45	0.1
Total Maximum Annual Emissions	3.23	0.02	7.38	16.5	20.94	7.29

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

In order to determine the impact significance of the Proposed Project during operation, the project's peak onsite hourly, daily, and annual operating emissions are modeled for different averaging periods as shown in Table D.7-12.

Table D.7-12. Maximum Genesis Solar Energy Project Operation Impacts

Pollutants	Avg. Period	Project Impact (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Standard (µg/m³)	Percent of Standard
NO_2	1-hr	189.9	119	308.9	339	91%
	Annual	0.06	19	19.1	57	33%
CO	1-hr	12.3	2,645	2,657	23,000	12%
	8-hr	2.5	878	881	10,000	9%
PM10	24-hr	15.9	83	98.8	50	198%
	Annual	4.3	30.5	34.8	20	174%
PM2.5	24-hr	3.4	20.5	23.9	35	68%
	Annual	0.184	23.6	23.8	665	4%
SO_2	1-hr	0.102	15.6	15.7	1,300	1%
	3-hr	0.008	13.1	13.1	105	12%
	24-hr	0.0003	3.5	3.5	80	4%
	Annual	189.9	119	308.9	339	91%

Source: CEC, 2010b. Genesis Solar Energy Project Revised Staff Assessment.

This modeling analysis indicates, with the exception of 24-hour and annual PM10 impacts, that the Proposed Project would not create new exceedances or contribute to existing exceedances for any of the modeled air pollutants. The project's PM10 emissions together with the background concentration are expected to exceed the standards, but it should be noted the conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions when worst-case background is expected. In addition, Operations Dust Control Plan would mitigate particulate matter emissions to the maximum extent feasible. Considering the effectiveness of mitigation measures, the project's contribution to exceedances of PM10 standard would not be substantial. However, in light of the existing PM10 and ozone non-attainment status for the project site area, the operational NOx, VOC, and PM10 emissions would be significant. In order to mitigate NOx emissions, it is also required that operation/maintenance on-road or off-road vehicles meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the latest model year available when obtained.

D.7.2 Geology, Paleontology, and Minerals

The sources of the information summarized in this section are the following documents:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section D.2.4.2 (Geology, Paleontology, and Minerals), Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section D.2.4.2 (Geology, Paleontology, and Minerals), Assessment of Impacts and Discussion of Mitigation.

D.7.2.1 Blythe Solar Power Project

Construction Impacts

Impacts to mineral, geologic, and paleontologic resources would occur if encountered during ground disturbing activities required for construction of the BSPP. Construction impacts are summarized below. With implementation of mitigation, construction impacts would be less than significant and the BSPP would comply with laws, ordinances, regulations, and standards pertinent to mineral, geologic, and paleontologic resources.

Mineral and Geologic Resources. The BSPP site is currently not used for mineral production, nor is it under claim, lease, or permit for the production of locatable, leasable, or salable minerals. Sand and gravel resources are present at the site and could potentially be a source of salable resources; however, such materials are present throughout the regional area such that construction of the BSPP would not have a significant impact on the availability of such resources.

Paleontologic Resources. Paleontologic resources have been documented within lacustrine sediments in nearby Ford Dry Lake, and regionally in older Quaternary alluvium. Older alluvium is present at the surface in the northeastern and southern portions of the BSPP site and at undetermined depths beneath younger and intermediate Quaternary alluvium and modern washes in the central portion of the BSPP site. Potential impacts to paleontologic resources if encountered during construction would be mitigated below the level of significance through worker training and monitoring by qualified paleontologists, as required by mitigation measures.

Cumulative Impacts. With implementation of mitigation construction impacts of the BSPP to geology and mineral resources would be less than cumulatively considerable. With regard to paleontological resources, the BSPP's contribution to cumulative impacts would be either neutral (if no fossils encountered) or positive (fossils encountered, preserved, and identified).

Operational Impacts

The BSPP site is located in a moderately active geologic area of the eastern Mojave Desert geomorphic province. The main geologic hazards at this site include strong ground shaking, hydrocompaction, dynamic compaction, and corrosive soils; other geologic hazards (e.g., landslides, tsunami, liquefaction, subsidence) are negligible. Operational impacts are summarized below. These potential hazards would be effectively mitigated through facility design by incorporating recommendations contained in a design-level geotechnical report as required by the California Building Code. With implementation of mitigation, operational impacts would be less than significant and the BSPP would comply with laws, ordinances, regulations, and standards pertinent to mineral, geologic, and paleontologic resources.

Faulting and Seismicity. The close proximity of the BSPP site to the Mojave-Sonoran belt and relatively great distance from more seismically active areas to the west and northwest results in a relatively low to moderate probability of intense ground shaking in the project area. However, seventeen historic earthquakes of Magnitude 6.0 or greater that have occurred between 62 and 100 miles of the BSPP. The occurrence of relatively large earthquakes demonstrates that the proposed site could be subject to moderate levels of earthquake-related ground shaking in the future. The effects of ground shaking would be mitigated below the level of significance through structural designs required by the California Building Code (CBC) and the site-specific project geotechnical report required by the CBC.

Dynamic compaction. The BSPP site is generally underlain by dense to very dense granular soils. However, there is a potential that loose sand layers occur both at the surface and as buried layers between the borings since the project site is situated on alluvial fan and alluvial valley deposits. Mitigation of the effects of dynamic compaction of site soils during an earthquake would be addressed in a project-specific geotechnical report as required by the CBC; mitigation methods would include, but not be limited to deep foundations (driven piles; drilled shafts) for severe conditions, geogrid-reinforced fill pads for moderate severity and over-excavation and replacement for areas of minimal hazard.

Hydrocompaction. The depositional environment of the Palo Verde Mesa suggests that the soils may be subjected to hydrocompaction. There is a low to moderate hydrocompaction potential based on geotechnical data and the observation of soil profile in the project site test pits. Mitigation of the effects of hydrocompaction of site soils would be addressed in a project-specific geotechnical report as required by the CBC; mitigation measures would include overexcavation/replacement, mat foundations or deep foundations depending on severity and foundation loads.

Corrosive Soils. Fine grain soils with high in-situ moisture contents that contain sulfides can be corrosive to buried metal pipe, which can lead to premature pipe failure and leaking. Such soils are present at this site, and the preliminary geotechnical investigation indicates that site soils could be potentially corrosive to metal pipe. The effects of corrosive soils would be mitigated below the level of significant through final design by incorporating the recommendations of the site-specific project geotechnical report required by the CBC. Mitigation of corrosive soils with respect to metal pipe typically involves cathodic protection or polyethylene encasement of the pipe.

Cumulative Impacts. The longer BSPP operates, the more likely it is to be damaged by geological hazards, primarily earthquake-related ground shaking. Construction and operation of the plant does not increase the potential of geological hazards at the site, just their potential to damage civil improvements. With implementation of mitigation, geologic hazard impacts of operation of the BSPP would be less than cumulatively considerable.

D.7.2.2 Genesis Solar Energy Project

Construction Impacts

Impacts to mineral, geologic, and paleontologic resources would occur if encountered during ground disturbing activities required for construction of the GSEP. Construction impacts are summarized below. With implementation of mitigation, construction impacts would be less than significant and the GSEP would comply with laws, ordinances, regulations, and standards pertinent to mineral, geologic, and paleontologic resources.

Mineral and Geologic Resources. No viable geological or mineralogical resources are known to exist in the vicinity of the proposed GSEP site. Impacts to mineral and geologic resources would not occur.

Paleontologic Resources. Paleontologic resources have been documented within lacustrine sediments in nearby Ford Dry Lake, and regionally in older Quaternary alluvium. Locally, paleontological resources have been documented within lacustrine sediments in Ford Dry Lake, and regionally in older Quaternary alluvium. Older alluvium and lacustrine deposits may underlie younger Quaternary alluvium at an undetermined depth beneath the GSEP site surface. Potential impacts to paleontologic resources if encountered during construction would be mitigated below the level of significance through worker training and monitoring by qualified paleontologists, as required by mitigation measures.

Cumulative Impacts. With implementation of mitigation construction impacts of the GSEP to geology and mineral resources would be less than cumulatively considerable. With regard to paleontological resources, the GSEP's contribution to cumulative impacts would be either neutral (if no fossils encountered) or positive (fossils encountered, preserved, and identified).

Operational Impacts

The GSEP site is located in a moderately active geologic area of the eastern Mojave Desert geomorphic province. Because of its geological setting, the site could be subject to moderate levels of earthquake-related ground shaking. The preliminary geotechnical and geological hazards investigation also indicates a potential for expansive soils and hydrocompaction. Other geologic hazards (e.g., landslides, tsunami, liquefaction, subsidence) are negligible. Operational impacts are summarized below. These potential hazards would be effectively mitigated through facility design by incorporating recommendations contained in a design-level geotechnical report as required by the California Building Code. With implementation of mitigation, operational impacts would be less than significant and the GSEP would comply with laws, ordinances, regulations, and standards pertinent to mineral, geologic, and paleontologic resources.

Faulting and Seismicity. The close proximity of the proposed GSEP site to the Mojave-Sonoran belt and relatively great distance from more seismically active areas to the west and northwest results in a relatively low to moderate probability of intense ground shaking in the project area. However, events such as the Landers earthquake (7.6 Mw), which occurred on June 28, 1992 approximately 90 miles from the proposed site, demonstrate that the GSEP site could be subject to moderate levels of earthquake-related ground shaking in the future. The effects of ground shaking would be mitigated below the level of significance through structural designs required by the CBC and the site-specific project geotechnical report required by the CBC.

Expansive Soils. Near-surface soils at the GSEP site are composed of granular soils with a low content of non-plastic fines, which are not considered to be expansive. However, expansive clay soils were encountered at relatively shallow depths in the single boring located 1.5 miles west of GSEP construction and

could be present at shallow depths beneath the site. A site-specific, design-level geotechnical site investigation would further evaluate the presence of expansive soils within the Proposed Project site and along its linears and, if necessary, will provide routine design recommendations to mitigate expansive soil issues

Hydrocompaction. The depositional environment of the Palo Verde Mesa suggests that the soils may be subjected to hydrocompaction. There is a low to moderate hydrocompaction potential based on geotechnical data and the observation of soil profile in the project site test pits. Mitigation of the effects of hydrocompaction of site soils would be addressed in a project-specific geotechnical report as required by the CBC; mitigation measures would include overexcavation/replacement, mat foundations or deep foundations depending on severity and foundation loads.

Cumulative Impacts. The longer GSEP operates, the more likely it is to be damaged by geological hazards, primarily earthquake-related ground shaking. Construction and operation of the plant does not increase the potential of geological hazards at the site, just their potential to damage civil improvements. With implementation of mitigation, geologic hazard impacts of operation of the GSEP would be less than cumulatively considerable.

D.7.3 Land Use, Recreation, and Wilderness

The following documents are summarized in this section:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section C.6.4.2 (Land Use, Recreation, and Wilderness), Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section C.6.4.2 (Land Use, Recreation, and Wilderness), Assessment of Impacts and Discussion of Mitigation.

D.7.3.1 Blythe Solar Power Project

Construction and Operational Impacts

Agricultural lands, rangeland management, and open space. Under the Farmland Mapping and Monitoring Program (FMMP) criteria, a small portion of the project site is considered "Farm Land of Local Importance." According to the CDCA Plan/NECO, the project site (plant site and linears, with the exception of privately owned parcels) is designated L-Limited Use. There are two private parcels in close proximity to the site that are designated Open Space Rural according to the County of Riverside General Plan, but no portion of the BSPP is located on lands under Williamson Act contract.

In addition, the BSPP's linear components include a seven-mile transmission line and a two-mile gas pipeline line. Portions of these linear facilities would traverse areas designated as agricultural and open space land. The project does not affect any agricultural lands. In addition, construction of the Proposed Project and its associated linear facilities would be temporary, and the project would not involve other changes in the existing environment which would result in conversion of Farmland, to nonagricultural uses. Therefore, Proposed Project impacts on agricultural lands and lands under Williamson Act contracts would be less than significant.

In regards to rangeland management, there are no livestock grazing allotments within the vicinity of the Proposed Project site. Therefore, no conversion of rangelands would occur, and they would not be adversely affected by construction or operation of the Proposed Project. Impacts to rangeland management due to construction or operation of the Proposed Project would be less than significant.

The BSPP is located on land designated open space and rural desert. The project would convert almost 6,000 acres to industrial solar. Open space is considered a beneficial or desirable land use designation. However, there are large acreages of open space lands in the surrounding area that would not be impacted by the BSPP. While this, in itself would be a significant impact, in conjunction with the other solar projects in the area, these projects would reduce the amount of open space land and would result in significant cumulative impacts. The BSPP would contribute to a significant cumulative impact on open space.

Wilderness, Areas of Critical Environmental Concern (ACECs), and recreation. With respect to impacts to wilderness areas and ACECs, the project would not be constructed on ACEC or wilderness lands and the closest wilderness area is five miles west of the Blythe Solar site. No impacts would occur.

Horses and burros. The BSPP would not contain or traverse any established BLM Herd Areas (HAs) or Herd Management Areas (HMAs). Therefore, the BSPP would not result in any interference with BLM's management of an HA or HMA and impacts would be less than significant.

Physical division of an existing community. The BSPP would not physically divide an established community, because the Proposed Project and associated linear facilities would be located on undeveloped lands (and within existing utility ROWs) administered by the BLM or under the jurisdiction of the County of Riverside. While there are two residences within one mile of the project site, they are located on land designated as Open Space by Riverside County. In addition, no existing roadways or pathways within an established community would be blocked. Due to the temporary nature of construction activities, construction generated nuisances such as dust and noise are not expected to adversely affect land uses in the area. As the project would not physically divide or disrupt an established community, impacts would be less than significant.

The project site is located a mile north of the Blythe Airport and is within the Blythe Airport Influence Area. The Riverside County Airport Land Use Commission (RCALUC) has raised some concerns about the project's reflectivity and glare from the solar arrays. More specifically, the project would violate Policy 4.3.7 of the Countywide Policies of the 2004 Riverside County Airport Land Use Compatibility Plan which prohibits land uses that generate glare or distracting lights, or cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport. Even with the implementation of CoCs reducing impacts to the extent feasible, impacts would remain significant and unavoidable.

The BSPP would result in a substantial adverse impact to existing resource values as seen from several viewing areas and Key Observation Points in the project vicinity. These visual impacts would be significant and would not be mitigated to less than significant levels and would result in unavoidable impacts under CEQA. Therefore, the BSPP would be incompatible with surrounding land uses because it would cause significant and unavoidable visual impacts.

Conflict with any applicable land use plan, policy, or regulation. The BSPP's would be consistent with applicable federal land use plans, policies, and regulations. With BLM's issuance of a project-specific CDCA Plan Amendment, the Proposed Project would fully comply with the plan. While CoCs would reduce impacts on Blythe Airport to the extent feasible, the BSPP would not be consistent with the Riverside County Airport Land Use Compatibility Plan and Palo Verde Valley Area Plan as it relates to the Blythe Airport. Consequently, the BSPP would result in significant and unavoidable impacts as a result of conflicting with the Riverside County Airport Land Use Compatibility Plan and Palo Verde Valley Area Plan.

D.7.3.2 Genesis Solar Energy Project

Construction and Operation Impacts

Agricultural lands and rangeland management. The nearest farmland of Statewide Importance, which is also Prime Farmland, is approximately 15 miles to the east of the project, in Blythe. The project area lies outside of the Farmland Mapping and Monitoring Program (FMMP) survey area. The FMMP designation for the Proposed Project site and linear ROW are unsurveyed and are not included in any other mapping category, such as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. Therefore, no farmland conversion impacts are expected as a result of Proposed Project or linear facilities' construction, and the project would not involve other changes in the existing environment which would result in conversion of farmland to non-agricultural uses.

In regards to rangeland management, the project site and linear ROW are located on the canceled Ford Dry Lake Pasture livestock grazing allotment. As the Ford Dry Lake Pasture allotment has been canceled, no livestock grazing would be adversely affected by construction or operation of the Proposed Project.

No farmland or rangeland used for the GSEP and its associated linear facilities would be temporary, and the project would not involve other changes in the existing environment which would result in conversion of Farmland to non-agricultural uses. Therefore, GSEP impacts on agricultural lands and rangeland management would be less than significant.

Wilderness and recreation. Approval of the GSEP would directly remove approximately 1,800 acres from use for recreational opportunities such as backpacking, camping, rockclimbing, hunting, or other activities. No recreational routes designated by the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), however, are within the project site and construction laydown site. One "open" route would be crossed by the proposed linear ROW. While the Proposed Project would remove recreation opportunities at the site, due to the remote nature of the site along with the BLM's existing restrictions on recreational activities in the area, direct impacts to recreation use of the Proposed Project site would be limited. While construction of the proposed transmission line would traverse an "open" route and result in disruptions to motorized vehicle use along this route, as the transmission line would be strung over the route on existing structures, it would not permanently disrupt use of the route. Due to the limited use of these recreational resources and existing BLM restrictions, however, the disruption to recreation would be less than significant.

The project would not be constructed on wilderness lands so it would not directly disrupt activities in a federal wilderness area. However, the Palen/McCoy Wilderness north of the project site attracts visitors based on its scenic, biological, cultural, and recreational amenities. The GSEP would not substantially reduce the scenic value of this wilderness area. The 3,632-acre Palen Dry Lake ACEC occurs southwest of the project site and is managed for protection of its prehistoric resources as a Multiple Use Class M (moderate) unit; the Proposed Project would not substantially reduce the cultural values of this wilderness area (see the Cultural Resources section of this document). Similarly, the 2,273-acre Chuckwalla Valley Dune Thicket ACEC occurs approximately two miles southeast of the project site and is managed for Moderate Use Class M unit for its wildlife habitat use, specifically desert tortoise. The GSEP would not substantially reduce the cultural values of this wilderness area. The Proposed Project would not substantially reduce the scenic, biological, or cultural values of federal wilderness areas. Thus, land use impacts to the area's wilderness areas would be less than significant.

Horses and burros. The GSEP would not contain or traverse any established BLM Herd Areas (HAs) or Herd Management Areas (HMAs). The nearest, the Chocolate-Mule Mountains HA/HMA, is located approximately two miles southeast of the proposed ROW in Riverside County near the California-Arizona

border. In addition, following construction, fencing around the site would keep any burros outside of the Proposed Project location. Therefore, the GSEP would not result in any interference with BLM's management of an HA or HMA and impacts would be less than significant.

Physical division of an existing community. The GSEP would not physically divide an established community, because the Proposed Project and associated linear facilities would be located on undeveloped lands (and within existing utility ROWs) administered by the BLM. In addition, the Proposed Project would not be located within or near an established community. Neither the size nor the nature of the project would result in a physical division or disruption of an established community. In addition, no existing roadways or pathways within an established community would be blocked. Due to the temporary nature of construction activities, construction-generated nuisances such as dust and noise are not expected to adversely affect recreational uses in the area. Due to the intermittent nature of similar operation-related impacts, any impacts would not adversely affect recreational uses. As the project would not physically divide or disrupt an established community, impacts would be less than significant.

Conflict with any applicable land use plan, policy, or regulation. As the GSEP is located wholly on BLM-administered land, no state, regional, or local land use plans, policies, and regulations are applicable to the Proposed Project. The GSEP would be consistent with applicable federal land use plans, policies, and regulations. With BLM's approval of a project-specific CDCA Plan Amendment, the project would fully conform to the CDCA. Therefore, impacts associated with compliance with federal land use plans, policies, and regulations would be less than significant.

D.7.4 Public Health and Safety

The sources of the information summarized in this section are the following documents:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section C.4.4.2 (Hazardous Materials Management) and Section C.5.4.2 (Health and Safety), Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section C.4.4.2 (Hazardous Materials Management) and Section C.5.4.2 (Health and Safety), Assessment of Impacts and Discussion of Mitigation.

D.7.4.1 Blythe Solar Power Project

Construction Impacts

Hazardous materials exposure. No acutely toxic hazardous materials will be used on site during construction, and none of these materials pose significant potential for off-site impacts as a result of the quantities on site, their relative toxicity, their physical state, and/or their environmental mobility. Any impact of spills or other releases of these materials will be limited to the site because of the small quantities involved, their infrequent use (and therefore reduced chances of release), and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel are all very low volatility and represent limited off-site hazards even in larger quantities. Natural gas poses a fire and/or possible explosion risk because of its flammability. Also, Therminol (heat transfer fluid) is highly flammable and fires have occurred at other solar generating stations that use it. With implementation of mitigation, risk and impacts attributable to hazardous materials is less than significant. Mitigation includes implementation of a Safety Management Program, which includes both engineering and administrative controls. The risk of public exposure to hazardous materials during transportation or resulting from seismic events was determined to be less than significant.

Site security. In order to ensure that the BSPP (or a shipment of hazardous material to BSPP) is not the target of unauthorized access, mitigation requires development and implementation of construction security and operations security plans. These security measures include perimeter fencing and breach detectors, possibly guards, alarms, site access procedures for employees and vendors, site personnel background checks, and law enforcement contact in the event of a security breach. With implementation of this mitigation, impacts would be less than significant.

Public health. Potential risks to public health during construction are associated with exposure to toxic substances in contaminated soil disturbed during site preparation as well as diesel exhaust from heavy equipment operation and emissions from the proposed concrete batch plant and fuel depot. It was determined that significant adverse cancer, or short- or long-term non-cancer health effects from project toxic emissions would be adverse, but less than significant and would not contribute significantly to morbidity or mortality in any age or ethnic group residing in the project area.

Cumulative impacts. Construction of the BSPP would not result significant in short term adverse impacts related to hazardous materials use or public health during construction activities. With implementation of public health and safety plans required in mitigation, the BSPP's contribution to cumulative impacts would be less than cumulatively considerable.

Operational Impacts

Hazardous materials exposure. Construction and operation impacts with regard to hazardous material exposure are the same because many of the same materials would be used for both project phases (e.g., petroleum hydrocarbon-based products, natural gas and Therminol (heat transfer fluid)). With implementation of mitigation, risk and impacts attributable to hazardous materials is less than significant. Mitigation includes implementation of a Safety Management Program, which includes both engineering and administrative controls. The risk of public exposure to hazardous materials during transportation or resulting from seismic events was determined to be less than significant.

Public health. Potential risks to public health during BSPP operation are associated with exposure to toxic substances in air emissions sources, including four auxiliary boilers, four two-cell cooling towers, four diesel-fueled emergency generators, four diesel-fueled emergency fire pumps, four HTF expansion/ullage systems, and PM from maintenance vehicles. It was determined that significant adverse cancer, or short- or long-term non-cancer health effects from project toxic emissions would be adverse, but less than significant and would not contribute significantly to morbidity or mortality in any age or ethnic group residing in the project area.

Cumulative impacts. Operation of the BSPP would not result significant in short term adverse impacts related to hazardous materials use or public health during construction activities. With implementation of public health and safety plans required in mitigation, the BSPP's contribution to cumulative impacts would be less than cumulatively considerable.

D.7.4.2 Genesis Solar Energy Project

Construction Impacts

Hazardous materials exposure. No acutely toxic hazardous materials will be used on site during construction, and none of these materials pose significant potential for off-site impacts as a result of the quantities on site, their relative toxicity, their physical state, and/or their environmental mobility. Any impact of spills or other releases of these materials will be limited to the site because of the small quantities

involved, their infrequent use (and therefore reduced chances of release), and/or the temporary containment berms used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel are all very low volatility and represent limited off-site hazards even in larger quantities. Natural gas poses a fire and/or possible explosion risk because of its flammability. Also, Therminol (heat transfer fluid) is highly flammable and fires have occurred at other solar generating stations that use it. With implementation of mitigation, risk and impacts attributable to hazardous materials is less than significant. Mitigation includes implementation of a Safety Management Program, which includes both engineering and administrative controls. The risk of public exposure to hazardous materials during transportation or resulting from seismic events was determined to be less than significant.

Site security. In order to ensure that the GSEP (or a shipment of hazardous material to GSEP) is not the target of unauthorized access, mitigation requires development and implementation of construction security and operations security plans. These security measures include perimeter fencing and breach detectors, possibly guards, alarms, site access procedures for employees and vendors, site personnel background checks, and law enforcement contact in the event of a security breach. With implementation of this mitigation, impacts would be less than significant.

Public health. Potential risks to public health during construction are associated with exposure to toxic substances in contaminated soil disturbed during site preparation as well as diesel exhaust from heavy equipment operation and emissions from the proposed concrete batch plant and fuel depot. It was determined that significant adverse cancer, or short- or long-term non-cancer health effects from project toxic emissions would be adverse, but less than significant and would not contribute significantly to morbidity or mortality in any age or ethnic group residing in the project area.

Cumulative impacts. Construction of the GSEP would not result significant in short term adverse impacts related to hazardous materials use or public health during construction activities. With implementation of public health and safety plans required in mitigation, the GSEP's contribution to cumulative impacts would be less than cumulatively considerable.

Operational Impacts

Hazardous materials exposure. Construction and operation impacts are the same with regard to hazardous material exposure because many of the same materials would be used for both project phases (e.g., petroleum hydrocarbon-based products, natural gas and Therminol (heat transfer fluid)). With implementation of mitigation, risk and impacts attributable to hazardous materials is less than significant. Mitigation includes implementation of a Safety Management Program, which includes both engineering and administrative controls. The risk of public exposure to hazardous materials during transportation or resulting from seismic events was determined to be less than significant.

Public health. Potential risks to public health during GSEP operation are associated with exposure to toxic substances in air emissions sources, including four auxiliary boilers, four two-cell cooling towers, four diesel-fueled emergency generators, four diesel-fueled emergency fire pumps, four HTF expansion/ullage systems, and PM from maintenance vehicles. It was determined that significant adverse cancer, or short- or long-term non-cancer health effects from project toxic emissions would be adverse, but less than significant and would not contribute significantly to morbidity or mortality in any age or ethnic group residing in the project area.

Cumulative impacts. Operation of the GSEP would not result significant in short term adverse impacts related to hazardous materials use or public health during construction activities. With implementation

of public health and safety plans required in mitigation, the GSEP's contribution to cumulative impacts would be less than cumulatively considerable.

D.7.5 Noise and Vibration

The sources of information summarized in this section are from the following documents:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section C.7.4.2 (Noise and Vibration), Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section C.7.4.2 (Noise and Vibration), Assessment of Impacts and Discussion of Mitigation.

D.7.5.1 Blythe Solar Power Project

Noise impacts associated with the BSPP can be created by short-term construction activities and long-term operation of BSPP.

Construction Impacts

The nearest sensitive noise receptor, identified as "LT," is a mobile home located approximately 725 feet east and 775 feet south of the project site boundary (Solar Millennium 2009a, AFC §1.3.7). Construction noise would elevate the existing ambient noise level at the nearest sensitive receptor by 16 dBA, a considerable increase. Project construction would likely last 69 months; however, the construction activities within an area that could impact the nearest residential receptor would not last more than several months. Therefore, construction impacts at LT are considered temporary. Implementation of Conditions of Certification would establish a public notification and noise complaint process to resolve any complaints regarding construction noise, and ensure that noisy construction work is performed during the times specified in the Riverside County Noise Ordinance. Since construction noise impacts are temporary, and because construction activities would be limited to the daytime hours, the noise impacts of the BSPP project construction activities would be less than significant.

Steam Blows. Typically, the loudest noise encountered during construction, inherent in building any project incorporating a steam turbine, is created by the steam blows. A series of short steam blows, lasting two or three minutes each, are performed several times daily over a period of two or three weeks. High pressure steam blows, if unsilenced, can typically produce noise levels as high as 129 dBA at a distance of 50 feet; this would amount to roughly 100 dBA at LT. With a silencer installed on the steam blow piping, noise levels are commonly attenuated to 89 dBA at 50 feet. A quieter steam blow process, referred to as low pressure steam blow, would result in noise levels at about 86 dBA at 50 feet. The noise impact resulting from steam blows would be reduce to less than significant with implementation of a silencer or utilizing a low pressure steam blow.

Linear Facilities. Construction of linear facilities typically moves along at a rapid pace, thus not subjecting any one receptor to noise impacts for more than two or three days. Further, construction activities would be limited to daytime hours. To ensure that these hours are, in fact, adhered to, in compliance with the LORS, implementation of Condition of Certification would be required; and therefore, noise impacts associated with construction of linear facilities would be less than significant.

Vibration. The only construction operation likely to produce vibration that could be perceived off site would be pile driving. The applicant anticipates that pile driving would not be required for construction of the BSPP project (Solar Millennium 2009a, AFC §5.8.3.1). Therefore no vibration impacts are expected.

Worker Effects. The applicant has acknowledged the need to protect construction workers from noise hazards and has recognized applicable LORS that would protect construction workers (Solar Millennium 2009a, AFC §5.8.4). Implementation of an Employee Noise Control Program, would ensure that construction workers are adequately protected; noise impacts to workers would be less than significant.

Operational Impacts

The primary operational noise source of the BSPP plants would be the power block, where the steam turbine generator, air-cooled condenser, electric transformer, and various pumps and fans would be located. The four power blocks of the project (one for each 250 MW unit) would be located in each of the four quadrants in the middle of the solar arrays. In addition, there would be diesel-powered emergency generators, which would be enclosed by a noise-reducing structure that would reduce noise levels to approximately 70 dBA at 50 feet.

The applicant predicts the project's operational noise level at receptor LT to be 40 dBA Leq (Solar Millennium 2009a, AFC §5.8.3.2). Project operating noise would thus comply with the standard set by the Riverside County General Plan (60 dBA CNEL at the nearest receptor). In addition, the project's limited nighttime activities related to maintenance would have less than significant impact on the project's noise-sensitive receptor. With the adoption and implementation of the Conditions of Certification, the BSPP operational noise impacts would be less than significant.

Tonal Noises. One possible source of annoyance could be strong tonal noises. Tonal noises are individual sounds (such as pure tones) which, while not louder than permissible levels, stand out in sound quality. Implementation of Conditions of Certification would require mitigation measures, if necessary, to ensure the project would not create tonal noises, and impacts would be less than significant.

Linear Facilities. All water pipes and gas pipes would be underground and therefore silent during plant operation. Noise effects from electrical interconnection lines typically do not extend beyond the lines' right-of-way easements and would be inaudible to receptors, and therefore impacts from linear facilities would be less than significant.

Vibration. Vibration from an operating power plant could be transmitted through two primary means: ground (ground-borne vibration), and air (airborne vibration). The operating components of the BSPP plant would consist of high-speed steam turbine generators and various pumps and fans. All of these pieces of equipment must be carefully balanced in order to operate; permanent vibration sensors would be attached to the turbines and generators. Ground-borne and airborne vibration impacts would be less than significant.

Worker Effects. The applicant acknowledges the need to protect plant operating and maintenance workers from noise hazards and commits to compliance with all applicable LORS (Solar Millennium, 2009a, AFC §5.8.4). Signs would be posted in areas of the plant with noise levels exceeding 85 dBA (the level that OSHA recognizes as a threat to workers' hearing), and hearing protection would be required and provided. To identify any noise hazardous areas in the facility, an occupational noise survey will be required of workers through implementation of Conditions of Certification. This will ensure that noise impacts to workers would be less than significant.

Cumulative Impacts. Construction of the BSPP would be expected to contribute only a small amount to the possible short term cumulative impacts related to Noise and Vibration. During operation of the BSPP, there are no projects that would be close enough to the BSPP site to create significant cumulative noise impacts at the project's noise-sensitive receptors, when combined with the BSPP. The decommissioning of the BSPP is expected to result in adverse impacts related to Noise and Vibration similar to con-

struction impacts; however, the impacts of the decommissioning of the BSPP would not be expected to contribute to cumulative impacts related to Noise and Vibration.

D.7.5.2 Genesis Solar Energy Project

Noise impacts associated with the project can be created by short-term construction activities and by normal long-term operation of the power plant

Construction Impacts

The Riverside County Code prohibits noisy construction work to daytime hours when a project is within one-quarter mile of a noise sensitive receptor. There are no noise sensitive receptors within 9 miles of the GSEP project site. Aggregate construction noise would attenuate to less than 35 dBA at a distance of nine miles from the project site. Given the lack of receptors in the vicinity of the project site, the noise impacts due to construction activity were found to be insignificant. In the event that actual construction noise should annoy nearby residents, Conditions of Certification were adopted that established a public notification process to notify nearby residents of the project construction and operation, and a Noise Complaint Process that would require the applicant to resolve any complaints regarding project noise.

Linear Facilities. Linear facilities include a new six-mile natural gas pipeline connecting to an existing Southern California Edison pipeline located north of highway I-10, as well as new electrical transmission lines interconnecting to the transmission system to the southeast of the project site. Both the natural gas pipeline and the transmission lines would extend past the project site boundaries; neither would pass close to noise sensitive receptors (GSEP, 2009a, AFC Figure 5.12-1). No noise impacts associated with linear facilities would occur.

Steam Blows. Typically, the loudest noise encountered during construction, inherent in building any project incorporating a steam turbine, is created by the steam blows. These steam blows can produce noise as loud as 130 dBA at a distance of 100 feet. This would attenuate to about 82 dBA at a distance of five miles from the project site, and 77 dBA at the prisons nine miles from the project site. While this is an annoying noise level, even at these great distances from the project site, there are no noise sensitive receptors within these distances and the noise would attenuate further with greater distances. Therefore, noise impacts from steam blows would be less than significant.

Pile Driving. The applicant does not explicitly state that pile driving would be necessary for construction of GSEP. However, the potential noise impacts of pile driving were evaluated in case it is found necessary during the construction process. If pile driving is required for construction of the project, the noise from this operation could be expected to reach 101 dBA at a distance of 50 feet (GSEP, 2009a, AFC Table 5.9-5). Pile driving noise would thus be projected to reach levels of 47 dBA at distance of five miles from the project site, and 42 dBA at the prisons nine miles from the project site. Impacts due to pile driving, if it should occur, would not be significant.

Vibration. The only construction operation likely to produce vibration that could be perceived off site would be pile driving, should it be employed. Vibration attenuates rapidly; it is likely that no vibration would be perceptible at any appreciable distance from the project site. Therefore, no significant impacts would result from construction vibration.

Worker Effects. The applicant has acknowledged the need to protect construction workers from noise hazards and has recognized those applicable LORS that would protect construction workers (GSEP, 2009a, AFC §5.9.5.4). Implementation of Condition of Certification would require that a noise control program be established, this would ensure that noise impacts to workers would be less than significant.

Operational Impacts

The primary noise sources of GSEP include the steam turbine generators, cooling tower, start-up boiler, and various pumps and fans (GSEP 2009a, AFC §§3.5.1, 5.9.5.2; Table 5.9-7). The applicant has predicted that project operational noise levels would attenuate to less than 30 dBA at a distance of five miles from the project site. At the state prisons located nine miles from the project site, project operating noise would attenuate to less than 25 dBA. Project operating noise would thus comply with the standard set by the Riverside County General Plan (60 dBA CNEL at the nearest receptor). No change in ambient noise would be expected to result from plant operation, and noise impacts would be less than significant.

Tonal Noises. One possible source of disturbance would be strong tonal noises. Tonal noises are individual sounds (such as pure tones) that, while not louder than permissible levels, stand out in sound quality. The applicant plans to avoid the creation of annoying tonal (pure-tone) noises by balancing the noise emissions of various power plant features during plant design. Given the lack of noise sensitive receptors within the vicinity of the project, tonal noises would not be expected to cause annoyance, and therefore, would be less than significant.

Linear Facilities. The electrical interconnection line would not pass by any noise sensitive receptors and would thus not be expected to have any effects. Additionally, noise effects from electrical interconnection lines typically do not extend beyond the right-of-way easement of the line and thus are generally inaudible to any nearby receptors. Noise impacts associated with linear facilities would be less than significant.

Vibration. Vibration from an operating power plant could be transmitted by two chief means; through the ground (ground-borne vibration) and through the air (airborne vibration). Based on experience with numerous previous projects employing similar equipment to that proposed for GSEP, ground borne vibration from GSEP were considered to be undetectable at distances greater than a few hundred feet from the power block. Given that there are no receptors within nine miles of the project, vibration would not have an impact on any receptors. Airborne vibration (low frequency noise) can rattle windows and objects on shelves and can rattle the walls of lightweight structures. None of the project equipment is likely to produce low frequency noise, therefore, vibration impacts are considered to be less than significant.

Worker Effects. The applicant has acknowledged the need to protect plant operating and maintenance workers from noise hazards and has committed to comply with applicable LORS (GSEP, 2009a, AFC §5.9.5.4). Implementation of Condition of Certification would ensure that noise impacts to workers would be less than significant.

Cumulative Impacts. There are no noise-sensitive receptors within nine miles of the project site, the fact of which inherently precludes the possibility for cumulative noise impacts from the project.

D.7.6 Traffic and Transportation

The documents summarized in this section include the following:

- Blythe Solar Power Project, Revised Staff Assessment, June 2010, Section C.10.4.2, Assessment of Impacts and Discussion of Mitigation and Blythe Solar Power Project, Supplemental Staff Assessment Part 2, July 2010, Traffic and Transportation Aviation Assessment; and
- Genesis Solar Energy Project, Revised Staff Assessment, June 2010, Section C.10.4.2, Assessment of Impacts and Discussion of Mitigation.

D.7.6.1 Blythe Solar Power Project

Construction Impacts

Construction workforce. Construction of the BSPP would be completed over an approximately 69-month period beginning in late 2010. The construction work force would peak during month 16 at approximately 1,000 workers per day and average approximately 600 workers over the course of construction. Construction of the transmission line is expected to require a limited crew with fewer than 25 workers during peak periods. However, the transmission line construction schedule would not coincide with the peak of plant site construction employment.

In the worst-case scenario, one-way worker trips would peak at 2,000 trips per day and an average of 1,200 one-way trips per day. Construction would also generate an average of approximately 15 to 20 one-way, truck trips per day with a peak of approximately 50 to 75 truck trips per day. The peak time for truck travel would occur during the construction of the foundation for the plant site and would not coincide with the peak onsite worker commute timeframe (month 16 in early 2012).

To accommodate the worst-case scenario, a temporary parking area of approximately eight acres would be required for construction personnel parking (assuming 350 square feet per vehicle) with additional area required for the staging and laydown of equipment, materials, and supplies. The project would include onsite laydown and parking areas during construction. Those areas would be relocated around the site as construction progresses. Safety and efficiency concerns require on-site parking and laydown areas. That is, a traffic hazard would occur if workers were to park on public roadways or if public roadways were used for the staging and laydown of equipment, materials, and supplies. Such a hazard would adversely impact the level of service (LOS) on I-10 as well as the safety of the workers and drivers. Consequently, to ensure adequate on-site and off-site parking areas as well as staging areas for all phases of project construction, a Condition of Certification (CoC) is recommended to develop a parking and staging plan. With the implementation of this CoC, parking impacts would be less than significant.

Levels of service (LOS) for Interstate 10 east and west of the project site would operate at LOS A before and during peak hour construction conditions. Intersections would operate at LOS A with the implementation of applicant-recommended staggered travel times for construction workers. Staggered travel times are important for these intersections because movement of traffic is controlled by stop signs. As a result, vehicle traffic would easily become backed-up or stacked as drivers exit I-10 to the project site.

However, the construction of the BSPP is scheduled to overlap with the construction schedules of two other solar projects in the area, Palen Solar Power Project (PSPP) and Genesis Solar Energy Project (GSEP). Those three projects would result in approximately 3,133 workers traveling on I-10 to their work sites at the same time. Consequently, while the applicant-proposed condition to divide the workforce in shifts and stagger travel times would be a suitable mitigation for the BSPP project alone, it would not reduce the cumulative impacts on I-10 of the three projects. Therefore, another CoC is recommended to require the applicant to formulate a transportation control plan for the BSPP that would include measures designed to reduce traffic, if necessary, to LOS C on I-10 for all three projects. With the implementation of the CoC, impacts would be reduced to be less than significant.

In addition, several pieces of equipment that exceed roadway load or size limits would need to be transported to the BSPP site via I-10 during construction. This equipment includes the steam turbine generator and main transformers. The equipment would be transported using multi-axle trucks.

To transport this equipment, the applicant must obtain special ministerial permits from Caltrans to move oversized or overweight materials. In addition, the applicant must ensure proper routes are followed; proper time is scheduled for the delivery; and proper escorts, including advanced warning and trailing vehicles as well as law enforcement control are available, if necessary. Consequently, a CoC is recommended to ensure the project owner would comply with vehicle size and weight limitations imposed by Caltrans and other relevant jurisdictions; another CoC would ensure the applicant complies with Caltrans' and other relevant jurisdictions' limitations on encroachments into public rights of way; and a final CoC to ensure that the project owner would restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities. Repairs shall be of the kind to restore the roads, easements, and rights-of-way to their original or near-original condition. With the implementation of these CoCs, impacts would be less than significant.

Operational Impacts

Operational traffic. Operation of the BSPP would result in a small amount of vehicular traffic. Operational workforce is estimated to be 221 workers. The arrival and departure time of those workers would be staggered in three eight-hour shifts to cover operations on a 24-hour, seven-day-a-week basis. Consequently, peak weekday traffic would be less than 150 vehicles even if every employee were to commute in his or her own vehicle.

Surrounding roadways and intersections are projected to operate well below capacity when BSPP is operational in 2016. Projections have taken into account continued local and regional growth as well as the completion of Palen Solar Power Project located 35 miles west of Blythe. Consequently, the addition of 221 workers arriving at the plant in staggered shifts over a 24-hour period would not alter existing or future roadway operating characteristics (LOS).

In addition, BSPP operations would require approximately 12 truck trips per day for the delivery of materials and supplies as well as for offsite shipment of wastes.

Truck travel as well as other non-employee site visits would be very small and would typically occur during non-peak periods. Consequently, cumulative operational impacts would not be significant and not require mitigation.

Emergency services vehicle access. Two all-weather access roads are to be built to county and fire code requirements for adequate access for emergency vehicles. This impact is analyzed in the Revised Staff Assessment Worker Health and Safety section.

Water and rail obstructions. The proposed BSPP is not located adjacent to a navigable body of water; therefore, the BSPP is not expected to alter water-related transportation. In addition, the Proposed Project is not located near a crossing of a railroad line. Consequently, no impacts would occur.

Interference with airport operations. Two airports are located in the vicinity of the proposed BSPP site, Desert Center and Blythe. Desert Center is approximately 36 miles northwest from the project site; consequently the project would not affect air traffic at Desert Center. Blythe Airport is operational and is located approximately one mile southeast of the project site and is primarily used for general aviation. As proposed, a number of components of the BSPP would interfere with the operation of the Blythe Airport, including an overhead 230-kV transmission line and poles; air-cooled condenser; parabolic troughs; and evaporation ponds.

Because the transmission line and poles may affect navigable airspace, the FAA requires the applicant to file Form 7460-1 and 7460-2. In addition, because 43 monopoles are located in airport compatibility zones, county ordinances require that the project be reviewed by the Riverside County Airport Land Use Commission. After consultations with the Riverside County Airport Land Use Commission, the applicant agreed to shift the proposed transmission line and towers approximately one-quarter mile further west of the extended centerline of Runway 8-26. The relocation would shift the transmission line out of Zone B1. A CoC recommending marking the transmission line and poles closest to the runway would work to ensure pilots' safety. This CoC, however, would not fully reduce the impact of transmission lines and impacts would remain significant and unavoidable.

The BSPP includes four dry-cooling systems, including four 120-foot air-cooled condensers, one for each system. In addition, as currently proposed by the applicant, one component of one of BSPP's dry-cooling systems, the power block, is located in Blythe Airport Compatibility Zone E. The air-cooled condenser itself is located approximately 135 feet outside Compatibility Zone E. Under certain ambient air conditions, all four air-cooled condensers would create plumes. Those air-cooled condensers would result in upward plumes exceeding 4.3 m/s at heights as much as approximately 1,670 feet above ground level (AGL) which would affect aircraft operations. Thermal plumes present a significant adverse impact to pilots and a CoC is recommended to reduce this impact. This condition would require the applicant to ensure that measures are taken to inform pilots of the presence of these plumes through Aeronautical Charts, Airport/Facilities Directories (AFD) and Notice to Airmen (NOTAM). While reducing the impacts to the extent possible, this CoC would not fully reduce the impact of plumes and impacts would remain significant and unavoidable.

The BSPP would consist of approximately 5,600 acres of parabolic trough solar collector arrays installed immediately southeast of the project. A parabolic trough, a type of a solar thermal energy collector, is constructed as a long parabolic mirror with a Dewar tube running its length at the focal point. Sunlight is reflected by the mirror and focused on the Dewar tube. The trough is usually aligned on a north-south axis and rotated to track the sun as it moves across the sky each day. Troughs are stowed facing the ground. Some parabolic troughs would be located in the airport compatibility zones. The BSPP solar troughs pose a significant adverse impact to pilots at the Blythe Airport and CoCs are recommended to reduce this impact. These CoCs would require warning pilots of the presence of glint or glare from the BSPP; minimizing glint and glare through screening, proper alignment of solar arrays, and stowage of the arrays when not in use; and providing a complaint process for the airport that would fix the source of complaints. While reducing the impacts to the extent possible, this CoC would not fully reduce the impact of plumes and impacts would remain significant and unavoidable.

BSPP's transmission lines and facility control systems use specific electronic frequencies that would interfere with aircraft communications or avionics (radio frequency interference or RFI). Both FAA regulations as well as the Riverside County Airport Land Use Commission's Airport Land Use Compatibility Plan include a requirement for minimizing electronic interference. Interference from electronic frequencies for the transmission line as well as from the facility control systems has been mitigated by the specific low-corona or low electrical discharge designs proposed by the applicant. In addition, the electrical wires needed to operate the facility control systems will be buried underground, thereby eliminating electrical interference. Any impacts would be less than significant.

Evaporation ponds would attract birds, especially where natural water sources are scarce. When located on or near airports, those evaporation ponds can affect airport operations by attracting birds. Those birds then may then fly into aircraft, particularly during take-offs and landings, the most critical times of flight. During takeoffs and landings, the presence of birds can obscure pilots' vision or result in other distrac-

tions that would cause pilots to lose control of their aircraft. A CoC is recommended which requires all ponds to be netted to exclude birds and other wildlife; additional visual bird deterrents and a rigorous monitoring program to verify that the netting is effective in excluding birds and other wildlife. With the implementation of this CoC, impacts would be less than significant.

Parking capacity. Approximately 221 workers would be employed at the BSPP when it becomes operational. Those workers would park on-site. With the proposed construction parking area on-site as well as on-site parking for operational employees, the project would not result in any parking spill-over to sensitive areas and would not create any adverse impacts. With the implementation of the CoC requiring a parking and staging plan, parking arrangements may be modified.

Transportation of hazardous materials. Hazardous materials to be used by the BSPP consist of heat transfer fluid (Therminol VP-1™, a biphenyl) as well as diesel fuel, mineral insulating oil, and lube oil. Tanker trucks would use Interstate 10 two times a month to make deliveries to the BSPP site. Federal and state regulations include specific procedures for transporting hazardous materials. To ensure compliance with all applicable state and federal regulations a CoC for the transportation of hazardous materials is recommended. Implementation of this CoC would reduce impacts to be less than significant.

D.7.6.2 Genesis Solar Energy Project

Construction Impacts

The construction workforce would peak during month 23 with approximately 1,093 workers per day and average approximately 652 workers during the course of construction. A worst-case scenario, where all workers commute with only one occupant per vehicle, would yield a peak trip generation of approximately 1,093 inbound trips during the morning peak period and another 1,093 outbound trips during the evening peak period. Based on regional demographics, remoteness of the location and availability of skilled laborers, it is expected that the construction employees would be drawn from the Los Angeles Basin Region and greater Phoenix, Arizona. During construction, it is anticipated that construction workers and technical workers would reside in temporary housing during the week to be located in the city of Blythe and Parker, Arizona area.

Construction period parking demands would be accommodated by a temporary on-site parking area of approximately 9 acres, which would be relocated around the project site as needed during different stages of construction. In addition, a staging/laydown area would be provided at the Wiley Well Road Rest Area for the construction of the generator tie line. The LOS in 2012 for the three study intersections without the project would remain at LOS A. With the addition of GSEP construction traffic, LOS would change from A to B at one intersection, the I-10 interchange at Wiley Well Road east of the project site. LOS B is an acceptable level of service on California state highways.

While traffic volumes would increase, the LOS at the study intersections and roadway segments would remain within the LOS thresholds identified by the state and local jurisdictions. All study roadway segments and intersections are expected to operate at LOS A and at LOS B at one intersection with the GSEP-related construction traffic as shown in Traffic and Transportation Table 1. Therefore, direct impacts on LOS from GSEP-related construction traffic would be less than significant and mitigation would not be required.

However, the construction of the GSEP is scheduled to overlap with the construction schedules of two other solar projects in the area, Palen Solar Power Project (PSPP) and Blythe Solar Power Project (BSPP). Those three projects would result in approximately 3,133 workers traveling on I-10 to their work sites at

the same time. Therefore, a CoC is recommended to require the applicant to formulate a transportation control plan for the GSEP that would include measures designed to reduce traffic, if necessary, to LOS C on I-10 for all three projects. With the implementation of the CoC, impacts would be reduced to be less than significant.

Construction truck traffic. GSEP construction is expected to generate approximately 15 to 20 one-way truck trips per day peaking at approximately 50 to 75 trucks per day. The peak truck travel would not coincide with the peak month 23 construction timeframe. In addition, several pieces of equipment that exceed roadway load or size limits would need to be transported to the GSEP site via I-10 during construction. This equipment includes the steam turbine generator and main transformers. The equipment would be transported using multi-axle trucks.

To transport this equipment, the applicant must obtain special ministerial permits from Caltrans to move oversized or overweight materials. In addition, the applicant must ensure proper routes are followed; proper time is scheduled for the delivery; and proper escorts, including advanced warning and trailing vehicles as well as law enforcement control are available, if necessary. Consequently, a CoC is recommended to ensure the project owner would comply with vehicle size and weight limitations imposed by Caltrans and other relevant jurisdictions; another CoC requires the applicant to secure the appropriate permits and licenses to transport hazardous waste; and a final CoC to ensure that the project owner would restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities. Repairs shall be of the kind to restore the roads, easements, and rights-of-way to their original or near-original condition. With the implementation of these CoCs, impacts would be less than significant.

Linear facilities. Construction impacts associated with the construction of the transmission line route and conductor installation include the movement of heavy equipment, trucks, and worker vehicles along access routes. Construction of the transmission line route and conductor installation would not directly impact traffic operations as staging areas would be established within existing rights of way. Several aspects of the transmission line tower construction and conductor installation would result in impacts.

With implementation of a CoC requiring a traffic control plan, the transportation related impacts would be less than significant.

The transmission line route would cross Interstate 10 and would require the use of heavy equipment. The Department of Transportation (Caltrans), District 8, commented that GSEP would be required to obtain permits for vehicles/load exceeding limitations on size and weight. Therefore, a CoC is recommended which requires the applicant obtain encroachment permits to encroach into public rights-of-ways. In addition, a second CoC requires that the applicant restore all roads damaged by construction activities.

Given the distribution among the two staging sites and the coordinated Traffic Control Plan and requirement for encroachment permits from the Department of Transportation (Caltrans) as well as the requirement to restore any damaged roads from construction activities, traffic impacts associated with workforce-related traffic and transmission line roadway crossings are considered less than significant.

Operational Impacts

Operational traffic. Operation of the facility would require a labor force of up to 66 full-time employees operating round-the-clock. In a worst-case scenario, where all workers commute with only one occupant per vehicle, would generate 132 employee commute trips spread over a 24-hour period. In addition, GSEP would generate approximately 38 truck trips per month (average of one to two truck trips per day) for delivery of materials and supplies. Approximately 15 of these truck trips per month would be for the

delivery of hazardous materials. Delivery drivers and workers would use the Wiley Well Road interchange from either eastbound or westbound I-10 to access the site. To ensure safe handling and transportation of hazardous materials, a CoC is recommended requiring the applicant to develop and implement a Safety Management Plan for the delivery and handling of liquid and gaseous hazardous materials.

These trip additions of employees or deliveries would not cause a significant impact to the highways. It is anticipated the LOS will remain at LOS A. The average daily traffic (ADT) volumes are expected to remain low. As indicated, the study roadway segments are expected to experience a nominal increase in GSEP-related traffic. Therefore, operations impacts from GSEP-related traffic are considered less than significant.

Emergency services vehicle access. The regional access to the site is adequate based on emergency vehicles can access the site directly from I-10 via the new access road that would connect with Wiley Well Road. On-site circulation and secondary emergency access for vehicles would be subject to site plan review by the Riverside County Fire Department per a CoC in the Worker Safety and Fire Protection section of the revised staff assessment. The emergency access road would be provided via a new "spur road" that connects to the main new access road.

Water, rail, and air traffic. The proposed GSEP is not adjacent to a navigable body of water; therefore, the GSEP would not to alter water-related transportation. In regards to rail, there are no rail tracks on or near GSEP. The Federal Aviation Administration (FAA) requires an analysis of facilities located within 20,000 feet of an airport. No commercial airport or military airport is located within 20,000 feet of the GSEP site boundary.

Transport of hazardous materials. Operation of the proposed GSEP would involve the transport of hazardous materials to the site. The transport vehicles are required to follow federal regulations governing the proper containment vessels and vehicles, including appropriate identification of the nature of the contents. Federal and state regulations include specific procedures for transporting hazardous materials. To ensure compliance with all applicable state and federal regulations a CoC for the transportation of hazardous materials is recommended. A second CoC requires the development and implementation of a safety management plan for the delivery and handling of liquid and gaseous hazardous materials. Implementation of these CoCs would reduce impacts to be less than significant.

Glare impact on motorists. The GSEP power blocks and solar arrays would occupy approximately 1,360 acres of the 1,800 acres of the BLM site. A parabolic trough is a type of a solar thermal energy collector. Constructed as a long parabolic mirror, a Dewar tube runs its length at the focal point. Sunlight is reflected by the mirror and focused on the Dewar tube. The trough is usually aligned on a north-south axis and rotated to track the sun as it moves across the sky each day. Troughs are stowed facing the ground, a position from which no glare occurs.

Based on the distance of the GSEP from I-10, there does not appear to be a danger to observers. However, distant observers such as motorists on nearby highways may encounter "bright spots" which are generated from the bottom edge of the mirrors which are the result of a tangentially reflected image of the sun presented by spread reflection. This spot will move as the observer changes relation to the sun and appear to "follow" the observer. Since this moving spot is several orders of brightness greater than the reflected sky and clouds on the mirrors, it may be an annoying distraction. To mitigate this impact, a CoC is recommended which requires a chain link fence, minimum 10 feet in height, installed around the entire project perimeter and include opaque privacy slats in order to reduce brightness of spread reflection.

Parking capacity. Approximately 66 workers would be employed at the GSEP when it becomes operational. Those workers would park on-site. With the proposed construction parking area on-site as well as on-site parking for operational employees, the project would not result in any parking spill-over to sensitive areas and would not create any adverse impacts.

D.7.7 Visual Resources

The documents summarized herein regarding the visual impacts of the Blythe and Genesis projects are the following:

- Blythe Solar Power Project: Revised Staff Assessment, Part 1, June 2010, Section C.12.4.2 (Visual Resources), Assessment of Impacts and Discussion of Mitigation; and
- Genesis Solar Energy Project: Revised Staff Assessment, June 2010, Section C.12.4.2 (Visual Resources), Assessment of Impacts and Discussion of Mitigation.

D.7.7.1 Blythe Solar Power Project

Construction Impacts

Construction of BSPP would cause temporary visual impacts due to the presence of equipment, materials, and workforce. These impacts would occur at the BSPP solar power plant site and along the transmission line route. Construction would include site clearing and grading, construction of the actual facilities, and site cleanup and restoration. Visible traffic would also increase along I-10, West Hobsonway and Black Creek Road during construction and grading activities would generate large, dust clouds, which can be visually distracting if not controlled properly.

Throughout the extensive construction period of approximately 39 months, the industrial character of the activities would constitute adverse and significant visual impacts. However, the vast majority of the area disturbed by construction would eventually be occupied by project facilities though some areas of disturbed soil surfaces (characterized by high color, line and texture contrasts) would still remain and would be visible from the various viewing vantage points. These areas of residual disturbance would require restoration. Proper implementation of proposed restoration mitigation would ensure that the visual impacts of residual disturbed areas associated with project construction remain less than significant. It is also anticipated that construction activity will take place at night. In order to ensure that significant construction lighting impacts do not occur, night lighting mitigation measures were adopted. With implementation Conditions of Certification, visual impacts resulting from construction would be less than significant.

Operational Impacts

The BSPP project would convert approximately nine square miles of naturally appearing desert plain to an industrial facility characterized by complex, geometric forms and lines and industrial surfaces that are dissimilar to the surrounding natural landscape character. An additional two square miles would be disturbed during construction. Much of the developed area would be covered with the arrays of parabolic mirrors that would be used to collect heat energy from the sun.

The BSPP would result in a substantial adverse impact to existing scenic resource values as seen from several viewing areas and Key Observation Points (KOPs) in the project vicinity, McCoy Mountains, and Palo Verde Mesa area, including:

- Black Creek Road, approximately 0.4 miles south and east of the nearest development areas within the project boundary;
- BLM lands in the immediate vicinity of the development area;
- The McCoy Mountains, west of the project area; and
- Interstate 10, south of the project area in the immediate vicinity of the interconnecting transmission line span.

These visual impacts could not be mitigated to less than significant levels and would thus result in significant and unavoidable impacts under CEQA. Also, the project would not be consistent with several applicable goals and policies of the Riverside County Integrated Plan.

With implementation of mitigation measures, visual impacts at remaining KOPs, Blythe Airport and Westbound Interstate 10 at the Transmission Line Span, would be considered adverse but less than significant. The following conditions of certification are required to reduce visual impacts to less than significant levels:

- Minimize structure contrast and lighting and glare impacts to the extent possible;
- Surface Color Treatment of Structures;
- Revegetation of Disturbed Soil Areas ;
- Temporary and Permanent Exterior Lighting;
- Implement proper design fundamentals to reduce the visual contrast to the characteristic landscape.

With implementation of Conditions of Certification visual impacts to the abovementioned KOPs would result in less than significant impacts during operation on BSPP.

Cumulative Impacts. The BSPP interconnecting transmission line would result in a significant cumulative visual impact in the context of existing cumulative conditions. Furthermore, BSPP's contribution to the visible industrialization of the desert landscape would constitute a significant visual impact when considered with existing and future foreseeable projects, both within the immediate project viewshed (extending 15 miles from the project site) and in a broader context that encompasses the whole of the California Desert Conservation Area.

D.7.7.2 Genesis Solar Energy Project

Construction Impacts

Construction of the GSEP would cause temporary visual impacts due to the presence of equipment, materials, and workforce. These impacts would occur at the proposed solar power plant site and along the transmission line route. Construction would include site clearing and grading, construction of the actual facilities, and site cleanup and restoration. Site grading would represent a substantial visual component of the Proposed Project during construction. After construction, grading of roads, laydown areas and other activities outside the main project footprint would remain visually disturbed unless restored.

In order to minimize construction impacts to a less than significant level, mitigation measures would be required. Condition of Certification would require visual mitigation and revegetation of staging area, including screening of the laydown area with earth berms, opaque fencing, and/or other measures to minimize visibility; and restoration and revegetation of the laydown area after completion of construction. In addition, to minimize the contrast of laydown areas with associated graded landscapes, roads, and other infrastructures, Condition of Certification would require reduction of form, line. With implementation of

the Conditions of Certification, visual impacts resulting from construction of the GSEP would be less than significant.

Cumulative Impacts. The construction of the GSEP is expected to result in short term adverse impacts related to construction activities, and would not contribute to a cumulative visual impact on the region.

Operational Impacts

The GSEP project would convert approximately 2.8 square miles of naturally appearing desert plain to an industrial facility characterized by complex, geometric forms and lines and industrial surfaces that are dissimilar to the surrounding natural landscape character. In addition, the GSEP transmission line would traverse 90 acres of flat undeveloped land before connecting to the Blythe Energy Project Transmission Line.

There are no residences within 15 miles of the GSEP site. However, the GSEP site would be visible from various points within the Palen and McCoy Mountains, primarily south-facing ridges of the Palen Mountains, and west facing slopes of the McCoy Mountains. These elevated viewpoints are the only ones from which the expanse of the project site could be clearly seen.

Conditions of Certification are required to reduce visual impacts to less than significant levels to existing scenic resource values as seen from several viewing areas and Key Observation Points (KOPs) in the project vicinity, including:

- Ford Dry Lake Bridge Over I-10;
- Wiley Well Bridge Over I-10;
- Corn Springs BLM Road;
- Palen-McCoy Wilderness Area (highland and lowland).

Implementation of several Conditions of Certification would be required to reduce operational visual impacts to less than significant levels, including:

- Surface color treatment of non-mirror structures in order to minimize form and color contrast of the taller project facilities;
- Re-alignment and visual mitigation of proposed transmission interconnection to reduce the visual contrast of towers and the length of the segment of transmission line within foreground;
- Reflective glare mitigation to minimize potential bright reflective glare effects;
- Reduction of form, line, and texture contrast in order to reduce other visual contrasts from roads, structures, buildings, and support infrastructure.

To minimize potential nighttime light pollution, address potential impacts from construction lighting, and further minimize potential night lighting impacts to campers in the Palen-McCoy Wilderness, Condition of Certification were adopted to require that all exterior lighting be designed such that lamps and reflectors are not visible from beyond the project site; lighting does not cause excessive reflected glare; direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting, if any; and illumination of the project and its immediate vicinity is minimized to an “as needed” basis wherever feasible consistent with safety.

Cumulative Impacts. The anticipated operational visual impacts of the GSEP in combination with past and foreseeable future local projects in the Chuckwalla Valley, and past and foreseeable future region-wide projects in the southern California desert are considered cumulatively significant and unmitigable.