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List of Acronyms

AB	Authorized Biologist
ACEC	Area of Critical Environmental Concern
AFC	Application for Certification
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BM	Biological Monitor
BMP	Best Management Practice
BRMIMP Program	Biological Resources Mitigation Implementation and Monitoring
BRSA	Biological Resources Survey Area
BTR	Biological Technical Report
Cal-IPC	California Invasive Plant Council
CBOC	California Burrowing Owl Consortium
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDNPA	California Desert Native Plants Act
CFR	Code of Federal Regulations

CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CEC	California Energy Commission
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
DESCP	Drainage, Erosion, and Sediment Control Plan
DT	Desert Tortoise
DWMA	Desert Wildlife Management Area
ECM	Environmental Compliance Manager
EDAW	EDAW, Inc.
EIR	Environmental Impact Report
EREMICO	EREMICO Biological Services
ESA	Endangered Species Act
°F	Degrees Fahrenheit
FGC	California Fish and Game Code
GPS	Global Positioning System
HCP	Habitat Conservation Plan
IF	Interconnection Facilities
ITP	Incidental Take Permit
kV	Kilovolt
LORS	Laws, Ordinances, Regulations, and Standards
MBTA	Migratory Bird Treaty Act
MCL	Mean Carapace Length
mg/L	Milligrams per Liter
MGS	Mohave Ground Squirrel
mm	Millimeter
MMU	Minimum Mapping Unit
mph	Miles per Hour
MSLLC	Mojave Solar, LLC
MSP	Mojave Solar Project
MW	Megawatt

NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
OHWM	Ordinary High Water Mark
PAR	Property Analysis Record
PDF	Project Design Feature
ppm	Parts per Million
PRC	Public Resources Code
RGL	Regulatory Guidance Letter
ROWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SEGS	Solar Electric Generating Stations
SCE	Southern California Edison
SSC	Species of Special Concern
SWHA	Swainson's Hawk
SWPPP	Storm Water Pollution Prevention Plan
TDS	Total Dissolved Solids
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
WBO	Western Burrowing Owl
WDR	Waste Discharge Requirement
WEAP	Worker Environmental Awareness Program
ZOI	Zone of Influence

5.3 Biological Resources

This section characterizes and discusses biological resources within and surrounding the Mojave Solar Project (MSP or Project) and presents the Laws, Ordinances, Regulations, and Standards (LORS) related to biological resources that may be affected by Project implementation. In addition, this section addresses potential impacts to biological resources (vegetation communities; special status fauna and flora; and jurisdictional waters) during construction and operation, and identifies measures to avoid, minimize, and mitigate identified adverse impacts. Additional detail on biological resource surveys and studies conducted along with names and qualifications of key staff conducting the surveys can be found in the Mojave Solar Project, Biological Technical Report (BTR) provided as Appendix F.1 (EDAW, 2009a).

In this section, the Project Area covers approximately 1,765 acres and includes the Plant Site, transmission line and interconnection substation, drainage channels, access roads, storage areas, and parking zones (see Section 2.1). The Plant Site includes the Alpha (the northwest portion of the Project Area) and Beta (the southeast portion of the Project Area) sites and will cover an area of 884 acres and 800 acres, respectively, and join at the transmission line interconnection substation to form one full-output transmission interconnection. In relation to biological resource survey activities, the Survey Area includes both the Project Area and a California Energy Commission (CEC) one-mile biology buffer around the Project Area. In addition to the Survey Area, a separate survey boundary was used during 2007 and 2008 surveys and is known as the Biological Resources Survey Area (BRSA).[1] The Project Area, BRSA, and Survey Area are depicted in Figure 5.3-a and Figure 5.3-1.

5.3.1 Introduction

The MSP is a solar electricity generating facility proposed on approximately 1,765 acres in unincorporated San Bernardino County, California, approximately nine (9) miles northwest of Hinkley, California, and approximately five (5) miles north of State Route 58 near the town of Lockhart. The MSP will use parabolic trough solar thermal technology to produce electrical power and will have a combined nominal electrical output of 250 megawatt (MW) from twin 125-MW power blocks (refer to Section 2.4 for a full description of the Plant Site). The Project will connect to the Southern California Edison-owned Kramer-Cool Water 230-kilovolt (kV) transmission line located adjacent to the southern border of the Project Area. An Interconnection Facilities Study (see Section 2.1) details the on-the-ground improvements associated with the proposed transmission line interconnection substation, hereinafter referred to as interconnection facilities (IF). All Project-related transmission facilities are encompassed by the outer edge of the Project Area (Project Area boundary). The Project proposes to use wet cooling towers for power plant cooling and owns adjudicated water rights for this purpose. Water for cooling tower makeup, process water

[1] During 2007, the exact MSP footprint had not yet been established; therefore, a primary study area boundary within which the Project would be designed was used as the boundary for biological resource surveys in 2007 and 2008. This primary study area was referred to as the Biological Resources Survey Area (BRSA).

makeup, and other industrial uses such as mirror washing will be supplied from on-site groundwater wells, drawing brackish groundwater, which also will be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). Project cooling water blowdown will be piped to four (4) evaporation ponds. The evaporation ponds will be double-lined and cover five (5) acres each for a total of 20 acres. Natural gas for the Project's ancillary purposes, such as the auxiliary boilers and space heating, will be supplied by a Southwest Gas Corporation-owned pipeline, which would connect with the MSP at the Alpha site. No off-site pipeline facilities are proposed as a part of this Project. To capture any storm water flow from off-site, several drainage ditches (gabion mattress banked) will be constructed at key locations to direct runoff to an area northeast of the Project Area. All storm water runoff (sheet flow) generated on-site will be collected, filtered, and used for Plant Site operations.

5.3.2 Laws, Ordinances, Regulations, and Standards

The MSP will comply with applicable federal, state, and local LORS throughout Project construction and operation. Potentially applicable LORS are summarized in Table 5.3-1 and discussed in the following text. The primary Federal and State of California regulatory agencies involved with the oversight of many of these LORS include the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG), and Lahontan Regional Water Quality Control Board (RWQCB).

5.3.2.1 Federal LORS

5.3.2.1.1 Endangered Species Act (ESA) (16 U.S. Code [USC] §1531 et seq.)

This 1973 law, administered by USFWS and the National Marine Fisheries Service (NMFS), is designed to minimize impacts to imperiled plants and animals, as well as facilitate recovery of such species. Plant and animal species are listed as "endangered" or "threatened" based on a variety of factors. "Take" of a listed species is prohibited except as authorized through consultation with USFWS or NMFS and issuance of incidental take authorization under Section 7 or Section 10 of the ESA, depending on whether there is federal agency action required for the proposed Project (i.e., a federal permit required or federal funding involved). "Take" is defined under the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct."

Section 10 permitting requires preparation of a Habitat Conservation Plan (HCP) to ensure the continued viability of listed species and their habitats, issuance of an Incidental Take Permit (ITP) and preparation of an Implementing Agreement. USFWS also must comply with the National Environmental Policy Act (NEPA) in issuing a Section 10 permit and HCP. If there is limited potential for impacts to federally listed species, a "low effect" HCP can be prepared, an action that is categorically excluded from NEPA. In the event that federal agency action is required for the Project that triggers consultation with USFWS under Section 7, a take authorization may be obtained as part of the Biological Opinion issued at the conclusion of the ESA Section 7 consultation.

5.3.2.1.2 Migratory Bird Treaty Act (MBTA) (16 USC §703 - §711)

This law prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof. The USFWS maintains a list of designated migratory birds occurring in various regions of the United States.

5.3.2.1.3 Bald and Golden Eagle Protection Act (BGEPA) (16 USC §668)

This act specifically protects bald and golden eagles from harm and from trade in parts (feathers, skins, etc.) of these species.

5.3.2.1.4 Clean Water Act (CWA) (as amended; 33 USC §1251 et seq.)

It is not anticipated that the Project will have any impacts on jurisdictional "waters of the U.S." (hereinafter referred to as waters of the U.S.) or require a permit from USACE under Section 404 of the federal CWA, based on initial analysis of a jurisdictional delineation that was performed for MSP. Results of the jurisdictional delineation will be provided to CEC and USACE in the near future in the MSP Jurisdictional Delineation Report.

5.3.2.1.5 National Environmental Policy Act (NEPA) of 1969, (42 USC §4321 et seq.)

This law was written so that a national framework for protecting the environment could be established. It seeks to ensure that effects on the environment are considered prior to implementing any major federal action. All federal agencies are required to prepare Environmental Assessments and Environmental Impact Statements for any proposed actions so that environmental effects can be considered. If the MSP requires a federal authorization, compliance with NEPA may be required.

5.3.2.2 State LORS

5.3.2.2.1 California Environmental Quality Act (CEQA) (Public Resources Code [PRC] §21000 et seq.)

CEQA requires state and local agencies to evaluate the environmental impacts of their actions and to identify significant environmental effects of proposed projects (including impacts on biological resources). CEQA further requires state and local agencies and project proponents to avoid, minimize, and mitigate significant effects on the environment. CEQA applies to "projects" proposed to be undertaken or requiring approval by state and/or local governmental agencies. "Projects" are activities that have the potential to have a physical impact on the environment. The CEC licensing process is a CEQA-equivalent process under the Warren-Alquist Act, PRC §25500; see also CEQA Section 21080(b)(6).

5.3.2.2.2 California Endangered Species Act (CESA) (California Fish and Game Code [FGC] §2050 et seq.)

CESA prohibits the "take" (defined as "to hunt, pursue, catch, capture, or kill") of state listed species except as otherwise provided in state law. CESA, administered by CDFG, is similar to the federal ESA, although unlike the federal law, CESA applies incidental take prohibitions to species currently petitioned for state listing status (i.e., candidate species). State lead agencies are required to consult with CDFG to ensure that their authorized

actions are not likely to jeopardize the continued existence of any state listed species or result in the degradation of occupied habitat.

Under Section 2081, CDFG authorizes "take" of state listed endangered, threatened, or candidate species through ITPs or memoranda of understanding if (1) the take is incidental to otherwise lawful activities, (2) impacts of the take are minimized and fully mitigated, (3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in questions, and (4) the applicant ensures suitable funding to implement the measures required by CDFG. Under the Warren-Alquist Act, PRC §25500, CEC is responsible for issuing all authorizations required under state law. Because CEC will act in coordination with CDFG to ensure CESA compliance, Mojave Solar, LLC (MSLLC) will submit a Section 2081 permit application to CEC and CDFG shortly after submittal of the Application for Certification (AFC), to demonstrate Project compliance with CESA.

5.3.2.2.3 Title 14, California Code of Regulations (CCR), §670.2 and §670.5

These state regulations list plant and animal species designated as threatened and endangered under CESA. CDFG species of special concern (hereinafter referred to as CDFG SSC) are those species that are indicators of regional habitat changes or are considered potential future protected species. A SSC does not have any special legal status but is intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

5.3.2.2.4 FGC §3511, §4700, §5050, and §5515

These state laws classify and prohibit the take of "fully protected" birds, mammal, amphibian/reptile, and fish species in California.

5.3.2.2.5 FGC §3503

This state law makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

5.3.2.2.6 FGC §3503.5

This state law makes it unlawful to take, possess, or destroy birds of prey. It also prohibits the take, possession, or destruction of nests or eggs of any bird of prey.

5.3.2.2.7 FGC §3513

This state law makes it unlawful to take or possess any migratory nongame bird as designated in the federal MBTA or any part of such migratory nongame bird, except as provided by specific rules and regulations.

5.3.2.2.8 Title 14, CCR, §460

This state regulation provides information regarding hunting of fur-bearing animals in California and the level of protection that these species are afforded. Specific information on methods of take that are allowable and the temporal restrictions for hunting/trapping are provided as well.

5.3.2.2.9 FGC §4150

This state law makes it unlawful to take or possess any nongame mammal or parts thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the commission.

5.3.2.2.10 California Desert Native Plants Act (CDNPA) (Food and Agricultural Code §80001 et seq.)

This Act protects California desert native plants on both public and privately owned land. Both CDFG and the Department of Food and Agriculture assist with enforcement of this Act. The CDNPA prohibits the harvest, transport, sale, or possession of specific native desert plants (in certain counties) unless a permit is secured from the Agricultural Commissioner in the county for which the action is to take place.

5.3.2.2.11 Native Plant Protection Act (NPPA) (Fish and Game Code §1900 et seq.)

The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for "rare and endangered" are different from those contained in CESA, although CESA-listed rare and endangered species are included in the list of species protected under the NPPA.

5.3.2.2.12 The Porter-Cologne Water Quality Control Act (Porter-Cologne; PRC §13000 et seq.)

Through a programmatic agreement between the federal government and the states, the RWQCB has primary authority for permit and enforcement activities under Porter-Cologne and the CWA. Under Porter-Cologne, the RWQCB regulates the "discharge of waste" to "waters of the state" (hereinafter referred to as waters of the state). The term "discharge of waste" is broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact waters of the state relative to implementation of Section 401 of the CWA.

Porter-Cologne authorizes the RWQCB to regulate discharges of waste and fill material to waters of the state, including "isolated" waters and wetlands, through the issuance of waste discharge requirements (WDRs). Under Porter-Cologne all parties proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, shall file with the appropriate RWQCB a Report of Waste Discharge (ROWD) containing such information and data as may be required by the RWQCB. The RWQCB will then respond to the ROWD by issuing a WDR in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs except where the RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest. Therefore, all parties proposing to discharge waste that could affect waters of the state, but do not affect federal waters (which requires a CWA Section 404 Permit and CWA Section 401 Water Quality Certification) must file an ROWD with the appropriate RWQCB. MSP has been designed so that waste will be contained and not allowed to enter into waters of the state; therefore, a ROWD would not be submitted for this Project.

5.3.2.2.13 FGC §1600 et seq.

Section 1600 requires notification to CDFG prior to any activity that may result in substantial modification of the natural flow, or alteration of the bed, or bank, of any river, stream, or lake that supports fish or wildlife resources. Under the Warren-Alquist Act, PRC §25500, the CEC licensing process will include all authorizations required under state law, including any authorization required under Section 1600.

A stream is defined broadly as a body of water that flows at least periodically, or intermittently, through a channel, which has banks and that supports fish or other aquatic biota. Such areas are formally referred to as waters of the state. Upon notification, CEC, in coordination with CDFG, will determine whether the activity will substantially adversely affect an existing fish or wildlife resource and may require measures to protect such a resource through a Streambed Alteration Agreement (SAA). Impacts to vegetation and wildlife from sediment, diversions, and other disturbances are included in the review. If the Project may impact jurisdictional waters of the state, MSLLC will submit a Section 1600 notification to CEC and CDFG shortly following submission of the AFC.

5.3.2.3 Local LORS

5.3.2.3.1 San Bernardino County General Plan, Land Use/Conservation/Open Space Element (2004)

This planning document implements programs that maintain and enhance biological diversity and healthy ecosystems throughout San Bernardino County by ensuring that proposed development projects demonstrate a high degree of compatibility with sensitive biological resources and that coordination with state and federal agencies is exercised so that protection of biological resources parallels the goals of those agencies.

5.3.2.3.2 Plant Protection and Management (San Bernardino County Development Code, §89.0101 et seq.)

This county ordinance promotes the continued health of plant resources by providing regulations and guidelines that assist with management of plant resources in the unincorporated areas of San Bernardino County on property or combinations of property under private or public ownership. This ordinance may require preparation of a plot plan that describes removal of native plants in portions of the Project Area with native vegetation growth. This plot plan would be submitted as part of the native tree/plant removal permit in conjunction with a development permit and/or approval of a land use application.

5.3.3 Affected Environment

This section presents the regional overview of the MSP, as well as a brief discussion of biological resources associated with the MSP. Topics include regional location, agency management areas, landmarks, geology, vegetation communities, common wildlife observed, invasive weeds, and wetlands and waters. Special status species and survey methodology are discussed in Section 5.3.4. Results of biological resource surveys are discussed in Section 5.3.5.

5.3.3.1 Project Setting

The MSP would be located in the western Mojave Desert approximately five (5) miles north of State Route 58 and immediately southeast of existing Harper Lake Solar Electric Generating Stations (SEGS) VIII and IX (hereinafter referred to as Harper Lake SEGS) in the former town of Lockhart, California (Figure 5.3-a). The Project is situated southwest of the western margin of Harper Dry Lake, which is within Harper Valley.

The Project Area currently consists primarily of abandoned agricultural fields that had center-pivot-type irrigation systems, one of which is still in use for alfalfa production. Historically, land in and around the MSP has been used to produce alfalfa and for cattle ranching and dairy farming. Currently, alfalfa is being grown within a center pivot field located in the northwestern section of the planned Beta site. Many of the structures that are in ruins have been identified as structures from the 1950s and 1960s. Homesteaders did not settle here until the 1920s. Currently there are approximately 10 rural residences and small farms located within the Survey Area, most of which are located approximately 50 to 1,000 feet from the proposed Project boundary. With the exception of Harper Lake Road, the roads in the Survey Area are unimproved dirt roads. No community facilities, such as schools, stores, or recreational facilities, remain from the town of Lockhart and no such services currently exist in the area. No new residential development was observed in the Project Area. The structures that once comprised the town of Lockhart are now abandoned, collapsed, or in disrepair. There is a Watchable Wildlife Area open to the public that is managed by the Bureau of Land Management (BLM) that is immediately north of the Beta site. Please refer to Section 5.7, Land Use, for more detailed information.

Topography within the Project Area is generally flat with elevations ranging from approximately 2,105 feet at the southwest corner to approximately 2,025 feet at the northeast corner, near the margin of Harper Dry Lake. Soils within the Project Area were characterized by Ninyo & Moore Geotechnical and Environmental Sciences Consultants (Ninyo & Moore, 2006). The Project Area is covered in older alluvium consisting of dry, loose-to-medium dense, silty fine-to-coarse sand with occasional gravel. Ninyo & Moore hypothesizes that layers of silt and possibly clay are likely present within the older alluvium.

Several biological resource management areas exist near the MSP and include USFWS designated desert tortoise (DT) critical habitat to the north, west, and south of the MSP and the Superior-Cronese and Fremont-Kramer Desert Wildlife Management Areas (DWMAs), both of which were established to protect DT and the habitat they require. Both DWMAs were established as part of the 1994 desert tortoise recovery plan (USFWS, 2008) as a general area for which recovery efforts for DT would be concentrated. DT critical habitat defines specific areas that are essential for the conservation of DT and have biological factors necessary for the survival of this species. The Project has been designed to avoid DT critical habitat; the nearest border of which is 0.7 mile to the southwest of the Beta site. Both DWMA s are located along the southern border of the Beta site. The MSP would avoid the Superior-Cronese DWMA except for a small area located just south of the IF. This area would be temporarily used during MSP connection with the existing Kramer-Cool Water 230-kV transmission line and would take place within the existing transmission right-of-way; no impacts to the Superior-Cronese DWMA will occur as a result of this work.

In addition to DT critical habitat and the Superior-Cronese DWMA, an approximately 480-acre area exists in the southwestern portion of Harper Dry Lake and is designated as an Area of Critical Ecological Concern (ACEC) by BLM's California Desert Conservation Area Plan, as amended (BLM, 1980). The ACEC was established to protect and prevent irreparable damage to the remnant marsh at the southwestern edge of Harper Dry Lake. This marsh has been known to support migratory birds during periods of inundation, including western snowy plover (nonlisted population; USFWS, 2009). The current Project design would include a storm water drainage outlet (see Figure 5.3-1) that would convey any runoff generated during storms from the southwest through the Project Area to the Harper Dry Lake margin, where the ACEC is located; however no impacts to the ACEC would occur during Project construction and operation. Lastly, BLM designated the Mohave Ground Squirrel (MGS) Conservation Area which lies south and east of the Project Area. The MGS Conservation Area was established to provide long-term protection of MGS habitat throughout its range. There are currently over 1.7 million acres of conservation land for the MGS (BLM, 2006). As with the Superior-Cronese DWMA, the MGS Conservation Area is present at the point where the MSP would interconnect with the existing Kramer-Cool Water 230-kV transmission line; however no impacts to the MGS Conservation Area will occur as a result of this work. Refer to Figure 5.3-1 for locations of these biological resource management areas in respect to the MSP.

5.3.3.2 Wildlife Species Observed or Expected to Occur

The Project Area provides little habitat for native wildlife. Marginal habitat in the form of regrowth desert saltbush scrub exists in areas previously used for agricultural practices or livestock production; however, there is a great expanse of relatively undisturbed desert scrub habitat exterior to the Project Area boundary, which provides ample food and shelter for wildlife. Due to these conditions, wildlife presence within the Project Area is largely limited to transient movement across the site to reach areas where higher quality habitat exists. Some native wildlife species, especially birds, use the native habitat for foraging.

Within the Project Area, animal species commonly observed during Project surveys include zebra-tailed lizard (*Callisaurus draconoides*), side-blotched lizard (*Uta stansburiana*), turkey vulture (*Cathartes aura*), rock dove (*Columba livia*), red-tailed hawk (*Buteo jamaicensis*), horned lark (*Eremophila alpestris*), common raven (*Corvus corax*), sage sparrow (*Amphispiza belli*), house finch (*Carpodacus mexicanus*), Brewer's blackbird (*Euphagus cyanocephalus*), Say's phoebe (*Sayornis saya*), European starling (*Sturnus vulgaris*), ash-throated flycatcher (*Myiarchus cinerascens*), barn owl (*Tyto alba*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), Merriam's kangaroo rat (*Dipodomys merriami*), and white-tailed antelope squirrel (*Ammospermophilus leucurus*). There were no fish or amphibians detected or expected to occur within the Survey Area. A complete list of species detected during Project surveys is included in Table 5.3-2. Special status wildlife species are discussed in Section 5.3.4 and Section 5.3.5.

5.3.3.3 Vegetation Communities

The presence of native habitat within the Project Area is significantly lower than the surrounding area, which is mostly undeveloped. The majority of the Project Area has low vegetative cover, with large expanses of barren ruderal areas and some patches of desert

scrub dominated by *Atriplex* species (saltbush) that exhibit an aerial cover ranging from approximately five (5) to 50 percent. Saltbush shrub growth within the Project Area is mostly the result of recolonization into areas left barren and disturbed following decades of agricultural practices.

Surrounding the Project Area are three (3) dominant vegetation communities that include, in order of abundance, desert saltbush scrub, Mojave creosote bush scrub, and Mojave Desert wash scrub. Desert saltbush scrub is most abundant within the Survey Area and is dominated by allscale (*Atriplex polycarpa*) and spinescale (*Atriplex spinifera*). Other shrub species found associated with desert saltbush scrub in the Project Area include winter fat (*Krascheninnikovia lanata*), horsebush (*Tetradymia canescens*), and spiny senna (*Senna armata*). Mojave creosote bush scrub in the Survey Area is dominated by creosote bush (*Larrea tridentata*) spaced on average 15 to 25 feet apart, with subdominant species mainly represented by white bursage (*Ambrosia dumosa*). Mojave Desert wash scrub is present surrounding the proposed MSP within dry washes that lead from all directions to Harper Dry Lake. The dominant species in Mojave Desert wash scrub include cheesebush (*Ambrosia* [*Hymenoclea*] *salsola*), Anderson's boxthorn (*Lycium andersonii*), and peachthorn (*Lycium cooperi*). Other shrub species found associated with Mojave Desert wash scrub in the Survey Area include Johnson's indigo bush (*Psorothamnus arborescens* var. *minutifolius*), and white bursage. In addition to the three (3) dominant vegetation communities within the Survey Area, desert sink scrub and tamarisk scrub exist along the margin of the Harper Dry Lake. Desert sink scrub in the Survey Area consists mainly of annual bursage (*Ambrosia acanthicarpa*), five-hook bassia (*Bassia hyssopifolia*), and bush seepweed (*Suaeda moquinii*), and tamarisk scrub consists of tamarisk (*Tamarix ramosissima*) trees. Refer to Table 5.3-3 for a complete list of plant species detected and Section 5.3.5.2. for more information on vegetation communities. Special-status plant species are discussed in Sections 5.3.4 and 5.3.5.

5.3.3.4 Wetlands and Waters

Several ephemeral streams from the surrounding area lead to Harper Dry Lake and during good rain years floodwater from Grass Valley may flow into Harper Valley from the east by way of Black Canyon. Average annual precipitation within Harper Valley is about five (5) inches and can range from three (3) to seven (7) inches (DWR, 1975). Perennial and intermittent rivers and streams are rare for this area, and most water flow occurs in washes and flood-flow paths during major winter rain events. There are four (4) dry desert washes that lead directly to the Project Area and are oriented in a northeasterly direction. Prior to reaching the Project Area southern boundary the desert washes diminish and blend in with the surrounding habitat. Currently, any runoff that generates within the Project Area during a precipitation event is limited to sheet flow, not stream flow from desert washes.

A relict marsh area at the southwestern margin of Harper Dry Lake, immediately outside the far northeastern corner of the Project Area, once supported hydrophytic and halophytic vegetation that provided habitat for migratory birds and waterfowl. The marsh was supported by agricultural runoff and when agriculture diminished in the last several decades, the marsh dried substantially. An additional discussion of wetlands and waters in the Project Area is included in Appendix F.1, Attachment 6.

5.3.3.5 Invasive Weeds

Several invasive weeds occur in the Survey Area, largely as a result of anthropogenic development. The following invasive plant species (in order of abundance) are present in the Survey Area and are listed as having "severe" to "moderate" Invasiveness by the California Invasive Plant Council (Cal-IPC): Russian thistle (*Salsola tragus*), herb Sophia (*Descurania sophia*), Saharan mustard (*Brassica tournefortii*), London rocket (*Sisymbrium irio*), tamarisk, slender wild-oat (*Avena barbata*), red brome (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), and hare barley (*Hordeum murinum*) (Cal-IPC, 2006). Russian thistle and tamarisk were the most abundant invasive weeds in the Survey Area and mainly occur in disturbed areas at the margin of Harper Dry Lake. Other nonnative plant species in the Survey Area are included in Table 5.3-3.

5.3.4 Biological Resources Surveys

5.3.4.1 Special Status Species within the Vicinity

Prior to beginning field surveys, Project biologists consulted the California Natural Diversity Database (CNDDB) (CDFG, 2008), California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS, 2008), and the Natural Resources Conservation Service Web Soil Survey (USDA, 2007). These resources were consulted to determine historic occurrence of special status[2] plant and wildlife species and other natural resources within the vicinity (i.e., within ten 10 miles) of the MSP. The CNDDB provided information regarding several special status plant and wildlife species that have been documented as occurring within 10 miles of the Project Area (Figure 5.3-2). The *Draft Revised Recovery Plan for the Mojave Population of Desert Tortoise (Gopherus agassizii)* was consulted for supplemental information regarding DT designated critical habitat (USFWS, 2008). In addition, the West Mojave Plan (BLM, 2005) was consulted for supplemental information regarding the MGS Conservation Area and sensitive vegetation communities. There was no working Natural Communities Conservation Plan, associated with private lands in this area, available for review.

In addition to the sources listed above, several documents that discussed local projects were reviewed. These included the *Harper Lake Specific Plan Biological Constraints Analysis* (EDAW, 2006)[3] which provided results of reconnaissance surveys that were conducted in May (two [2] days) and August (four [4] days) of 2006. Two (2) additional reports included: *Mohave Ground Squirrel Survey at the Proposed Harper Lake Dairy Park* (EREMICO, 2006)

[2] Species were considered to have special status if they met any of the following criteria: (1) protected under the ESA and/or CESA; (2) designated a CDFG species of special concern (SSC); (3) designated a CDFG fully protected species (FP); (4) protected under the bald and golden eagle protection act (BGEPA) (USFWS, 2007); (5) a fish or wildlife species with commercial and/or recreational value; (6) wildlife species protected under the California Code of Regulations; or (7) included on the CNPS List 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere). CNPS List 1A, 1B, and 2 species are considered special status plant species if they meet the definitions in NPPA §1901 or CESA §2050 - §2098.

[3] The Harper Lake Specific Plan provided three (3) general land use categories within an area covering roughly 3,300 acres: (1) a dairy park and ancillary facilities, (2) a solar energy park, and (3) housing (EDAW, 2006).

and Mohave *Ground Squirrel Survey at the Proposed Solar Thermal Power Plant Site near Harper Lake* (EREMICO, 2007). In addition to MGS survey data, both reports also provided information on other wildlife and plants detected during surveys.

Based on the above reviews, the following special status species were identified as having the potential to occur within or near the Project Area.

5.3.4.1.1 Federal or State Listed Animals (ESA or CESA)

- Desert tortoise, Mojave Desert population (*Gopherus agassizii*) – ESA and CESA threatened
- Swainson's hawk (*Buteo swainsoni*) – CESA threatened
- American peregrine falcon (*Falco peregrinus anatum*) – CESA endangered; Fully Protected
- Willow flycatcher (*Empidonax traillii*) – CESA endangered
- Mohave ground squirrel (*Spermophilus mohavensis*) – CESA threatened

5.3.4.1.2 State Species of Special Concern (SSC) - Animals

- American white pelican (*Pelecanus erythrorhynchos*) – CDFG SSC
- Northern harrier (*Circus cyaneus*) – CDFG SSC
- Western snowy plover (*Charadrius alexandrinus nivosus*) – CDFG SSC (interior population)
- Short-eared owl (*Asio flammeus*) – CDFG SSC
- Western burrowing owl (*Athene cunicularia*) – CDFG SSC
- Loggerhead shrike (*Lanius ludovicianus*) – CDFG SSC
- Yellow warbler (*Dendroica petechia*) – CDFG SSC
- American badger (*Taxidea taxus*) – CDFG SSC

5.3.4.1.3 California Native Plant Society (CNPS) List 1 and 2 – Plants

- Chaparral sand-verbena (*Abronia villosa* var. *aurita*) – CNPS List 1B.1
- Desert cymopterus (*Cymopterus deserticola*) – CNPS List 1B.2
- Recurved larkspur (*Delphinium recurvatum*) – CNPS List 1B.2
- Barstow woolly sunflower (*Eriophyllum mohavense*) – CNPS List 1B.2
- Sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*) – CNPS List 2.2
- Mojave monkeyflower (*Mimulus mohavensis*) – CNPS List 1B.2
- Utah glasswort (*Salicornia* [*Sarcocornia*] *utahensis*) – CNPS List 2.2

A list of special status animals and plants and the probability of occurrence within the Survey Area is included in Tables 5.3-4 and 5.3-5, respectively. The sensitivity status,

habitat requirements, and plant blooming period as they apply to each species are also presented.

5.3.4.2 Biological Resource Surveys

Biological resource surveys were performed for MSP within a Survey Area that included the Project Area and a one-mile buffer (see Figure 5.3-a), to verify presence or absence of special status target species and to collect data on any other animal or plant species detected.

Comprehensive biological resource surveys designed to meet all applicable CEC, CDFG, and USFWS requirements were conducted during the appropriate seasonal periods respective to target species in 2007 and 2008, and as well as in specific locations within the Project Area during 2009 (Figure 5.3-b; EDAW, 2009b; EDAW, 2009c). Reconnaissance surveys were also conducted in 2006. CDFG and USFWS representatives were consulted, regarding the scope and type of surveys conducted during each of the survey years.

MSP has changed in both footprint size and location since 2006, and survey areas changed accordingly. In 2007, surveys were conducted within the BRSA as well as a one-mile buffer around the BRSA (Figure 5.3.a). In 2008, as MSLLC continued with Project design revisions, a proposed Project Area was established and was situated within the BRSA (see Appendix F.1, Attachment 4, Figure 2). Surveys in 2008 were conducted within the Survey Area as currently defined. In 2009, supplemental protocol-level surveys for DT and other special status plant species were performed within specific locations of the Project Area (see Figure 5.3.b). Reconnaissance surveys had been conducted in 2006; however, these surveys were performed in support of a different project – the Harper Lake Energy Park Project. Prior to conducting surveys in 2007, EDAW reviewed the reconnaissance report for 2006 surveys to obtain knowledge regarding biological resources that had recently been detected in the vicinity. Results of these surveys are summarized below. Qualifications of field biologists are presented in Appendix F.1 (Attachment 1). Additional detail on survey methodology and results can be found in the BTR contained in Appendix F.1 (Attachments 3 – 15).

5.3.4.2.1 CEC Survey Guidelines

CEC released *Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects* (hereafter referred to as the CEC Draft Survey Guidelines) on May 31, 2007 (CEC, 2007). The CEC Draft Survey Guidelines urge project proponents to conduct biological resource surveys according to established protocols and recommend that additional surveys be conducted as necessary within a one-mile buffer to assess presence/absence of listed or special status species and to determine if suitable habitat for sensitive species exists. For example, during surveys for DT, zone of influence (ZOI) transects were walked at a distance of 3,960 feet (0.75 mile) and 5,280 feet (one [1] mile) from the Project Area boundaries. This was in addition to required ZOI transects at 100, 300, 600, 1,200, and 2,400 feet from the Project Area boundary.

5.3.4.2.2 General Wildlife Surveys

General wildlife surveys were conducted concurrently with protocol wildlife surveys and vegetation mapping during May and June 2007, 2008, and 2009. A reconnaissance survey in and around the current Project Area was conducted in 2006 (EDAW, 2006). All

incidental wildlife sign and observations were recorded and special status species were mapped using Global Positioning System (GPS) units. All wildlife species observed or detected during Project surveys are included in Appendix F.1, Attachments 7 – 15.

5.3.4.2.3 Special Status Wildlife Surveys

Protocol surveys were conducted for two (2) listed species – DT and MGS – and one CDFG SSC – western burrowing owl (WBO) – within and adjacent to the proposed Project Area. Additionally, a general raptor survey (with emphasis on detection of Swainson's hawk [SWHA], American peregrine falcon, northern harrier, and short-eared owl, as well as other raptors) was requested by CDFG in 2007.

During spring and summer 2007, presence/absence surveys for DT, MGS, and WBO were conducted, as well as the general raptor survey. In addition, surveys for two (2) other special status species with potential to reside within the Survey Area (loggerhead shrike and American badger) were performed. In spring 2008, additional protocol surveys for DT and WBO were conducted to confirm the previous year's results. A habitat assessment for MGS was performed in spring 2008 to determine the presence of suitable habitat for MGS within the Project Area and adjacent areas. During spring 2009, additional protocol surveys for DT were conducted in select areas within the proposed Project Area to verify presence/absence of DT sign and/or occupation (Figure 5.3-b; EDAW, 2009c).

It was determined that due to lack of suitable habitat, protocol-level surveys were not required for willow flycatcher or western snowy plover.

Desert Tortoise. DT surveys were conducted in April and May in 2007, 2008, and 2009 according to USFWS DT survey protocol (USFWS, 1992), which requires surveys of all areas determined to have appropriate habitat for DT using belt transects 30 feet wide to afford 100-percent visual coverage. In addition, ZOI transects were surveyed. A ZOI is defined as the area where DT on adjacent lands may be directly or indirectly affected by project development. At a minimum, a single, 30-foot-wide ZOI transect is located at 100, 300, 600, 1,200, and 2,400 feet from and parallel to the edge of a Project Area boundary. All DT sign (shells and shell parts, scat, burrows, pallets, tracks, egg shell fragments, courtship rings, drinking sites, etc.) within the Project Area and along ZOI transects require mapping. In addition to the five (5) ZOI transects required by USFWS protocol, CEC Draft Survey Guidelines (CEC, 2007) recommend two (2) additional transects at 3,960 feet and 5,280 feet from and parallel to the edge of the Project Area boundary. See Appendix F.1, Attachments 7 – 9 for detailed description of DT surveys.

Surveyors slowly and systematically walked transects while visually searching for DT and sign. All DT sign detected within the Survey Area was mapped using GPS units and associated data were recorded onto field data sheets. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. Incidental detections of WBO burrows were recorded during DT surveys (using GPS units) to assist biologists during WBO surveys. The lakebed of Harper Dry Lake was not considered suitable DT habitat due to lack of food sources, moisture, and shade, and therefore was not surveyed; however, surveyors did visually scan the barren landscape for signs of life (animal or plant). In addition, other botanical and wildlife surveys were conducted in this area per the CEC Draft Survey Guidelines and any DT sign incidentally detected during

these surveys was recorded.[4] DT observations were estimated at middle carapace length (MCL) and DTs were visually evaluated for health. Carcasses were aged, measured (if possible), and classed using Dr. Alice Karl's *Key to Sign Classes* classification system (see Appendix F.1, Attachment 7). Height and width of DT burrow openings and length and depth of burrows were recorded. Sign of recent use of burrows was recorded and the burrows were classed using Dr. Karl's classification system. Scat was measured and classed using Dr. Karl's classification system.

Mohave Ground Squirrel. In April 2008, MGS expert Phil Leitner, PhD, conducted a habitat assessment of the Survey Area to evaluate MGS habitat quality. The CNDDB was queried to determine historic occurrences of MGS within approximately five (5) miles of the Survey Area. In addition, Dr. Leitner's analysis also utilized other records of MGS occurrences collected for a comprehensive database covering the period 1998–2007 (Leitner, 2008). Maps prepared for the BLM West Mojave Plan that indicate the locations of lands designated for the MGS Conservation Area were also reviewed (BLM, 2005). Dr. Leitner's habitat assessments of the Project Area are included as Attachment 10. Based in part on Dr. Leitner's habitat assessments, the Project footprint was refined to avoid contiguous stands of natural, native desert scrub vegetation.

MGS surveys were conducted by EREMICO Biological Services in and around the current Project Area during spring and summer in 2006 and 2007 (EREMICO, 2006; EREMICO, 2007)[5] according to survey guidelines recommended by CDFG (2003). In addition to visual surveys in 2006, three (3) trapping grids were sampled in 2006/2007 for MGS. Grid 1 consisted of four (4) traps by 25 traps (south of the current Project Area and within the current one-mile buffer), Grid 2 consisted of 10 traps by 10 traps (in the northwestern section of the current Project Area), and Grid 3 was distributed irregularly along the margin of active and abandoned agricultural fields (in the center of the current Project Area). Traps were set the standard 115 feet apart. Trapping grids were operated for five (5) consecutive days during the trapping period. Trapping periods were repeated at each trapping grid three (3) times in 2006. During 2007, trapping periods were repeated at each trapping grid two (2) times (for Grids 1 and 3) and three (3) times (for Grid 2). Data collected during each trapping day included status of trap (open/closed and empty/animal captured, etc.) and species of animal captured. Trapping was discontinued when MGS presence was verified by a captured animal at a particular grid, but continued where MGS presence was not confirmed to establish MGS distribution.

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[4] Harper Dry Lake does not provide suitable habitat for DT foraging. The lakebed near the Project Area is very open and has abundant salt crusts at the soil surface. There are no native annuals that DT would consume, and very few shrubs that would provide shade. Any sign that was detected on the lake (i.e., bone or shell fragments) was considered the result of predation. For example, a raven or coyote may carry all or a portion of a DT to the lakebed to consume it. The margins of Harper Dry Lake were surveyed for DT, even though habitat in these areas was only marginally, or not suitable.

[5] As with the reconnaissance surveys that occurred in 2006, the MGS surveys performed by EREMICO during 2006 and 2007 were performed as part of biological resource surveys for the Harper Lake Energy Park, a different project than the MSP. Data for these surveys are being used in this Application for Certification since they are relevant and beneficial to understanding the biological resources that are present or have the potential to occur in the Survey Area.

Western Burrowing Owl. WBO surveys were performed during summer 2007 and spring 2008 according to protocol established by the California Burrowing Owl Consortium (CBOC) (1993) and accepted by CDFG. In consultation with resource agencies, it was determined that surveys for WBO were not required in 2009. In addition to the 500-foot buffer surrounding the Project Area, as required by CBOC protocol, additional buffer transect surveys for WBO occurred out to one (1) mile from the Project Area boundary per CEC Draft Survey Guidelines. All phases of the WBO surveys took place at dawn/dusk to maximize the potential for detection. See Appendix F.1, Attachments 13 and 14 for detailed description of WBO surveys.

WBO surveys consist of a three-phase approach: (1) Phase I, WBO habitat assessment, (2) Phase II, WBO burrow survey (includes searching for and taking GPS points of burrows and owls), (3) Phase III, WBO surveys, census, and mapping (during the breeding season, at dawn and dusk hours), and (4) Phase IV, WBO survey results summary report (a summary of all survey phases).

Phase I of WBO surveys for the MSP involved determining whether suitable WBO habitat was present within the Survey Area. To achieve this determination, biologists walked or drove on existing roads looking for potential habitat at key locations within the Survey Area (e.g., scrubland with low-growing vegetation, wood piles, culverts, etc.).

Phase II WBO burrow surveys were conducted in suitable habitat within the Survey Area, which was determined by the Phase I habitat assessment. The main objective of Phase II surveys was to detect burrows, as well as incidental observations or detections of WBO. Biologists walked transects at 30-foot intervals across the entire Project Area[6] as well as any suitable habitat within the 500-foot buffer and one-mile CEC buffer. All WBO individuals, occupied burrows, burrows with WBO sign (e.g., whitewash, pellets, feathers, bones) and solitary WBO sign were recorded and mapped during the Phase II surveys. Additionally, any burrows or potential habitat incidentally detected during DT surveys (including the seven [7] ZOI transects) were revisited during Phase II WBO surveys.

During Phase III WBO surveys, 8–10 power binoculars and a 20–40 power, 60 millimeter (mm), spotting scope were used to detect WBO. Vehicles were used as blinds, whenever possible, to minimize disturbance to owls. If burrows with sign were not visible from established roads, surveyors approached the burrows on foot, carefully verifying presence or absence of WBOs at the burrows. Subsequent surveys (total of four [4]) for Phase III WBO surveys included visiting occupied burrows during dawn and dusk to record data that included WBO individuals, their sex, number of pairs, behaviors, and any sign near burrows, if possible, to determine with disturbance to animals. Mapping accuracy was achieved by using GPS units. Dates, times, personnel, weather conditions, and results of WBO burrow and owl observations were recorded.

Phase IV WBO survey results were summarized in report format. Each survey summary report included the results of representative survey phases. Reports for each survey year are included in Appendix F.2, Attachments 13 and 14.

[6] See Appendix F.1, Attachment 13, Figure 2 and Appendix F.1, Attachment 14, Figure 2 to review the Survey Area used for 2007 and 2008, respectively.

Birds of Prey (Raptors). Surveys for raptors with emphasis on detection of SWHA, American peregrine falcon, northern harrier and short-eared owl were conducted during the spring and winter of 2007. Surveys were conducted by slowly driving (at 15 to 25 miles per hour [mph]) along all dirt and paved roads within the Project Area (which at the time was the BRSA) footprint and a 500-foot buffer surrounding the Project Area, frequently stopping to scan surrounding terrain and potential perches for raptor species. The one-mile buffer was evaluated for potential raptor habitat, according to the CEC Draft Survey Guidelines and was also scanned for raptors during driving surveys. All raptor and nonraptorial soaring bird species were identified and their locations were recorded using GPS units. Inactive and currently active nests were also noted and recorded using GPS. Reported observations of species from previous surveys were also noted and investigated during raptor surveys. See Appendix F.1 (Attachment 15) for detailed description of raptor surveys.

5.3.4.2.4 Fish and Wildlife Species of Commercial or Recreational Value

Areas of undeveloped open space in the Mojave Desert, such as areas that exist adjacent to the Project Area and are within the one-mile buffer, have the potential to support fish and wildlife species that have commercial and/or recreational value to the general public. Examples include legal hunting, fishing, and bird watching or wildlife viewing. During wildlife surveys, the Survey Area was informally assessed to determine whether fish and wildlife species of commercial or recreational value could potential reside or utilize the Survey Area, and specifically, the Project Area. The existing evaporation ponds located at the northwestern corner of Harper Lake SEGS, and the artificial wetland area near the Harper Lake Watchable Wildlife Area, were not included as part of this assessment.

5.3.4.2.5 Wildlife Movement Corridors

Wildlife corridors are habitat features that permit or promote the movement of genes within and among wildlife populations. Corridors may be linear features along which animals travel from one habitat or resource area to another. They may also simply include habitat bands of sufficient size that animals will live in and/or move through those bands, thereby maintaining connectivity between areas. During biological resource surveys, biologists informally assessed all portions of the Survey Area (Project Area and one-mile buffer) to determine the presence of any potential wildlife corridors.

5.3.4.2.6 General Botanical Surveys

General botanical surveys were conducted in 2007 and 2008 between the months of March and July. To perform general botanical surveys, EDAW biologists either walked survey transects or drove field vehicles slowly (15 to 25 mph) along existing roads, stopping at key locations to perform survey tasks. At many points during the survey, increased attention was given to areas that had a higher probability of supporting special status plant species. Three tasks were completed during general botanical surveys: (1) a complete plant species inventory was generated (see Appendix F.1, Attachments 3 – 5), (2) all vegetation communities encountered were characterized and identified, and (3) vegetation community mapping was performed for the entire Survey Area. Also, the presence/absence

of any sensitive vegetation communities[7] was verified. Whenever direct access to an area was not feasible in the buffer zone, vegetation mapping was conducted from strategic vantage points. The Survey Area covers several thousand acres of land, although most of it is dominated by just a few vegetation and land cover types; therefore, no minimum mapping unit[8] was used for vegetation community mapping during general botanical surveys.

5.3.4.2.7 Special Status Plant Surveys

Focused botanical surveys for special status plants were conducted in 2007, 2008, and 2009 throughout the Survey Area (Project Area and one-mile buffer; see Figure 5.3-b for 2009 Survey Area). Botanical surveys were conducted beginning in March and ending as late as August to allow detection of plant species that bloom at different times during the season. Areas where Mojave Desert wash scrub existed, or where substrate with high clay content was present, were surveyed with increased effort. In addition, any areas that exhibited a noticeably abundant coverage of native annuals were surveyed with greater detail. Meandering transects were walked during focused survey activities. Transect widths ranged from 15-foot intervals to 100-foot intervals. Any special status rare plant individual or population encountered was recorded into a GPS unit with submeter accuracy. CDFG California Native Species Field Survey Forms were also completed for special status species observations. Voucher specimens were collected, if feasible, and plants photodocumented. Professional qualifications for all personnel who performed general botanical surveys/rare plant surveys during 2007 through 2009 are provided in Appendix F.1, Attachment 1.

All botanical surveys (general/focused) followed the rare plant and vegetation survey guidelines provided by the CNPS (CNPS, 2001) and CDFG (CDFG, 2000a). Vegetation mapping was conducted out to one (1) mile to comply with CEC recommended guidelines.

5.3.4.2.8 Sensitive Vegetation Communities

Sensitive vegetation communities are those that are considered rare in the region, support special status plant or animal species, or receive regulatory protection. In addition, vegetation communities listed on the CNDDB as having the highest inventory priorities are considered sensitive (CDFG, 2003). Within the Survey Area there were no sensitive vegetation communities detected.[9]

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[7] Sensitive vegetation communities are those that are considered rare in the region, support special status plant, or animal species, or receive regulatory protection (e.g., wetlands as defined by USACE and CDFG. In addition, vegetation communities listed on the CNDDB as having the highest inventory priorities are considered sensitive (CDFG, 2008).

[8] Minimum mapping units (MMUs) determine the level of accuracy with which an area is mapped. If the MMU is small with respect to the Survey Area (e.g., 10 square feet for a 10,000-square-foot study area), then data describing the subject matter that is being assessed will be very accurate. In cases where diversity is low and variation within subject matter being studied is not great, the MMU can be increased, or in the case of this Project, not used at all, while still maintaining an accurate account of the constituents of the study area.

[9] According to the CNDDB (CDFG, 2008) transmontane alkali marsh was recorded in 1979 by the Bureau of Land Management. Transmontane alkali marsh is considered a sensitive vegetation community by CDFG.

5.3.4.3 Jurisdictional Waters

5.3.4.3.1 Jurisdictional Waters Delineation

In 2009 a formal jurisdictional delineation and assessment of potentially regulated waters (including wetlands) was conducted within the Survey Area. Prior to conducting the field investigation, EDAW reviewed historical land use, climatic data and identified areas with topographical configurations in the Survey Area, and any previously mapped riparian areas, wetlands, waters, and/or hydric soils, that may suggest the potential or presence of waters of the U.S. and waters of the state at the time of the field survey.

5.3.4.3.1.1 Field Survey for Waters of the U.S.

Potential jurisdictional waters of the U.S. were delineated pursuant to the criteria outlined in and in accordance with the *Corps of Engineers Wetlands Delineation* (Manual) (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (Regional Supplement) (Environmental Laboratory, 2008).[10] Jurisdictional waters of the U.S. include those waters listed in 33 Code of Federal Regulations (CFR) 328.3. All waters of the U.S. were delineated to their jurisdictional limits as defined by 33 CFR 328.4.

Formal wetland delineations were based on the three-parameter method outlined in the Manual and the Regional Supplement (the simultaneous presence of wetland hydrology, hydric soil, and hydrophytic vegetation) to define the presence and jurisdictional extent of regulated waters in the form of wetlands, as defined by these procedural manuals. Field indicators of drainage features and unvegetated waters, which would be used to define the jurisdictional lateral extent of a drainage, utilized indicators of ordinary high water mark (OHWM).[11]

All potential nonwetland waters of the U.S. (e.g., the lake margin and/or drainage features) were delineated within the Survey Area utilizing the definition of OHWM (33 CFR 238.3[e]) and relevant guidance and procedural documents (e.g., Regulatory Guidance Letter [RGL] 88-06 and RGL 05-05). A positive determination for nonwetland jurisdictional waters of the U.S. would be made only for areas that did not meet all three (3) wetland parameters outlined within the Manual and the 2008 Supplement guidance but were within the lateral extent of established OHWM.

The jurisdictional delineations for each site were conducted in accordance with Part IV (Methods), Section D (Routine Determinations), Subsection 2 (On-site Inspection Necessary) of the Manual's "Routine Determinations for Areas Greater Than Five Acres in Size." The Manual recommends that a baseline be established that parallels the major watercourse(s) through the area and that the maximum distance between transects (intervals) for linear

It was reported as being spring-fed originally, but at the time of observation was presumed to be sustained by agricultural runoff. There was no indication during surveys that transmontane alkali marsh was still established in the Survey Area; relict cattail and scirpus mats were apparent.

[10] It should be noted that the Manual and Regional Supplement are guidance documents for delineating jurisdictional waters in the form of wetlands only.

[11] 33 CFR 328.3(e).

delineations does not exceed 0.5 mile. For this delineation, transect intervals for major and significant watercourses occurring within the Survey Area did not exceed 0.25 mile. Obvious upland areas were not mapped as part of this analysis as they did not represent wetland and/or riparian communities that warranted a formal jurisdictional delineation.

Where feasible, the baseline for establishing the transect (and field data point) locations was situated within the survey boundary in nonjurisdictional (i.e., upland and/or nonriparian) habitat so that the initial observation points of each transect were likely outside wetland boundaries or on either side of the potential jurisdictional waters (OHWM and/or wetland), and extended across the jurisdictional features to nonjurisdictional habitat on the opposite side. This baseline placement ensured that the outer observation point for each transect was also located in nonwetland habitat, allowing for accurate demarcation of the limits of jurisdictional areas. A total of two (2) transects, composing a cumulative total of four (4) data points, were completed throughout the Survey Area for the field delineation and this report.

Observation points were located in obvious wetland and nonwetland areas to determine the wetland-nonwetland boundary. In most instances, additional soil pits were dug between observation points to accurately determine this boundary. Subsurface soil taken from soil pits (field data points) was analyzed visually for redoximorphic features using *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (USDA, 2006). A field diagnostic test for determining the presence or absence of iron reduction and identifying aquic conditions using alpha (α), α' Dipyridyl was also applied in select areas. The soil test pits were also evaluated for the presence of subsurface wetland hydrology indicators, such as soil saturation, oxidized root channels, and hydric soil indicators.

All observation points were surveyed to determine the dominance of hydrophytic vegetation. An area was determined to support hydrophytic vegetation if more than 50 percent of the dominant species were listed as OBL, FACW, or FAC species on USFWS *National List of Plant Species That Occur in Wetlands: California (Region 0)* (Reed 1988). This list is still under review and for that reason was used only for species not present on the 1988 list. Vegetation was assessed using the "50/20 Rule" to determine dominant species. By definition, dominant species are the most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that immediately exceed 50 percent of the total dominance measure (e.g., basal area or aerial coverage) for the stratum, plus any additional species that individually comprise 20 percent or more of the total dominance measure for the stratum (Tiner 1999). All observation points were also surveyed for the presence of surface wetland hydrological field indicators, such as inundation, saturation, water marks, drift lines, drainage patterns, and sediment deposits, occurring within a hydrophytic vegetation community.

All field data points and upland/jurisdictional waters boundaries were surveyed for the presence (including extents, types, and boundaries) of potential jurisdictional waters using Trimble XH sub-foot accuracy GPS hand-held units. All field data were post-field processed using Trimble GPS Analyst (Version 2.1) Geographic Information System (GIS) software. Post-field analysis to code, define, designate and edit all acquired GPS field data representing jurisdictional waters occurring within the Survey Area was conducted in tandem with an EDAW GIS specialist and the ecologist who performed the fieldwork. The

Wetland Determination Data Forms — Arid West Region (Version 2.0) completed for this Project are included as Attachment B to this report.

5.3.4.3.1.2 Field Survey for Waters of the State

Jurisdictional waters of the state were delineated either to the head of the playa bank and/or to the edge of the scattered and limited riparian canopy composed of tamarisk, abutting or in immediate proximity to Harper Dry Lake occurring within the Project Area. Riparian habitats do not always have identifiable hydric soils or clear evidence of wetland hydrology as defined by USACE. Therefore, CDFG wetland boundaries often extend beyond USACE wetland boundaries, which sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Jurisdictional boundaries for state waters may encompass an area that is greater than that under USACE jurisdiction.

5.3.4.3.2 Wetland Functions and Values Assessment

In response to a request by CDFG in 2007, a qualitative functions and values assessment was performed within the Project footprint at the time, which was much larger than the current Project footprint. The functions and values assessment was conducted in specific locations northeast of the current Project Area and along the margin of Harper Dry Lake (see Appendix F.1, Attachment 6 for complete report). The functions and values assessment was undertaken in terms of habitat, hydrologic/biogeochemical functions, and water quality utilizing two (2) methods of assessment: (1) California Rapid Assessment Method (CRAM) and (2) Hydrogeomorphic Approach (HGM).

The objective is to provide qualitative and quantitative assessment of the functions and values of the Project Area in terms of:

- ambient wetland conditions,
- restoration potential, and
- assessment of potential impacts to the wetland related to the Project implementation.

5.3.5 Biological Resources Survey Results

5.3.5.1 Fauna

A total of 106 animal species were detected during wildlife surveys between 2007 and 2009. These included two (2) butterfly species, 12 reptile species, 78 bird species, and 14 mammal species. All wildlife species detected during wildlife surveys, field data sheets, and photodocumentation are provided in Appendix F.1, Attachments 7 – 15.

5.3.5.1.1 Federal and State Listed Special Status Animal Species

Five (5) federally and/or state listed wildlife species were detected within the Project Area. These include the federally and state listed DT; as well as state listed SWHA, American peregrine falcon, willow flycatcher, and MGS (EREMICO, 2007). All five (5) of these species are discussed below and in Table 5.3-4.

Desert Tortoise. Results of DT reconnaissance and focused protocol surveys for the MSP revealed that very few DTs utilized the Project Area over a 4 year period. In 2006, the one

and only DT observed within the Project Area was detected near an existing ranch property (see Figure 5.3-4) and was thought to be a pet of the ranch owner (pers. comm. William Clark, 2009). No other DTs were documented within the Project Area during subsequent focused protocol-level surveys.

Another DT observation occurred in 2006, approximately 700 feet south of the Project Area boundary (south of the Beta site and coincidentally, near an active alfalfa field) (EDAW, 2006). In addition to the two (2) DT observations in 2006, a DT was also observed approximately 500 feet southeast of the Project Area boundary in 2008 (Figure 5.3-4). These three (3) DTs were the only individuals observed in close proximity to the Project Area.

The remainder of DTs observed during Project surveys were observed to the west and east and relatively distant from Project Area (Figures 5.3-4). For example, in 2008, the nearest DT observation occurred over 2,250 feet from the Project Area boundary. West of the Project Area boundary, the nearest observation of DT in 2008 was over 2,300 feet away.

In 2008, surveys for DT resulted in observation of 35 DTs, plus six (6) within the ZOI transects, totaling 41 DT observations in 2008. Of the observed DTs, 33 were adults, six (6) were subadults and two (2) were juveniles. DT sign observed within the Project Area includes five (5) DT bone groups. In 2007, only one DT was documented during surveys, within the one-mile CEC buffer south of the Project Area.

Other DT sign detected within the Project Area (burrows, scat, etc.) consisted mainly of DT carcasses (see Table 5.3-6 and Figure 5.3-5). Specific DT sign locations and descriptions are provided in (Appendix F.1, Attachments 7 – 9).

Swainson's Hawk. Suitable nesting and foraging habitat for SWHA occurs within the Project Area in the form of large ornamental trees at occupied and abandoned residences and open active and fallow agricultural fields. A single SWHA was observed perched on a small shrub within the Project Area on June 20, 2007, during a raptor survey, and a pair of SWHAs was observed soaring over the Project Area on August 13, 2007, during a WBO survey (Figure 5.3-6). At least two (2) large, empty stick nests were also found within the one-mile buffer; however, no birds were seen using these nests and the bird species that bred using these nests cannot be determined.

American Peregrine Falcon. One American peregrine falcon, likely a transient, was detected within the Project Area perched on the ground north of the active agricultural field on August 14, 2007, during WBO surveys (Figure 5.3-6).

Willow Flycatcher. A willow flycatcher was observed within the Project Area on June 12, 2007 (Figure 5.3-6), during the known spring migratory period for a northern subspecies of willow flycatcher (*E. traillii. brewsteri*) that is known to migrate through this area. No suitable willow flycatcher breeding habitat occurs within the Project Area; therefore, this individual was likely a transient. Based on this lack of suitable habitat, the willow flycatcher is not expected to remain or breed within the Project Area.

Mohave Ground Squirrel. In consultation with resource agencies, it was determined that surveys for MGS were not required in 2009. There were no MGS detected during habitat assessment activities in 2008. During 2007 surveys, one (1) MGS was captured within the Project Area at the edge of an active alfalfa field in the northeast quarter of Section 32

(Figure 5.3-6) (EREMICO, 2007). No MGS were captured during trapping efforts in 2006 (EREMICO, 2006).

5.3.5.1.2 Nonlisted, Special Status Animal Species

In addition to survey results for federally and state listed species discussed above, survey results for eight (8) CDFG SSC that have the potential to occur within the Survey Area are presented below. Those species are American white pelican, northern harrier, western snowy plover (noncoastal), short-eared owl, WBO, loggerhead shrike, yellow warbler, and American badger. Survey results for the eight (8) CDFG SSC that were detected or have the potential to occur within the Survey Area are also discussed in Table 5.3-4.

American White Pelican. During 2007 surveys, remains of this species were found north of the Project Area and within the one-mile buffer. No suitable American white pelican breeding habitat occurs within the Project Area; therefore, this individual was likely a transient. Based on this lack of suitable habitat, the American white pelican is not expected to remain or breed within the Project Area.

Northern Harrier. Harriers were detected twice in the one-mile buffer north of the Project Area; May 30, 2007, during DT surveys and August 22, 2007, during WBO surveys (Figure 5.3-8). This species was also detected within the Project Area during 2006 reconnaissance surveys (EREMICO, 2006).

Western Snowy Plover. The western snowy plover was reported as occurring on the southwestern edge of Harper Dry Lake in 1978, with an estimated count of 94 birds (CDFG, 2008). Most individuals seemed to be displaying nesting behavior; one nest was found with three (3) eggs. Since that time, the marsh area has degraded and lost all structure and function; therefore, habitat for this species is not present and it is not expected that this species would utilize the Project Area. The interior population of western snowy plover is not considered a federally listed (threatened) species, although both the interior and coastal populations are CDFG SSC (Appendix F.2; CDFG, 2009; USFWS, 2009).

Western Burrowing Owl. During WBO surveys in 2008, a single WBO was observed within the Project Area (Figure 5.3-7). A pair of WBO that had been observed in the Project Area during 2007 surveys was not observed in the 2008 surveys. A domestic dog was observed within this area, so the loss of the pair may have been due to dog predation, or the owls may have simply moved. During 2006 reconnaissance surveys, four (4) WBO individuals were detected in the eastern section of the Project Area.

Short-eared Owl. One short-eared owl was observed within the Project Area during reconnaissance surveys in 2006 (Figure 5.3-8); however, because this species tends to be active both day and night and no subsequent observations were recorded, it is likely that this individual was a transient and did not breed within the Project Area.

Loggerhead Shrike. Suitable breeding and nonbreeding habitat for loggerhead shrike occurs throughout the Survey Area. Loggerhead shrikes were observed during biological surveys of the Survey Area (Figure 5.3-8). Loggerhead shrikes were observed in the Project Area during 2007 and 2009. This species was also detected during 2006 reconnaissance surveys (EREMICO, 2006; EDAW, 2006).

American Badger. The American badger was not detected during 2007/2008 surveys; however, one badger den was detected within the Project Area during reconnaissance

surveys in 2006 (EREMICO, 2006). The den was partially filled in and no recent badger sign was evident, indicating that the den likely had not been used recently.

5.3.5.1.3 CDFG Watch List Raptor Species

At the request of CDFG wildlife biologist, Ms. Becky Jones, a raptor assessment (general raptor survey) of the Project Area was conducted in 2007. During the raptor assessment, several raptor species were documented that did not have the status of federally or state listed, or status as a CDFG SSC; these species are designated by CDFG as Watch List[12] species. Watch list species detected include the Cooper's hawk (*Accipiter cooperi*), prairie falcon (*Falco mexicanus*), and merlin (*Falco columbarius*). These species are discussed below, to address CDFG's request for a specific assessment of the raptor species within the Project Area.

Cooper's Hawk. A Cooper's hawk was observed flying over the Survey Area during DT surveys in 2008 (Figure 5.3-8). It would not be expected to nest within the Survey Area due to lack of suitable habitat. The species typically nests in relatively large trees, and in areas of dense patches of trees. Within the Project Area there is a relatively sparse occurrence of trees within and adjacent to the Project; therefore, there is a low probability that the Cooper's hawk would nest on-site.

Merlin. The merlin was documented within the fallow agricultural fields in the Project Area during both DT and WBO surveys in 2008 (Figure 5.3-8).

Prairie Falcon. Prairie falcons were observed twice within the Project Area: a pair was observed soaring just west of the Project Area during DT surveys and a single individual was observed hunting in the active agricultural area on two (2) consecutive days (August 22 and 23, 2007) during WBO surveys (Figure 5.3-8). This species was also detected during reconnaissance surveys of the Project Area in 2006. Suitable prairie falcon nesting habitat occurs on the desert bluffs approximately eight (8) miles northeast of the Project Area but not within the Project Area.

5.3.5.1.4 Other Species Considered Regionally Sensitive

Although the Mojave Desert population of kit fox is not considered special status by USFWS or CDFG, the species is protected under CCR §460; as such, CDFG has expressed interest in analyzing impacts and developing avoidance measures for projects that occur in occupied or potentially occupied kit fox habitat. This species therefore is discussed below.

Two kit fox dens were documented within the Project Area during DT surveys conducted in 2009. The dens were not previously documented during prior surveys conducted for the Project; however, desert kit fox scat and digs were detected near a WBO complex, and a juvenile female, which had been struck by a vehicle, was observed at the intersection of Lockhart Road and Harper Lake Road (EDAW, 2006).

[12] Avian species designated by CDFG as Watch List are those that are (1) not on the current SSC list but were on previous lists and they have not been state listed under CESA; (2) were previously state or federally listed and now are on neither list; or (3) are on the list of "Fully Protected" species.

5.3.5.1.5 Fish and Wildlife Species of Commercial or Recreational Value

Resources for sport fishing are not present within the Project Area because the Project Area lacks significant bodies of water that are associated with commercial or recreational uses. The Project Area also lacks riparian vegetation that might be of interest for bird and/or wildlife watching. Aside from the mourning dove (*Zenaida macroura*), no game species were observed in the Project Area. Therefore, due to lack of habitat, lack of access, and low probability of occurrence for species of interest, impacts to the Project Area are not likely to affect fish and wildlife species of commercial or recreational value.

5.3.5.1.6 Designated Critical Habitat

Designated critical habitat for DT does not exist within the Project Area; however, there are several acres that exist in the western and southwestern portions of the Survey Area (see Figure 5.3-1). The proposed Project Area does not include any designated critical habitat for any other special status plant or wildlife species.

5.3.5.1.7 Wildlife Movement Corridors

The Project Area has been previously disturbed through agricultural activities, and biological surveys of the site, conducted annually from 2007 through 2009, indicate that there is only a relatively low level of use by wildlife species. Additionally, the Project would not result in the severing, blocking, or constriction of any natural vegetation that connects areas of native desert.

Since the Project Area has been intensively disturbed by historic and ongoing agricultural activities, there are no topographical or habitat features on the Project Area that would facilitate wildlife movement. Additionally, an existing, somewhat degraded series of wire fences currently parallels portions of Harper Lake Road, providing a barrier to wildlife movement through the Project Area.

The current relatively small size of the artificial wetland area (approximately 0.5 acre; located 850 feet northwest of the Harper Lake Watchable Wildlife Area) is not expected to provide a significant stop-point for migratory birds. As such, Harper Dry Lake and the surrounding area, including the Project site, is not part of a major avian migratory flyway. Nor would this small area, characterized by halophytic vegetation and periodic inundation, provide an important site for terrestrial wildlife to congregate. There is ample open space south and west of the Project Area for movement and genetic flow to occur. In summary, the Project would not result in new severing, blocking, or constriction of any natural vegetation that connects areas of native desert open space.

5.3.5.2 Flora

5.3.5.2.1 General Botanical Survey Results - Vegetation Communities and Land Cover Types

During 2007 and 2008 general botanical surveys, vegetation mapping occurred for the entire Survey Area, with 2008 focusing on verifying that vegetation communities had not changed, and performing new mapping of any areas not included in 2007 mapping. Vegetation mapping was not performed during 2006 reconnaissance surveys or during 2009 supplemental surveys. A total of 14 vegetation communities and other land cover

types were mapped within the Survey Area, with 12 of those occurring within the Project Area (Figure 5.3-c; Figure 5.3-3; BTR contains representative photos of vegetation communities mapped within the Survey Area [Appendix F.1, Attachment 4]). Vegetation communities were classified based on Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) and are identified below. The acreage of each vegetation community within the Project Area and one-mile buffer area is provided in Table 5.3-7.

Mojave Creosote Bush Scrub. Approximately six (6) acres of Mojave creosote bush scrub vegetation occur near the southern portion of the Project Area. Mojave creosote bush scrub within the Survey Area consists of widely spaced shrubs from two (2) to six (6) feet in height and dominated by creosote bush and white bursage. While dominated by shrubs, this vegetation community also was found to have a relatively diverse herbaceous layer that included such native annual species as dwarf cottonrose (*Filago depressa*), Fremont's phacelia (*Phacelia fremontii*), and desert dandelion (*Malacothrix glabrata*).

Desert Saltbush Scrub. A total of 0.6 acre of desert saltbush scrub occurs within the Project Area. Desert saltbush scrub mapped within the Survey Area is dominated by four-wing saltbush (*Atriplex canescens*), spinescale, and allscale shrubs up to six (6) feet in height. Other shrubs found growing within desert saltbush scrub in the Survey Area included winter fat, horsebrush, and creosote bush.

Disturbed – Desert Saltbush Scrub. Approximately one (1) acre of disturbed desert saltbush scrub occurs within the Project Area, mainly at the edges or adjacent to abandoned agricultural fields. Disturbed desert saltbush scrub exists in several locations within the Survey Area. It was mapped in areas that have been altered by previous human activity including grading, repeated clearing, and vehicular damage, which over time has degraded "naturally" occurring desert saltbush scrub resulting in a lower shrub density and an increased abundance of nonnative plant species. Within the Survey Area, disturbed desert saltbush scrub is mainly dominated by allscale and spinescale with a dominant understory of nonnative herbaceous plants.

Mojave Desert Wash Scrub. Approximately two (2) acres of Mojave Desert wash scrub occur within the Project Area. Mojave Desert wash scrub in the Survey Area consists mostly of sandy, braided, shallow washes dominated by allscale and creosote bush. In areas where a more defined channel was present, shrub species included Anderson's boxthorn, peachthorn, cheesebush, and white bursage. Native annuals included whitestem blazingstar (*Mentzelia albicaulis*), Mojave pincushion (*Chaenactis xantiana*), easterbonnets (*Eriophyllum wallacei*), whitemargin sandmat (*Chamaesyce albomarginata*), and Mojave suncups (*Cammisonia campestris*).

Alkali Marsh. Alkali marsh does not occur within the Project Area. Alkali marsh is a vegetation community typically dominated by perennial, emergent monocots that grow in either standing water, or in soils that are saturated during most or all of the year. High evaporation rates combined with low flow levels of freshwater create high saline conditions, which are particularly prevalent during the summer months (Holland, 1986). In the desert, this community occurs along dry lakes or in some basins. Representative species for the Survey Area include salt grass (*Distichlis spicata*), relict cattails (*Typha* sp.), salt marsh sand spurrey (*Spergularia marina*), and annual pickleweed (*Salicornia depressa*).

Desert Sink Scrub. There are approximately 40 acres of desert sink scrub within the Project Area, all of which is situated near the northeastern portion of the Project Area. Desert sink scrub is characterized as being dominated by chenopod-type plants that grow on poorly drained soils with high alkalinity and sometimes with a layer of salt crust at the soil surface. Dominant plants for this vegetation community within the Survey Area include bush seepweed, alkali heath (*Frankenia salina*), red molly (*Kochia californica*), and five-hook bassia. Within the Survey Area, this vegetation community occurred between, or intermixed with, alkali marsh and desert saltbush scrub.

Unvegetated Dry Lake. Dry lake was determined to be bare saline soils devoid of vegetation. Approximately nine (9) acres of dry lake (i.e., Harper Dry Lake) occur in the northeastern portion of the Project Area; however, the Project has been designed to avoid impacts to the dry lakebed.

Tamarisk Scrub. Approximately 13 acres of this community occur within the Project Area. This community is dominated by tamarisk (*Tamarix ramosissima*), a nonnative shrub to small tree from Central Asia. The plant was originally introduced for erosion control and windbreak purposes. Tamarisk is deep rooted and can be found along streams and lake shores throughout California. Tamarisk is highly invasive and is associated with dramatic changes in groundwater availability. This species is also capable of forming monotypic stands that outcompete native species for water. Tamarisk scrub is restricted to a few areas within the Survey Area that are mainly situated near the western margin of Harper Lake. Tamarisk was also detected along roadsides adjacent to abandoned agricultural fields, and as windbreaks surrounding some of the residential developments.

Disturbed. Disturbed habitat is land that has been altered by previous human activity including grading, repeated clearing, and vehicular damage. Disturbed land is typically characterized by more than 50 percent bare ground and an absence of remnant native vegetation. Disturbed habitat within the Survey Area is mostly unvegetated and when vegetation is present, it mostly consists of Saharan mustard. Disturbed areas account for approximately 256 acres of the Project Area.

Disturbed - Saltbush Scrub Regrowth. Within the Project Area, a total of 226 acres of disturbed lands with saltbush scrub regrowth is present. Disturbed areas not previously used specifically as an agricultural field that had been recolonized by saltbush species were mapped as saltbush scrub regrowth. In addition to having nonnative species in high abundance, saltbush scrub regrowth in disturbed areas was dominant.

Fallow Agricultural - Saltbush Scrub Regrowth. Approximately 203 acres of this vegetation community occur within the Project Area. The fallow agricultural - saltbush scrub regrowth community occurs in areas previously used for agricultural purposes but that have now become occupied with several *Atriplex* species. The dominant species is allscale, a colonizer that readily occupies abandoned agricultural lands in the Mojave Desert. The degree of regrowth appears to correspond to variation in soil texture and moisture retention. Other plants that were detected in this vegetation community included shadscale, Russian thistle, annual bursage, and salt heliotrope (*Heliotropium curassavicum*).

Fallow Agricultural-Ruderal. This land cover type represents the largest category that occurs within the Project Area, covering an area of approximately 833 acres. The fallow agricultural-ruderal vegetation community occurs on land formerly used for agricultural

purposes and is dominated by ruderal nonnative plants. The dominant plant species are Russian thistle, Saharan mustard, and split grass (*Schismus arabicus*).

Active Agricultural. Approximately 123 acres of active agriculture occur within the Survey Area. The active agricultural area is currently farmed with alfalfa (*Medicago sativa*) and is being irrigated with a center pivot system.

Developed. Developed areas account for approximately 67 acres of the Project Area. The areas mapped as developed include paved roads, dirt roads, residential areas, and the Harper Lake SEGS.

Evaporation Pond. Although surveys did not occur within the Harper Lake SEGS property, aerial imagery and GIS software were used to determine that the existing evaporation ponds cover approximately 23 acres. Two evaporation ponds are located in the northwestern portion of the Harper Lake SEGS, northwest and outside of the boundaries of the Project Area and within the one-mile buffer zone.

5.3.5.2.2 General Botanical Survey Results - Plant Species Compendium

No special status plants were detected during 2009 surveys. During 2008 botanical surveys, 149 plant species were detected in the Survey Area and consisted of 134 native species (91 percent) and 14 nonnative species (nine [9] percent) (Appendix F.1, Attachment 4). Year 2008 was a good rainfall year and plant growth was average or better. For comparison, 53 plant species were detected during 2007 botanical surveys consisting of 44 native species (83 percent) and nine (9) nonnative species (17 percent) (Appendix F.1, Attachment 3). During 2008, native annuals totaled 61, whereas in 2007, native annuals totaled four (4). The great abundance of both native annual and herbaceous perennial species (i.e., those that sprout from corms, tubers, etc.) in 2008 supports the fact that botanical surveys were adequate with respect to detectability of special status plants.

5.3.5.2.3 Special Status Plant Species Survey Results

No CDFG rare, state listed, or federally listed plant species were detected within the Survey Area during 2007, 2008, or 2009; however, one special status plant, desert cymopterus (*Cymopterus deserticola*; CNPS List 1B.2), was detected within the Survey Area, but not within the Project Area. In 2008, a single occurrence of desert cymopterus was observed growing in an open area of a small sandy wash approximately 1,350 feet southeast of the intersection of Santa Fe Avenue and Harper Lake Road (Appendix F.1; Figure 6) and outside the Project Area. Dominant plant species found growing in the wash where desert cymopterus was detected include shrubs, cheesebush, and white bursage, as well as annual species including Mojave pincushion, woolly easterbonnets, redroot cryptantha (*Cryptantha micrantha*), bristly fiddleneck (*Amsinckia tessellata* var. *tessellata*), and desert dandelion. Two desert cymopterus reference populations listed in the CNDDB (CDFG, 2003) were checked prior and after discovery of the plant, but there were no individuals growing at the reference sites.

5.3.5.3 Jurisdictional Waters

Potential Jurisdictional Waters of the U.S. The extent and distribution of potential jurisdictional waters of the U.S. occurring within the Project Area is 1.32 acres. Potential jurisdictional waters of the U.S. are listed in Table 5.3-8. Wetlands (or in this case desert

aquatic-related habitats) have been classified according to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). This classification system incorporates a hierarchical structure of systems, subsystems, and classes to identify wetland and habitat types. The vegetation occurring within the Project Area is vegetation typically associated with disturbed areas occurring within this region of California.

Results of a jurisdictional delineation (EDAW, 2009d) determined that all three (3) wetland criteria (i.e., hydrology, vegetation, soils) were met for the area surveyed; however, this location is isolated, does not have any connection to any federal waters in the area, such as the Mojave River, and therefore is not a jurisdictional water of the U.S. Additionally, the proposed Project would avoid directly impacting any of these areas through implementation of best management practices (BMPs) and other avoidance and minimization measures.

Potential Jurisdictional Waters of the State. Area within the Project Area that is potentially under the jurisdiction and regulatory administration of CDFG occupies 12.5 acres. This area includes 1.32 acres of potential jurisdictional waters of the U.S., as well as an additional 11.18 acres of non-USACE jurisdictional riparian habitat. A summary of the potential jurisdictional waters of the state occurring within the Project Area is provided in Table 5.3-8. It is anticipated that the Project would avoid impacting the majority of the potential waters of the state. The remaining waters of the state that could potentially be impacted would consist of small, isolated patches of tamarisk, in upland areas near the Harper Dry Lake margin that do not have a definable bank.

Condition of Harper Dry Lake Wetland Area. The historic wetland area at Harper Dry Lake is not self-sustaining and essentially depends on planned groundwater inputs; occasional heavy rainfall events may create wetland conditions but this type of precipitation event is relatively rare and is not sufficient to create and/or maintain wetland habitat. Concerning the current state of the wetland area and its historical importance for migratory birds and waterfowl, BLM has taken action to recreate and maintain some form of a wetland habitat with the resources available (i.e., groundwater wells). Refer to Appendix F.1, Attachment 6 for complete results of the 2007 wetlands function and values assessment.

5.3.6 Environmental Impacts

Biological resources may be either directly or indirectly impacted by a project. Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- Direct: Any alteration, physical disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples include clearing vegetation, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species and/or their habitats.
- Indirect: As a result of project-related activities, biological resources may also be affected in a manner that is ancillary to physical impacts. Examples include elevated noise and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.

- Permanent: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.
- Temporary: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction; or removing vegetation for underground pipeline trenching activities and either allowing the natural vegetation to recolonize or actively revegetating the impact area. Surface disturbance that removes vegetation and disturbs the soil is considered a long-term temporary impact because of slow natural recovery in arid ecosystems. Therefore, all such impacts in the Project Area are considered permanent.

Significance criteria are defined in the general context of CEQA and NEPA. Potentially significant impacts to biological resources include, but are not limited to, the following:

- Substantial impact to plant species considered by the CNPS to be rare, threatened, or endangered in California (CNPS, 2008) or with strict habitat requirements and narrow distributions; substantial impact to a sensitive natural community (i.e., a community that is especially diverse; regionally uncommon; or of special concern to local, state, and federal agencies).
- Substantial reduction in the number or restriction of the range of wildlife species that are federally or state listed or proposed to be listed; a substantial impact to wildlife considered SSC by CDFG, candidates for state listing, or animals fully protected in California.
- Substantial impact to habitats that serve as breeding, foraging, nesting, or migrating grounds and are limited in availability, or that serve as core habitats for regional plant and wildlife populations.
- Any substantial adverse effect on riparian habitats identified in local or regional plans, policies, or regulations or by CDFG or USFWS; or have a substantial adverse effect on federally protected wetlands and any other waters of the U.S. or waters of the state.

5.3.6.1 Assumptions Related to Impact Analysis

Assumptions employed for the calculation of impacts to biological resources are described below. Indirect impacts are described separately, specific to each biological resource. For purposes of this analysis, the entire Project Area footprint is assumed to be completely, directly, and permanently impacted. No temporary impacts are assumed. For example, the acreage values identified in Table 5.3-7 under the category of "Project Area" represent the direct and permanent impacts to vegetation communities on the site.

General Construction Schedule and Development Milestones. Construction of the proposed Project is anticipated to begin in the fall of 2010. Construction would occur continuously but may be focused on specific aspects or features of the Project at different times in the construction period. Following the completion of major construction, the startup and test phase is anticipated to occur in the summer of 2012. Commercial operation is expected to occur during the winter of 2012.

Construction Employment and Traffic. The construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. Employment peak and average construction employment levels are 1,162 and 830, respectively. To minimize impacts due to traffic, the Project plans to use a busing service from a location in Barstow. This will significantly reduce the number of vehicles required to travel on Harper Lake Road and alleviate any congestion at Harper Lake Road and Highway 58. Details of the busing, expected parking location, and associated traffic analyses are included in Section 5.13, Traffic. The Project plans to receive shipments by rail at the Barstow BNSF Rail Facility. This facility currently exists and has sufficient capacity to receive and provide logistic support for the Project.

Operations Employment and Traffic. The Project would have a moderate sized workforce during operation; an estimated total workforce of full-time equivalent personnel would be needed to staff the facility 24 hours per day/seven (7) days per week. When the facility is not operating, (generating electricity), personnel would be present as necessary for maintenance, to prepare the plants for startup, and/or for site security. The Project plans to have 63 fulltime employees and 10 seasonal employees during the peak operating months. The operations workforce would include management, supervisors, plant operators, engineering and maintenance staff, skilled labor, and unskilled labor. The details of the operations employment are included in Section 5.11, Socioeconomics. The Project's operational traffic is detailed in Section 5.13, Traffic, and includes employee and truck traffic for shipments.

Solar Array, Access Roads, and Maintenance Facilities. Approximately 1,765 acres of the MSP will be permanently developed to accommodate the solar array field, power generating facilities, access roads, and maintenance facilities. The entire footprint of the solar array will be graded and compacted so that several terraces are created, with each one having a slight slope toward Harper Dry Lake. Laydown areas associated with construction of this facility will occur within the permanent impact footprint or within existing disturbed areas.

Interconnection Facility. An interconnection facility that connects the Project to existing electrical transmission lines (i.e., SCE-owned Kramer-Cool Water transmission line) will be built within the boundaries of the proposed Project Area. This interconnection facility will be constructed mostly over disturbed lands that consist mainly of abandoned agricultural lands with scattered saltbush scrub regrowth.

Proposed Drainage Channels. There are existing vegetated desert washes that lead up to Project Area boundary; however, these washes diminish in shape prior to reaching the Project Area boundary to a point where they blend in with adjacent desert scrub. Nevertheless, a significant precipitation event could focus storm runoff toward the MSP from higher elevations to the southwest. Drainage channels are therefore proposed for the entire southern border of the Alpha site and along the southern and western borders of the Beta site, all of which would conjoin into a single outlet that is planned for the upper terrace of the Harper Dry Lake margin. Drainage channels would be lined with gabion mattresses and constructed so that any storm runoff that intersects with the Project Area will be focused to a location where surface waters during storms have historically deposited.

5.3.6.2 Anticipated Impacts - Construction and Operation

Anticipated impacts to each biological resource due to construction and operation activities are discussed in this section. Impacts to biological resources during construction include such effects as habitat loss due to grading, vehicle strikes by construction crews, and elevated noise and dust levels. Impacts to biological resources during operations include such effects as cooling tower drift and air emissions; harm to avian species that utilize evaporation ponds; and vehicle strikes from workers commuting within the Project Area. Impacts on biological resources from cooling tower drift and air emissions, if any, are described in Section 5.2, Air Quality. When appropriate, direct and indirect impacts to biological resources are described separately.

5.3.6.2.1 Impacts to Wildlife

5.3.6.2.1.1 Impacts to Federally Listed Species

Desert Tortoise

Direct Impacts to Desert Tortoise. Direct permanent impacts to DT are possible because evidence of DT was observed within the proposed Project Area during surveys. Little recent evidence of DTs (e.g., DTs, scat, or burrows) was found in the Project Area; however, carcass parts were observed during surveys in 2007 through 2009. During 2006 reconnaissance surveys, one DT was encountered in the southwestern portion of Section 28, near a ranch house (EREMICO, 2006). This sighting was in a disturbed area that had been recolonized by saltbush shrubs. During surveys, DTs were observed adjacent to the Project Area and therefore could wander onto the site and also construct burrows. This would be most likely to occur in the vegetated corners of the center-pivot fields where native habitat exists outside of the Project Area; for example, in the western portion of Section 30, or the eastern portion of Section 33.

Thus, direct permanent impacts to DT could potentially occur as a result of habitat loss due to MSP construction. This would include impacts to 428.4 acres within the Project Area,[13] composed mainly of fallow agricultural and disturbed areas that have a prevalence of saltbush scrub regrowth associated with Sections 28, 29, 30, 32, and 33 (Figure 5.3-d; Table 5.3-9). These areas represent poor quality habitat that would not be expected to support maintenance or recovery of the species and would arguably not support an individual DT. Based on the low abundance and location of DT sign in 2007, 2008, and 2009 surveys east of Harper Lake Road on all disturbed, developed, fallow agricultural, and active agricultural lands, as well as the corners of center-pivot agricultural fields, none of the Project Area is considered to be occupied DT habitat.

Allscale is a native Mojave Desert shrub that is known for becoming established on previously disturbed lands. Within the Project Area, allscale has formed monotypic stands

[13] A very small portion (northwestern corner; see Figure 5.3-a) of Section 4 is within the Project Area; however Section 4 is not included as part of the impact analysis. Although represented as being within the Project Area, there will not be impacts to this area as it will only be used temporarily, during the process of connecting the MSP to the existing Kramer-Cool Water 230-kV transmission lines.

on lands disturbed by agricultural activities. Table 5.3-9 indicates the acreages of three (3) vegetation types with an allscale component that are found within the Project Area.

Direct impacts to DT could result from vehicle strikes due to an increase in vehicle traffic while the Project is under construction and operation. This could occur on Harper Lake Road and other access roads used for construction and operation.

There would be no direct impact to DT designated critical habitat.

Project Design Features (PDFs) and avoidance measures, especially site fencing and a preconstruction DT clearance, will minimize potential direct impacts to DT as a result of MSP activities. Implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's direct impacts to DT.

Indirect Impacts to Desert Tortoise. Indirect impacts to DT that were assessed included the possibility of common raven predation associated with the installation of evaporation ponds and the introduction of new elevated perching sites (e.g., powerline poles). Because of the existing transmission line and the existing evaporation ponds at the Harper Lake SEGS, the addition of identical subsidies is not likely to result in a further increase in ravens. More importantly, the Project is likely to have a substantial benefit to DTs by removing common raven subsidies that currently exist due to agriculture (e.g., freshwater, rodents, rodents and rabbits killed during harvesting).

Potential impacts to DTs from ravens will be avoided or minimized, however, by implementation of a raven monitoring and control plan and/or by providing a monetary contribution to USFWS's regional raven monitoring and management programs.

Indirect impacts to DT from potential deposition of sediment loads during heavy rain events and flooding downstream of the site, which could impact existing DT burrows outside of the Survey Area, would be minimized by Project design (i.e., grading and compacting the entire footprint of the solar array, thereby reducing on-site erosion). Similarly, indirect impacts to DT habitat by changes in drainage patterns potentially altering off-site vegetation communities would be minimized by Project design. There is no designated critical habitat downstream of the Project that would be affected by altered flows.

The Project Area will not create a further impediment to normal movements or gene flow. The small area in Section 28 along Harper Dry Lake is characterized by halophytic vegetation and periodic inundation; therefore, it is likely not occupied DT habitat. There is ample uninterrupted, higher quality, occupied habitat south and west of the Project Area for movement and genetic flow to occur within the DWMAs and designated critical habitat.

Implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's indirect impacts to DT.

5.3.6.2.2 Impacts to State Listed Species

Swainson's Hawk

Direct Impacts to Swainson's Hawk. At this time, no impacts to SWHA are anticipated. If SWHA are present and/or nesting on-site or nesting occurs within 0.5 mile of the MSP,

direct impacts could potentially result from removal of foraging habitat currently provided by the agricultural activity and abandoned fields. Based on habitat assessments, development of the Project Area could potentially result in direct permanent impacts to approximately 1,779[14] acres of suitable SWHA foraging habitat. The impacts to SWHA have the potential to be significant only if the species nests within a 0.5-mile radius of the Project Area. Surveys to verify the absence or presence of SWHA will be conducted in 2009 or 2010 (see Section 5.3.11.2.3.2). However, implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's direct impacts to SWHA.

Indirect Impacts to Swainson's Hawk. If SWHA are present, indirect impacts could occur as a result of elevated noise and dust levels during construction and increased human activity, which may deter this species from utilizing the area. Implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's indirect impacts to SWHA.

Mohave Ground Squirrel

Direct Impacts to Mohave Ground Squirrel. Although the MGS habitat assessment concluded that the Project Area would not support a resident MGS population (see Appendix F.1, Attachment 12), the presence of suitable habitat adjacent to the Project Area and one (1) MGS documented on the southern border of the site in 2007 suggest that the species could occur as an infrequent visitor. Therefore, it is possible that Project construction and operation could result in incidental take of individuals due to vehicle strikes from construction activities or workers traveling to and from the MSP.

Direct permanent impacts to MGS could potentially occur as a result of habitat loss due to Project construction. This would include impacts to 428.4 acres within the Project Area, made up mainly of fallow agricultural and disturbed areas with saltbush scrub regrowth dominated by allscale. Although these areas do not provide adequate food resources to support a resident MGS population, individual animals could occur on-site as transients.

The Project Area adjoins large areas of Mojave creosote bush scrub and desert saltbush scrub to the west, east, and south. These adjoining areas appear to be suitable habitat for MGS and might serve as a source of dispersing juveniles that could be temporarily present in saltbush regrowth vegetation.

The Harper Lake area is surrounded by the MGS Conservation Area as designated in the West Mojave Plan (BLM, 2005). However, an area totaling over 30 square miles, including the dry lake bed and surrounding private and public lands, was excluded from the MGS Conservation Area. All of the Project Area lies outside of the MGS Conservation Area.

[14] The total acreage for all vegetation communities and other cover types within the Project Area (approximately 1,779 acres) is slightly different than the area calculated during the MSP land survey performed by engineers (approximately 1,765 acres). The variation in acreage is attributed to a difference in equipment used for determining acreage of said area (i.e., land survey versus GIS processing).

Implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's direct impacts to MGS.

Indirect Impacts to Mohave Ground Squirrel. Indirect impacts to MGS could occur from increased raptor and common raven predation associated with the installation of evaporation ponds in addition to elevated perching sites, including the IF and support structures, as discussed above for DT.

In addition, indirect impacts to MGS from potential deposition of sediment loads during heavy rain events could impact existing MGS habitat; however, these impacts would be minimized by PDFs (i.e., adequate drainage channels and compaction of the entire footprint of the solar array, thereby reducing on-site erosion). Similarly, indirect impacts to MGS habitat by potential changes in drainage patterns that result in alteration of off-site vegetation communities would be minimized by PDFs.

In summary, implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's indirect impacts to MGS.

Impacts to Nonlisted, Special Status Species

Direct Impacts to Nonlisted, Special Status Wildlife Species. Direct impacts to WBO and other nonlisted special status wildlife species during construction and operation could result from crushing of occupied burrows and destruction of nests; collisions with construction and maintenance vehicles; and taking of breeding, foraging, and wintering habitat as a result of development of the Project. Implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's direct impacts to WBO and other nonlisted, special status wildlife species.

Indirect Impacts to Nonlisted, Special Status Wildlife Species. The proposed Project could potentially result in temporary and permanent indirect impacts to nonlisted special status wildlife species. Temporary, construction-related indirect impacts could result from dust accumulation on surrounding vegetation; increased ambient noise levels in adjacent plant communities; and use of unnatural lighting during dawn, dusk, or nighttime construction.

The following permanent indirect impacts to nonlisted, special status wildlife species resulting from the proposed Project were assessed: (1) habitat fragmentation, where removal of habitat elements results in separation of formerly connected habitat patches; (2) increased raptor or raven predation on reptiles, songbirds, and small mammals resulting from an increase in perch sites provided by support structures such as transmission line towers; and (3) damage to migratory birds resulting from their use of the evaporation ponds.

Habitat Fragmentation

Indirect impacts from habitat fragmentation are expected to be less than significant due to the previously disturbed nature of the majority of the site, and the relatively small and discontinuous areas of underused native habitat that would be affected by the Project.

Raptor and Raven Predation

Although there may be early increases in raptor predation due to the loss of foraging habitat on the Project Area, ultimately, raptor predation is likely to be less than currently exists because raptor populations will likely decrease in response to the decreased foraging habitat. Sufficient numbers of perches already exist for raptors in the immediate area of the Project, so increases are unlikely. This is generally also true for ravens, which likely are already taking advantage of resources at the existing Harper Lake SEGS.

Evaporation Ponds

Accumulated waste material in evaporation ponds could adversely affect shorebirds, waterfowl, and wading birds that may use the ponds during migration. A series of avian deterrence measures are being incorporated as PDFs. These PDFs prescribe features that would minimize access by shorebirds and waders that may be migrating or nesting near the MSP. Groundwater at the Plant Site was tested for toxic pollutants such as selenium and concentrations were found to be below accepted thresholds (refer to Section 5.17, Water Resources). However, the proposed Project has incorporated a PDF that would extract selenium and chromium from the cooling tower blowdown,[15] thereby removing these contaminants from the aqueous solution prior to any system water becoming available in the evaporation ponds. Selenium and chromium would be collected and sequestered in a sealed tank and shipped off-site to an approved disposal facility. However, salts, such as sodium and potassium chloride, cannot be easily removed as part of the routine operation of the facility.

Based on chemical analysis, the primary constituents of the evaporation pond water that could have a potential adverse effect on wildlife are hyper-saline conditions resulting from high total dissolved solids (TDS) concentrations. Because the ponds will remain uncovered to maximize evaporation and to avoid trapping birds under netting or monofilament arrays, it is anticipated that waterfowl, such as ducks and geese, will be able to access the evaporation ponds by landing on the water. Although waterfowl are anticipated to be the highest risk category, other bird groups, such as shorebirds, may be present even though the ponds have been designed to minimize access. The risk to wildlife, specifically avian species, is related to dissolved constituent concentrations in the pond wastewater and not the source water; therefore, analysis of wildlife risks focuses on pond water quality.

A comparison of the MSP to the existing Harper Lake SEGS site was conducted, to determine potential effects of evaporation ponds on wildlife species. Both the Harper Lake SEGS and the MSP use groundwater as the source water for the cooling process. Although the MSP and Harper Lake SEGS sites are adjacent to one another, minor water quality differences could occur due to different groundwater wells being used for each site and associated variability in groundwater quality. The mean TDS concentration associated with the raw water at the Harper Lake SEGS has been measured as 2,475 parts per million (ppm), compared to 1,772 ppm (with a range of 1,600 to 5,500 ppm) for the MSP at the

[15] A precipitation unit that captures minerals and metals such as selenium and chromium, respectively, will be used to reduce the toxicity of water used for cooling prior to it entering evaporation ponds. The cooling tower blowdown is chemically treated with magnesium hydroxide slurry, a coagulant (ferric chloride), and a flocculent polymer to aid in settling/removing suspended solids in the clarification process, which precipitates out solids such as chromium and selenium (see Section 2.4.4.4 for further details).

Ryken Well. A detailed presentation of the Ryken Well water chemistry is presented in Section 5.17 Water Resources.

The concentration of TDS in the wastewater discharge to the MSP evaporation ponds is calculated to be 87,489 milligrams/liter (mg/L). The concentration of TDS increases due to the loss of water and corresponding concentration of salts.

Annual sampling of the Harper Lake SEGS evaporation ponds indicates that TDS concentrations associated with these samples range from approximately 94,000 to 270,000 mg/L, with a mean of approximately 164,000 mg/L (Blood et al., 2000). This is a 66–fold increase over groundwater TDS, resulting from the evaporative functioning of the ponds. Using ten years of sampling data for Harper Lake SEGS, it was calculated that sodium comprised approximately 32 to 41 percent of TDS (Karl, 2005). Based on a mean of 164,000 mg/L TDS, this would result in a mean of approximately 52,480 to 67,240 mg/L of sodium. Based on the comparative source water chemistry at MSP and Harper Lake SEGS, it is anticipated that the concentration of TDS within the MSP evaporation ponds would be relatively lower than at the Harper Lake SEGS site ponds but would still result in TDS concentrations of at least 87,489 mg/L. Using the above calculation for the percentage of sodium in evaporation pond TDS for Harper Lake SEGS, this would result in an evaporation pond sodium concentration at MSP of 27,996 to 35,870 mg/L. Two studies have identified sodium levels of 17,000 mg/L and 30,800 to 36,950 mg/L resulting in damage to waterfowl (Windingstad et al., 1987; Wobeser and Howard, 1987). In both, salt crystallization was due to frigid temperatures resulting in supersaturation of sodium in the hypersaline lakes. While frigid temperatures can result in salt toxicosis, they are not necessary. At Harper Lake SEGS, 19 ducks died of toxicosis during August 2007. Pond TDS was 250,000 mg/L the previous May and the biologist reporting the deaths had been informed that the pond level from which the dead birds came had been temporarily lowered that August (Erickson, 2007).

It has been suggested that healthy birds or those that are acclimatized to hyper-saline conditions are able to adequately expel the excess salt via their salt glands (Wobeser and Howard, 1987; USGS, 1999). A primary concern with increased avian hazards from exposure to hyper-saline conditions is associated with the formation and accumulation of salt crystals on the feathers of waterfowl, which impedes their ability to fly by weighing down the affected bird and potentially resulting in salt toxicosis (i.e., poisoning) (Woebser and Howard, 1987; Gordus et al., 2002). Evidence suggests that salinity levels are not the sole determining factor in the potential for salt encrustation on waterfowl. Studies have shown that the formation of salt crystals on hyper-saline ponds is often associated with water temperatures at or below 39 degrees Fahrenheit (°F) (Woebser and Howard, 1987; Gordus et al., 2002). However, salt encrustation has also been observed in the deserts in August, when temperatures can be reasonable expected to be greater than 39°F.

Salt toxicosis via salt ingestion may also occur from overexposure to hyper-saline waters when alternative freshwater sources are unavailable or limited (i.e., during drought conditions) and birds become dependent on a hyper-saline water supply (Gordus et al., 2002). The Harper Lake SEGS incident resulted in deaths to waterfowl by salt toxicosis and salt encrustation following very low water levels in one particular evaporation pond at Harper Lake SEGS VIII West during August of 2007 (all bird mortalities resulting from salt toxicosis were found at the Harper Lake SEGS VIII West pond, with the exception of one bird found at the Harper Lake SEGS VIII East pond). In reviewing data from RWQCB waste

discharge reports for Harper Lake SEGS, the TDS concentration in composite samples collected from the evaporation ponds during this period was approximately 250,000 mg/L, based on the May and December 2007 semiannual sampling. It is therefore suspected that TDS concentrations in the Harper Lake SEGS VIII West pond would have been higher than 250,000 mg/L. The higher concentrations were thought to be caused by low water levels that resulted in a concentration of TDS to higher than normal levels.

Based on the biological monitoring associated with the evaporation ponds at the Harper Lake SEGS, salt encrustation and salt toxicosis have been a rare occurrence there. The isolated event in August 2007 was tied directly to high salinity levels in the evaporation pond, which fell to low water levels during that time. A second mortality incident was observed in October 2007; however, the cause was not determined. A recurrence has since been avoided by the addition of water to the pond. No further bird deaths associated with the evaporation pond salinity levels occurred subsequent to the fall 2007 events.

Man-made Drainage Channel

A drainage channel will be constructed (see Section 2.0 and Section 5.3.9.1. for further detail) to accommodate storm flow runoff from higher elevations. Runoff would be directed around the site to flow into Harper Dry Lake at the original point of entry for these washes. These channels would be earthen bottom, with gabion mattress banks to minimize scour at turns within the drainage routes. Potential indirect impacts associated with changes in drainage patterns will be reduced to a less than significant level by implementation of the Storm Water Pollution Prevention Plan (SWPPP) and Drainage, Erosion, and Sediment Control Plan (DESCP), which will include flood management procedures.

No additional indirect impacts to normal movement or genetic flow are anticipated from the Project over those that currently exist.

Implementation of the impact avoidance and minimization measures, as well as mitigation strategy outlined in Section 5.3.11 and Section 5.3.12, respectively, will reduce and fully mitigate the MSP's indirect impacts to nonlisted, special status wildlife.

5.3.6.2.3 Impacts to Special Status Plants and Sensitive Vegetation Communities

5.3.6.2.3.1 Impacts to Federally and State Listed Plant Species

Direct Impacts to Federally and State Listed Plant Species. Potential permanent, direct impacts to listed plant species will not occur from implementation of the proposed Project by permanent development of the solar array, power generation and support facilities, IF, and access roads. No federally or state listed plants were detected within the Survey Area during surveys in 2007 through 2009.

Indirect Impacts to Federally and State Listed Plant Species. Since no federally or state listed plants were detected within the Survey Area during surveys in 2007 through 2009, direct impacts to listed plant species are not anticipated during construction or operation.

5.3.6.2.3.2 Impacts to Special Status Plant Species

Direct Impacts to Special Status Plant Species. Potential direct impacts to special status plant species are not expected during construction. Although one (1) desert cymopterus

was observed within the Survey Area in 2008, surveys completed in 2007 and 2008 provided 100 percent coverage of the Project Area, and did not result in discovery of any special status plant species; however, direct impacts to desert cymopterus may occur during connection of the MSP to the existing Kramer-Cool Water 230 kV transmission line near the IF. For instance, workers may stray on-foot from the worksite, thereby creating the potential for impacts to desert cymopterus. Although this species has not been observed growing directly in the path of the Kramer-Cool Water powerlines, there is an historic account[16] of this species growing within 1,000 feet, although survey records indicate that population may have been declining since 1989. In the future, there is a chance that this species could disburse seed that germinates and establishes as a plant in the disturbance area. Implementation of the impact avoidance and minimization measures outlined in Section 5.3.11 will reduce and fully mitigate MSP's potential direct impacts to nonlisted, special status plant species.

Indirect Impacts to Special Status Plant Species. Potential permanent, indirect impacts to special status plant species existing outside the Project Area may arise from population fragmentation and introduction of nonnative weeds. Population fragmentation could affect pollinator activity and hence gene flow. Introduction and establishment of invasive weeds within, or adjacent to, special status plant populations can adversely affect native species by reducing growth and recruitment. In addition to population fragmentation, runoff and sedimentation, erosion, fugitive dust, and unauthorized access by construction workers could cause indirect impacts to special status plant species. Runoff, sedimentation, and erosion can adversely affect plant populations by damaging individuals or by altering site conditions sufficiently to favor other species that could competitively displace the special status species. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Unauthorized access by construction workers and their vehicles can trample and destroy individuals outside of, but immediately adjacent to, the proposed construction area. These indirect impacts will be avoided, however, through implementation of the impact avoidance and minimization measures outlined in Section 5.3.11.

5.3.6.2.3.3 Impacts to Sensitive Vegetation Communities

Direct Impacts to Sensitive Vegetation Communities. Neither construction nor operation of the Project would result in direct impacts to sensitive vegetation communities because no such communities occur in the Project Area.

Indirect Impacts to Sensitive Vegetation Communities. No indirect impacts to sensitive vegetation communities are anticipated because no such communities occur in the Project Area. Furthermore, even if sensitive vegetation communities did exist, the operations phase SWPPP and the DESCP will identify the PDFs and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) for long-term operations, thereby protecting any sensitive vegetation communities if present.

[16] According to the CNDDB (CDFG, 2008), a 1998 survey detected five (5) desert cymopterus individuals approximately 1,000 feet south of the Kramer-Cool Water power lines in Mojave creosote scrub habitat. Also part of the CNDDB report was that the trend for this population was as follows: 78 plants found in intensive survey in 1989, 15 plants observed in brief 1990 survey, 4 plants in 1991 late season survey (CDFG, 2008).

5.3.6.2.4 Impacts to Jurisdictional Waters

5.3.6.2.4.1 Impacts to Waters of the U.S.

Direct Impacts to Waters of the U.S.. Within the Project Area, a total of 1.32 acres of potential waters of the U.S. (wetlands in the form of tamarisk scrub) may be directly impacted by construction of a drainage outlet that would serve to release storm flows onto Harper Dry Lake; however, PDFs and implementation of the impact avoidance and minimization measures outlined in Section 5.3.11 would reduce and fully mitigate MSP's direct impacts to waters of the U.S..

Indirect Impacts to Waters of the U.S.. Indirect impacts to potential waters of the U.S. within the Project Area could occur as a result of grading activities that create airborne dust and potential off-site sedimentation. Potential permanent, indirect impacts include alteration of drainage patterns that result in increased flow velocities or concentration of flows to the edge of Harper Dry Lake during storm events. However, implementation of the impact avoidance and minimization measures outlined in Section 5.3.11 would reduce and fully mitigate the MSP's indirect impacts to potential waters of the U.S.

5.3.6.2.4.2 Impacts to Waters of the State

Direct Impacts to Waters of the State. Direct, permanent impacts to a total of 12.5 acres of potential waters of the state (in the form of riparian extent/lakebed) that occur within the Project Area may occur by construction of a drainage outlet that would serve to release storm flows onto Harper Dry Lake. Impacts to the majority of the 11.18 acres of riparian habitat (tamarisk scrub) within the Project Area would be avoided through design modifications of the outflow and placement of facility structures. Upon consultation with CDFG, it will be determined whether the remaining area that may be impacted are considered waters of the state. If it is determined that the area in question does fall under the jurisdiction of CDFG, then implementation of the impact avoidance and minimization measures outlined in Section 5.3.11 would reduce and fully mitigate the MSP's direct impacts to waters of the state.

Indirect Impacts to Waters of the State. Indirect impacts to potential waters of the state within the Project Area could occur as a result of grading activities creating airborne dust and potential off-site sedimentation. Potential permanent, indirect impacts include alteration of drainage patterns that result in increased flow velocities or concentration of flows to the edge of Harper Dry Lake during storm events. However, implementation of the impact avoidance and minimization measures outlined in Section 5.3.11 would reduce and fully mitigate the MSP's indirect impacts to waters of the state.

5.3.7 Cumulative Effects

Although MSP impacts when considered individually may not be significant, the effects of the proposed construction and operation of the Project must also be considered in terms of its contribution, together with the impacts of other past, present, and future projects in the region, to the cumulative impacts on special status species habitat in the region. If the MSP's incremental contribution to the loss of special status species habitat were to be substantial, then the Project may be considered to have significant cumulative impacts. The

cumulative evaluation focuses on activities located within/near the Harper and Hinkley valleys.

Section 5.0, Environmental Information, identifies current and foreseeable projects within the extent of coverage for this biological cumulative analysis. However, a majority of the projects are infrastructure projects in previously developed areas within the City of Barstow, or the County of San Bernardino (hereinafter referred to as County). These infrastructure projects include road improvements and development of a park-and-ride location. Additionally, several potential renewable energy project sites were identified by the County of San Bernardino, but since the majority of these projects are not likely to be considered as viable, they were not included in the cumulative effects analysis as foreseeable projects.

Based on a review of data obtained from the County Planning Department, no other large development projects are currently underway or planned in the immediate vicinity of the MSP. Additionally, the County has not documented any medium-sized current or future projects on undeveloped or undisturbed lands within the extent of coverage for this cumulative analysis. One small-sized project has been identified by the County within the area covered by this cumulative analysis, the approximately 80-acre Nursery Products, LLC, Sludge Plant bio-solids composting facility (Sludge Plant), proposed to be located within the Fremont-Kramer DWMA, south of Highway 58, west of Helendale Road. Since the Sludge Plant was proposed for construction and operation on private property, the Environmental Impact Report (EIR) prepared in 2006 incorporated mitigation measures outlined in the West Mojave Plan to mitigate impacts to the DT and MGS to below a level of significance, including preparing a federal Habitat Conservation Plan and a state ITP application for effects on the desert tortoise and Mohave ground squirrel (URS 2006). Although the San Bernardino County Superior Court issued a judgment on June 23, 2008, requiring the County to prepare a revised EIR to address concerns over air quality and water resources, it is anticipated that the biological resources analysis will remain unchanged, and will continue to follow the mitigation requirements outlined in the 2006 Sludge Plant EIR.

One past project, the Harper Lake SEGS to the northwest of the MSP, has been built and has been in operation since 1990. The Harper Lake SEGS is similar to the MSP, in that they are both solar-thermal electrical generating facilities. Due to the relative proximity of the Harper Lake SEGS to the MSP, the biological resource types affected by each project are somewhat similar, although the degree to which the MSP affects biological resources is expected to be much less, due to the highly disturbed nature of the proposed MSP site, as well as the existing conditions at the Harper Lake SEGS (e.g., evaporation ponds and roosting structures).

The Harper Lake SEGS project has obtained take authorization under their project-specific permits and agreements with USFWS, BLM, CDFG, and CEC, and have fully mitigated impacts to DT, MGS, and other biological resources.

Due to high levels of human activity in the area, habitat loss, degradation, and fragmentation are considered significant issues in the western Mojave Desert (BLM, 2005). However, given the current disturbed and degraded nature of the MSP site, development of this area would result in the loss of former agricultural lands that currently support approximately 428.4 acres of sparse, disturbed saltbush scrub regrowth vegetation, which

could be used sporadically by transient DT or MGS. The loss of habitat for special status species will be mitigated by the requirement for the Project to acquire and permanently protect suitable habitat for these species off-site.

Providing compensation in the form of permanently protected off-site mitigation acreage, combined with other mitigation measures described below to minimize the effects of Project activities on biological resources, will reduce the Project's potential cumulative biological impacts to a level that is less than significant.

5.3.8 Project Impact Avoidance, Minimization, and Mitigation

5.3.8.1 General Avoidance and Minimization Measures

Avoidance and minimization measures to be implemented during construction and operation as they relate to impacts to biological resources are necessary for any new development, even if planned for land that has been previously disturbed. The following is a list of general impact avoidance and minimization measures that would apply to all Project activities during construction and operation. These measures are standard practices designed to minimize and avoid environmental degradation. MSLLC will ensure implementation of these measures to avoid and minimize impacts to the greatest extent feasible. These measures will include:

BIO-1: The construction contractor(s)/crew(s) and all MSP staff will be informed about the biological constraints of the Project. All construction personnel and facilities staff who work on the MSP will attend an education program, developed and presented by a Project biologist prior to the commencement of construction activity. This Worker Environmental Awareness Program (WEAP) will be included in the Biological Resources Mitigation and Implementation Program (BRMIMP). The construction crews and contractor(s) will be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by CEC and other agencies who must issue approvals for the Project.

BIO-2: A Project Authorized Biologist (AB) and alternate ABs will be appointed to oversee compliance with the protection measures for the DT and other special status species. The AB will be approved by USFWS and CDFG. The Project AB will serve as the CEC Designated Biologist, approved by CEC Compliance Project Manager. An Environmental Compliance Manager (ECM) will be assigned to the MSP who will be an on-site staff member of the Project. The ECM is responsible for facilitating implementation of the environmental conditions of the Project. The contact information for the AB, alternate AB, and ECM will be incorporated into the MSP BRMIMP.

BIO-3: The anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, will be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Construction-related activities outside of the impact zone will be avoided.

BIO-4: BMPs will be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). All detected erosion will be remedied within two (2) days of discovery.

BIO-5: All vehicles and equipment will be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and biological monitor (BM) will be informed of any hazardous spills within 24 hours. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility.

BIO-6: Fueling of equipment will take place at designated locations, not within or adjacent to drainages or native desert habitats. Contractor equipment will be checked for leaks prior to operation and repaired as necessary.

BIO-7: Construction activity will be monitored by a qualified biologist to ensure compliance with avoidance and minimization measures.

BIO-8: Intentional killing or collection of either plant or wildlife species, including listed species, will be prohibited. The AB, BM, and Agency Representatives will be notified of any such occurrences within 24 hours.

BIO-9: Maintenance vehicular traffic outside the fenced power plant will only occur on the transmission line right-of-way. Vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas.

BIO-10: A BRMIMP will be created to comprehensively describe avoidance, minimization, and mitigation measures; document their implementation; and monitor their effectiveness.

BIO-11: An exotic weed management and monitoring program will be developed to avoid the introduction and spread of exotic plant species. This program will be submitted to USFWS, CDFG and CEC for approval.

5.3.8.2 Biological Resource-specific Avoidance and Minimization Measures

Resource-specific impact avoidance and minimization mitigation measures for Project impacts that were determined to be potentially significant are discussed below. Incorporation of these measures would reduce potentially significant measures to below a level of significance.

5.3.8.2.1 Avoidance and Minimization Measures for Wildlife

Avoidance and minimization measures for temporary indirect impacts to habitat of special status wildlife species will be achieved through on-site monitoring of construction activities in areas with the potential to support these species.

5.3.8.2.1.1 Federally and State Listed Species

Desert Tortoise. Avoidance and minimization measures for the federally and state listed DT would include:

DT-1: Prior to the onset of construction, the entire Project Area will be fenced with a permanent DT exclusion fence per USFWS requirements to keep DTs in habitat adjacent to the MSP from entering during construction and operations phases. The fencing type will be one-inch by two-inch vertical mesh galvanized fence material, extending at least two (2) feet above the ground and buried at least one (1) foot. Where burial is impossible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent the DT from digging under the fence. Tortoise-proof gates will

be established at all site entry points. Any utility corridors and tower locations will be temporarily fenced to prevent DT entry during construction. Temporary fencing must follow guidelines for permanent fencing and supporting stakes will be sufficiently spaced to maintain fence integrity. All fence construction will be monitored by qualified biologists to ensure that no DTs are harmed. Following installation, the fencing will be inspected monthly and during all major rainfall events. Any damage to the fencing will be repaired immediately.

DT-2: A clearance survey for DTs will be conducted in all areas with shrub cover. A minimum of two (2) clearance passes must be completed and these must coincide with heightened DT activity from late March through May and during October. This will maximize the probability of finding all DTs. Once the site is deemed free of DTs after two (2) consecutive clearance passes, then heavy equipment will be allowed to enter the site to perform construction activities.

DT-3: During clearance surveys, it is anticipated that no, or very few DTs, will be found. It is further anticipated that if any DTs are observed within the Project Area during clearance surveys, these animals would be near the Project Area Boundary, adjacent to documented DT activity. Because of the highly degraded habitat and/or undesirable biotic and abiotic features existing on the Project Area boundary, these areas probably would comprise only a small part of any observed DT's home range, with the majority of the range outside the Project Area boundary. As such, by moving a DT outside the Project Area boundary, the MSP would be maintaining the DT within its home range, not translocating it. The DT would merely be excluded from undesirable portions of its home range. There would be no effect on the population.

DTs excluded from the Project Area will be moved immediately outside of DT exclusion fencing from the point of capture onto land owned by MSLLC. It is anticipated that DTs moved to these off-site adjacent areas would immediately seek a familiar burrow in which to reside. DTs will be moved using techniques approved by USFWS and CDFG.

DTs will be moved only when ground temperatures are sufficiently below 108°F and air temperatures are below 90°F so that a DT can locate a known burrow before lethal temperature thresholds are met. DTs may be moved during seasons when daily ambient temperatures exceed lethal levels, but only late in the day when ground temperatures fall below 108°F and air temperatures fall below 90°F. These DTs will be temporarily monitored to ensure that their behaviors resulting from movement do not affect their survival.

A translocation plan will be prepared to accommodate other circumstances that involve moving a DT, including during Project operation.

Once the site is deemed free of DTs after two (2) consecutive clearance passes, then heavy equipment will be allowed to enter the site to perform construction activities.

DT-4: Following site clearance, a report will be prepared by the AB to document the clearance surveys, the capture and release locations of all DTs found, post-release monitoring, individual DT data, and other relevant data. This report will be submitted to USFWS and CDFG.

DT-5: In the unlikely event that a DT is found on the site during Project operation, the DT will be captured; contained in a clean, escape-proof box; and temporarily maintained in a cool, quiet, safe location until the AB arrives to remove it from the site (no more than one

[1] day). The capture location will be recorded. If ambient temperatures exceed lethal levels on a daily level, the AB will confer with CDFG and USFWS representatives prior to moving the DT outside the DT exclusion fence. Any DT moved will be monitored to ensure its safety.

DT-6: An AB and alternate AB will be appointed to oversee compliance with the protection measures for the DT and other species. The AB will be authorized by USFWS and CDFG to approve of biological monitors. The AB or alternate ABs will be on-site during fencing, clearance, and construction activities on the transmission line. The AB or approved biological monitors will have the right to halt all activities in violation of DT protection measures that could cause harm to a DT. Work will proceed only after hazards to the DT are removed and the species is no longer at risk, or the individual has been moved from harm's way by the AB or approved biological monitors. The AB or approved biological monitors will have in their possession a copy of all the compliance measures while work is being conducted on-site.

DT-7: The proponent will submit the names and statement of qualifications of the proposed AB and alternate ABs to USFWS, CDFG and CEC for review and approval at least 30 days prior to initiation of any DT handling, clearance, and preactivity surveys. Project activities will not begin until the ABs are approved by the aforementioned agencies. Only ABs or their approved biological monitors will be allowed to handle and move DTs when necessary.

DT-8: The AB will be responsible for ensuring that awareness training, surveys, compliance monitoring, and reporting are conducted as identified in the Project license.

DT-9: Outside the Project boundaries, personnel will utilize established roadways (paved or unpaved) for traveling to and from the Project Area, including for transmission line construction. Cross-country vehicle and equipment use outside designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of DTs on the Project and on Harper Lake Road, a speed limit of 25 mph on paved roads and 15 mph will be established for travel.

DT-10: A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

DT-11: Workers will be prohibited from bringing pets and firearms to the site.

DT-12: All equipment will be stored inside areas fenced and cleared of DTs. Since all construction activities will occur within fenced areas that have been cleared of DTs, there is little chance that parking will be necessary outside of fenced areas. In the event that vehicles or construction equipment are parked for longer than two (2) minutes in unfenced DT habitat, the ground under the vehicle will be inspected for the presence of DT before the vehicle or piece of equipment is moved. If a DT is observed, it will be left to move on its own. If it does not move within 15 minutes, the AB or approved biological monitors will remove the animal to a safe location and monitor it.

DT-13: For emergency response situations, the AB will notify USFWS, CDFG, and CEC within 24 hours. As a part of this response, USFWS, CDFG, and CEC may require additional measures to protect the DT. During any responses related to human health, fire, hazardous

waste, or repairs requiring off-road vehicle and equipment use, USFWS, CDFG, and CEC may also require measures to recover damaged habitat.

DT-14 Water will be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. During the DT active season, an approved BM will patrol these areas to search for DTs ahead of the water truck and ensure that water does not puddle for long periods of time and attract DTs, common ravens, and other wildlife to the site.

DT-15: Upon locating a dead or injured DT, the AB will make initial notification to the nearest USFWS and CDFG Field Offices within 24 hours of its finding. The notification must be made by telephone and writing. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. Tortoises fatally injured as a result of Project-related activities will be submitted for necropsy to USFWS or CDFG as outlined in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (Gopherus agassizii)* (Berry, 2003). Tortoises with fewer major injuries will be transported to a nearby qualified veterinarian for treatment at the expense of the proponent. If an injured animal recovers, USFWS or CDFG will be contacted for final disposition of the animal.

DT-16: On a monthly basis until construction is completed, the AB will prepare a brief report for CDFG, USFWS, and CEC, documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report will also provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/preactivity surveys, monitoring activities, and any observed DTs including injuries and fatalities.

DT-17: MSLLC is supportive of contributing to USFWS's regional raven monitoring and control program in lieu of creating a new comprehensive on-site monitoring control program. The details of the funding mechanism and monitoring will be coordinated with USFWS, CDFG, and CEC prior to initiation of the Project. A much-reduced raven monitoring and control program will be developed for MSP and approved by USFWS, CDFG, and CEC.

DT-18: Common Raven Monitoring, Management, and Control Plan.

A Common Raven Monitoring, Management and Control Plan (Raven Control Plan) will be developed to address the potential for Project-related raven increases and/or impacts to local wildlife, including DT and MGS. The Raven Control Plan will clearly identify Project-specific activities or features, referred to as conditions of concern, that have the potential to attract ravens to the Project Area, such as those that would create food or water subsidies, as well as perch, roost, or nest sites. In addition, the Raven Control Plan will establish management strategies and provide Project-specific control measures to ensure that the construction, operation, maintenance, and decommissioning activities associated with the MSP do not increase the presence of ravens within the Project Area.

As part of the Raven Control Plan, qualitative and quantitative monitoring activities will be performed to evaluate the effectiveness of the PDFs, as well as the other raven management and control measures implemented for the MSP. This raven monitoring

program will be based on observations and performed during both the construction and operation phases of the MSP in an effort to record and evaluate any changes in raven activity and populations.

Monitoring will be performed by the ECM at least weekly during construction. Monitoring would also occur every other week for the first five (5) years of operation, then every other week for at least one (1) out of every five (5) years into perpetuity, unless results indicate more frequent or less frequent monitoring is necessary following completion of the first five (5) years of Project operation. The qualitative data derived from the monitoring efforts will be used to assess the effectiveness of the established PDFs and to determine if additional management or control measures are necessary to deter ravens from the Project Area.

During construction and the first year of operation of the MSP, monthly monitoring reports will be prepared by the ECM and submitted to MSLLC, as well as the AB for review. MSLLC will then forward the reports to CEC, USFWS, and CDFG. These reports will provide a summary of all monitoring activities occurring within the Project Area and describe any noted raven activity and/or any observations reported by MSP operations staff. After the first year of operation, monitoring data will continue to be provided monthly. In addition to the monthly data submittals, an annual report will be prepared and submitted to summarize the overall monitoring results, evaluate the effectiveness (success or failure) of PDFs, and make recommendations for modification of PDFs or implementation of control measures if needed. Results of the monitoring efforts will be used to assess the overall impacts the MSP and specific Project components, such as evaporation ponds, have on raven activities (e.g., presence or type of activity).

If monitoring results reveal that raven activities have increased within the Project Area as a result of the MSP, modifications to the PDFs and/or other control measures through adaptive management may be necessary. For example, if the results of the biweekly raven monitoring events suggest that current PDFs are ineffective at controlling raven occurrences in the Project Area, adaptive management strategies would be necessary.

Any identified adaptive management measures will be discussed by MSLLC, CEC, USFWS, and CDFG before any decisions are made to incorporate them into the MSP. Adaptive management measures may include modifications to PDFs, monitoring strategies, or implementation of additional control measures. Key examples would be (1) modifications to the monitoring program survey frequency, including increase or reduction of the monitoring frequency and survey points, (2) removal or enhancement of a PDF or management measure if it is not working, or (3) incorporating a defined control measure that would not otherwise be implemented, such as hazing or lethal removal.

Swainson's Hawk. Avoidance and minimization measures for the SWHA, a state listed threatened species, would include:

SWHA-1: A nesting season survey of the Project site and a surrounding 0.5-mile buffer, per the recommended CDFG survey methodology for the species (CDFG, 2000b).

SWHA-2: If active nesting is documented within a 0.5-mile radius of the Project Area during the surveys, MSLLC will coordinate with CDFG to develop additional conservation measures, such as nest monitoring during construction.

SWHA-3: If nesting is documented within a 0.5-mile radius of the Project Area, MSLLC will coordinate with CDFG to determine adequate mitigation for the loss of SWHA foraging habitat. Current CDFG guidance on mitigation for impacts to SWHA foraging habitat exists for sites within the Central Valley and would be used for informational purposes in devising appropriate mitigation for the MSP, if necessary.

5.3.8.2.1.2 Special Status Wildlife Species

Western Burrowing Owl. Avoidance and minimization measures for the WBO, a CDFG SSC, would include:

WBO-1: A preconstruction survey of the permanent and temporary impact areas will be conducted to locate active WBO burrows, within 30 days of construction. The survey will consist of walking parallel transects and noting any fresh WBO sign or presence of WBOs (may be combined with DT clearance surveys).

WBO-2: No disturbance will occur within 250 feet of occupied burrows during the breeding season (February 1 through August 31), unless a qualified biologist approved by CDFG verifies through noninvasive methods either that the birds have not begun egg-laying and incubation or that juveniles from the occupied burrow are foraging independently and are capable of independent survival. A minimum of 6.5 acres of foraging habitat will be preserved, contiguous with occupied burrow sites to the extent possible, for each pair of breeding owls or single, unpaired resident owl.

WBO-3: If WBO activity is detected at a burrow during the breeding season (February 1 through August 31), a 250-foot buffer will be flagged surrounding the occupied burrow and all Project-related activity will remain outside of the flagged area. WBOs will not be moved or excluded from burrows during the breeding season

Generally, no disturbance is permitted to occur within 160 feet of occupied burrows during the nonbreeding season (September 1 through January 31). However, for construction of a solar plant, WBOs within 160 feet may need to be removed or monitored for Project construction to proceed. WBOs within the temporary or permanent impact areas and a 160-foot buffer will either be excluded from active burrows during the nonbreeding season (September 1 through January 31) and encouraged to passively relocate to suitable, unoccupied habitat at least 160 feet outside of the exclusion area; or a qualified biologist will monitor these burrows during construction activities to ensure that WBOs are not adversely affected. Off-site burrows will be supplemented at a 2:1 replacement ratio of enhanced natural, unoccupied burrows or artificial burrows, per guidelines from the CBOC (1993) and CDFG Memorandum (1995). A minimum of 6.5 acres of foraging habitat for WBO will be preserved for each pair impacted. After burrows are confirmed to no longer be in use (one [1] week), the burrow will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bag will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.

WBO-4: A BM will be on-site during all construction activities in potential WBO habitat.

WBO-5: The WBO will be addressed in the WEAP.

WBO-6: Trash and food items will be removed from the Project Area daily and disposed of properly to avoid attracting ravens, a potential predator of the WBO.

WBO-7: During construction activities, monthly and final compliance reports will be provided to CDFG and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of take associated with the Mojave Solar Project. Biological issues also will be covered in the ongoing compliance reporting required by CEC.

WBO-8: A WBO Management and Monitoring Plan (WBO Management Plan; presented below) will be prepared to address passive relocation and habitat acquisition, as needed.

WBO-9: WBO Management and Monitoring Plan.

Management of WBO will consist of two (2) activities: (1) passive relocation from the construction area and (2) acquisition of off-site land(s) to be used as conservation area(s), if WBOs still occupy the Project Area. The purpose of passive relocation is to avoid direct impacts to any WBOs that are active within the proposed Project Area. Mitigation for the loss of WBO habitat resulting from construction of the MSP could also be offset by the acquisition of suitable WBO habitat off-site that would be set aside as a conservation area, or be integrated into an existing conservation area.

MSLLC proposes the passive relocation of any WBOs found within the boundaries of MSP to artificial burrows located outside of the Project Area. The artificial burrows would be located within property owned by MSLLC, or located just outside of the Project Area boundary, within an existing conservation area (see Figure 5.3-1 for location of conservation areas).

To conduct passive relocation of WBOs, the predetermined translocation area would be surveyed for WBO prior to construction of artificial burrows to evaluate baseline conditions and WBO presence/absence. Installation of artificial burrows within the translocation area would follow baseline surveys and occur prior to construction of the MSP. WBOs would be given a minimum of three (3) weeks to become familiar with the new burrows (Trulio, 1995), at which time eviction of WBOs in burrows located within the Project Area could take place. Use of one-way doors described by Trulio (1995) as well as Clark and Plumpton (2005) would assist with eviction of any occupied burrows within the Project Area. Subsequent post-translocation monitoring would be conducted at least monthly until the end of the next breeding season (Trulio, 1995) to record data on artificial burrow utilization and to determine if any WBOs had reproduced. Surveys would follow the protocol survey methodology for surveys (to include Phase II and III) identified in the CBOC Guidelines. If burrows are not being utilized, management measures to improve artificial burrow use would be implemented based on consultation with resource agencies and biologists with expertise in the biology of WBOs.

Success criteria would include evidence of use of the artificial burrows by WBOs and artificial burrows being used as nest sites by WBOs. After the initial WBO establishment period, monitoring of the translocation site(s) would be provided for up to five (5) years. In addition, MSLLC would conduct ongoing maintenance and monitoring of the conservation area and perform exotic weed control for a five-year period following construction of the burrows.

The details regarding the adaptive management efforts to optimize the success of the translocation will be presented in the BRMIMP at a later date.

In addition to passive relocation of WBO to avoid direct impacts to this species, MSLLC could mitigate for the loss of WBO habitat through the acquisition and preservation of land

off-site. The off-site mitigation lands would include 6.5 to 19 acres per individual or pair, depending upon habitat suitability, presence of WBO on the mitigation lands, and proximity to the MSP; and would be located in an agency-approved location near the Project Area, or immediately adjacent to the Project Area, with preference given to areas that have already been designated for conservation. Designating approximately 10 acres of breeding habitat and two (2) artificial burrows per pair of WBOs would be implemented to accommodate any WBOs that require translocation. There are currently no data to support CBOC Guidelines for the minimum amount of acreage to support a pair of WBOs; however, the most intensively used areas of nesting WBOs is within approximately 2000 feet from nest sites. As such, a 20-acre conservation area would likely provide enough habitat for two (2) pairs of WBOs (Pete Bloom, pers. comm., 2008). Extrapolating to account for up to five (5) pairs that could require passive translocation from the MSP, the conservation area could be up to 50 acres. Maintaining 50 acres of WBO habitat would benefit long-term WBO conservation.

5.3.8.2.1.3 Other Special Status Wildlife Species

AVIAN-1: If construction is scheduled to occur during nesting season, a preconstruction nesting bird survey (in addition to the WBO survey) will be conducted within the Project Area. If nesting birds, including but not limited to special status species, are detected in these areas, the nest will be flagged and no construction activity will take place near the nest until nesting is complete (nestlings have fledged or nest has failed) or CDFG, USFWS, and CEC agree that construction can proceed with the incorporation of agreed-to monitoring measures. The AB will confer with CDFG to determine the appropriate avoidance distances.

AVIAN-2: Evaporation Pond Monitoring Program. The MSP will include a monitoring program that incorporates monitoring of bird populations at the evaporation ponds and monitoring water quality in the ponds for sodium. The monitoring program will consider the following factors: sodium concentrations in evaporation pond water; pond water levels, temperature; bird species utilizing the ponds; type of bird use, extent, and seasonal patterns; and nesting activities at the ponds

If significant adverse effects to birds are observed during the evaporation pond monitoring, and those effects are determined to be the result of salt toxicity (by necropsy of deceased birds), additional monitoring may be needed to further assess impacts to bird species. This may include collection of additional water quality samples to determine TDS.

A detailed evaporation pond monitoring plan will be prepared for the MSP and submitted for agency review and approval prior to construction. The key components of the monitoring program for the MSP are summarized below.

Avian monitoring at the evaporation ponds will be conducted by the MSP AB twice monthly, for one (1) full day each time, for the first two (2) years of Project operation. The MSP ECM will continue monitoring after the first two (2) years, under the direction of the MSP Designated Biologist (also referred to as AB), at least twice a month for the life of the Project. This latter monitoring will include one or more visits to the pond each monitoring day. The monitors (biologist or ECM) will identify bird species and/or functional groups (e.g., waterfowl, waders, shorebirds, upland shorebirds) utilizing the ponds, record the behavior of the birds (e.g., feeding, swimming, wading, nesting), and note any mortalities

or physical infirmities (e.g., birth defects or reduced growth) associated with any bird observed on or adjacent to the evaporation ponds. During any time, if a dead bird is observed and can be safely retrieved from the evaporation ponds, and if there is no obvious cause of death, then it will be collected by the biologist or ECM and sent to a qualified laboratory to determine if the mortality was directly related to salt toxicosis or encrustation. Documented mortality resulting from salt toxicosis or encrustation will result in corrective measures implemented in coordination with the agencies.

Water quality in the evaporation ponds will be monitored quarterly for sodium with sampling conducted by the ECM or MSP-designated individual trained in water quality sampling and sample handling. Individual water samples will be taken from each pond. Should bird mortality occur, an additional water grab sample will be collected from the ponds for analysis at the time of discovery. Because water quality is difficult to tie directly to ecological risk by implementation of numeric standards, TDS concentrations will not trigger remedial action; however, the data will be collected to assess potential long-term correlations between water quality, as well as the pond water level, pond salinity, and temperature data discussed below, and bird behaviors and mortality, if any.

Each actively used evaporation pond will be outfitted with a level gauge for daily water level measurements, a hydrometer for daily salinity measurements, and a direct reading thermometer with the temperature data recorded at least diurnally. If the average overnight water temperature in the active evaporation ponds is at or below 39°F, the ECM will conduct a visual survey of the ponds immediately upon the following morning. If the ECM observes evidence of recent substantive increases in salt crystallization anywhere within the pond (e.g., at or near the waterline) during inspections, or if water levels in any of the ponds are observed to fall below a minimum depth that could cause dangerously elevated levels of sodium (to be determined by modeling and collected water samples), the ECM will route all of the wastewater into one or two (2) ponds. This action will increase the pond volume and lower the average salinity within the pond(s), particularly during the avian migratory season. At the same time, the remaining pond or ponds will be pumped dry. The pond to which the combined flow is discharged during this time will be rotated each year, periodically as needed, so that water levels do not rise too high and minimum freeboard requirements are met.

In the event that climatic conditions are such that evaporation must be increased to maintain pond levels below the freeboard limits, evaporative disposal nozzles (see for example http://www.bete.com/applications/disposal.html) will be used to increase wastewater evaporation rates.

In addition to managing the ponds to minimize bird usage, hazing measures will be implemented, as necessary, to deter birds from using the ponds. Potential hazing techniques may include the following:

Initiate the use of an air cannon to haze waterfowl and frighten them away from the evaporation ponds. The air canon will be stored on-site, but only used under this circumstance, since birds may become acclimated to the disturbance caused by air canon hazing, if used on a regular basis. The air cannon will be used until the evaporation process is completed in the pond, or until the crystallized salts return to solution.

Deploy “Bird-B-Gone Balloon” (a visual scare device) or other hazing devices into the pond, to discourage waterfowl from landing on the pond.

At the conclusion of every operational year, the ECM will prepare a report for submittal to the CEC Compliance Project Manager, summarizing the results of the various tests and monitoring efforts, described as a part of the evaporation pond monitoring plan. The summary report will include copies of the water quality tests, a chronological listing of the overnight water temperatures, water levels and salinity measurements for the active evaporation ponds, and any results of necropsies performed on birds salvaged from in or around the ponds. Recommendations for changes to the monitoring program or pond management approach will be made, as warranted

MAMMAL-1: If American badger or kit fox dens are discovered during DT or WBO preconstruction surveys, a one-way trap door will be installed to passively exclude the badger or fox from the dens. American badgers and kit foxes are known to use several dens in a wide area, frequently moving between dens. After the animals have been determined to have abandoned their dens (through the use of night scopes and/or track stations), the den will be excavated and collapsed, following the same protocol as with WBO burrows. These dens will be collapsed prior to construction of the DT fence, to allow badgers or kit foxes the opportunity to move off-site without impediment. Alternatively, if high or low ambient temperatures could potentially result in harm to kit fox or badger from burrow exclusion, then other methods will be used. These may include discouraging the animals from remaining on-site or having a qualified biologist trap and remove badgers or kit foxes from occupied dens and move them off-site into appropriate habitat.

5.3.8.2.2 Avoidance and Minimization Measures for Special Status Plants

5.3.8.2.2.1 Special Status Plant Species

Desert Cymopterus. Avoidance and minimization measures for desert cymopterus, would include:

FLORA-1: If connection of the MSP to the existing Kramer-Cool Water 230 kV transmission line is planned between March 1 and June 30, the MSP AB will survey the area to verify that no desert cymopterus are established. The AB would also survey within a 200-foot buffer surrounding the connection point.

5.3.8.2.3 Avoidance and Minimization Measures for Jurisdictional Waters

Jurisdictional Waters. Avoidance and minimization measures for jurisdictional waters, if present, would include:

WATER-1: Impacts to approximately 12.5 acres of state jurisdictional waters would require review and approval by CDFG and mitigation developed in consultation with this agency.

5.3.9 Project Mitigation and Compensation

Based on the 428.4 acres of allscale vegetation on Sections 28, 29, 32, 33, and 34 within the Project boundary (Table 5.3-9), anticipated mitigation requirements for the Project's permanent impacts to habitats occupied, or presumed occupied, by special status wildlife species (DT, MGS, and WBO) are outlined in Table 5.3-10. Mitigation for permanent impacts to these species is generally provided by acquiring and conserving an in-kind habitat of equal or greater value than the habitat impacted.

5.3.9.1 Mitigation Strategy for Desert Tortoise

A compensation ratio of 0.5:1 for DT is suggested, based on the following principles:

Although the Project is situated among areas identified as important for recovery and management of the DT (DWMAs and designated critical habitat), by the same standards that were used to designate these conservation areas, the area occupied and immediately surrounded by the Project was excluded by those same resource agencies for DT recovery and management.

The Project Area is an island of mostly agricultural uses that was farmed for several decades and is still partially farmed. At present, there is also industry immediately adjacent to the Project (Harper Lake SEGS). Of the vegetation cover that would be lost, all of it is highly fragmented by broad expanses of nonhabitat (the center pivot fields), residences, developments, and roads, and/or is regrowth over old farming operations. So, while there is an absolute loss of 428.4 acres of occupiable vegetation cover, the quality of this cover for use by DTs is marginal. Arguably, it might not support even a single DT. Certainly, the quality is so lacking that it would not aid species recovery or maintenance.

Surveys in 2006, 2007, 2008, and/or 2009 found almost no current use of the 428.4 acres proposed for compensation:

Section 30 – Only one DT sign was observed– a partial carcass was found in the far southwestern corner at the Project's border. No scat, DTs, or burrows were observed.

Section 28 – One DT was observed in 2006 only. One full carcass of an immature DT, recently dead in 2008, and three (3) other groups of carcass parts were found, but no burrows or scat that would suggest current occupation.

Sections 29, 32, and 33 – No evidence of current use was found in the center pivot corners or regrown parking area in Section 29. One old (white) scat was found approximately 650 feet from the southern border of Section 33, indicating that a DT walked onto the barren, abandoned agricultural field within the last several years. Nine shell fragment groups were also found, at least seven (7) of which were only one to several fragments. Several showed broken bones, suggesting depredation or scavenging. Eight were estimated to be at least four (4) years old. This accumulation of data, without corroborating evidence of occupation of these areas, suggests that most of these carcasses or carcass parts were transported by predators or, in a couple of cases, were DTs that entered the field during previous farming operations and were killed.

Section 4 - A very small portion (northwestern corner; see Figure 5.3-a) of Section 4 is within the Project Area; however Section 4 is not considered for mitigation since there will not be impacts to this area; it will only be used temporarily, during the process of connecting the MSP to the existing Kramer-Cool Water 230-kV transmission lines.

Increases in ravens would not be expected due solely to the Project because the Project adds no raven subsidies that are not already present (e.g., trees [nesting and roosting sites], evaporation ponds, perches).

The Project does not block movement of animals within the population for purposes of genetic dispersal (i.e., a corridor). The small area in Section 28 is characterized by halophytic vegetation and periodic inundation; it is not DT habitat. There is ample open space south and west of the Project Area for movement and genetic flow to occur.

Positive Benefits to Desert Tortoise

The Project removes the mortality sink represented by the scenario of agriculture adjacent to native, occupied DT habitat. On a few projects, DTs have been observed drinking from pools created by leaky irrigation pipes along the edges of crops and also to forage along the edges of crops, especially alfalfa. Despite several 100 percent surveys in fields on which crops are actively growing, no DT burrows have been observed in the crop fields (Becky Jones, CDFG, pers. comm. to Alice Karl), so it is assumed that those DTs entering the crop field edges to forage and drink actually reside in the adjacent native habitat.

i) During typical mowing or ground preparation, many animals are killed or injured. Tortoises entering the fields to forage or drink would also be subject to this hazard. As such, agriculture should be viewed as an attractive nuisance. The Project will remove this attractive nuisance.

ii) Removal of subsidies for ravens (leaky irrigation pipes, food) will reduce raven populations on and adjacent to the Project. Many animals (rodents, birds, and others) injured or killed by farming operations (e.g., mowing and ground preparation) are commonly scavenged by hawks and ravens, which monitor mowing and tilling operations (Alice Karl, pers. obs.). Removal of agriculture from this area would remove significant agriculturally-based food for ravens, as well as water sources associated with irrigation.

iii) Removal of other DT predators (dogs and feral cats) associated with farm residences.

In summary, removal of agriculture would benefit DTs, including those in the surrounding habitats that have been identified by the resource agencies as important conservation areas.

5.3.9.2 Mitigation Strategy for Mohave Ground Squirrel

The potential direct impacts of the MSP to the MGS are (1) loss of up to 428.4 acres (see Table 5.3-10) of very low-quality habitat and (2) incidental take of transient individuals. To mitigate for these impacts, a compensation ratio of 0.5:1 is suggested, based upon the following facts:

These monotypic stands of allscale that tend to invade abandoned agricultural land are not typical of natural desert saltbush communities, which will have a much more diverse species composition, including other native shrubs and herbaceous annual plants.

Therefore, these allscale stands lack the variety of food types needed to sustain MGSs through their 6-month active period. In particular, they do not provide the diverse food resources necessary to support a permanent reproductive population of this species.

The allscale stands present within the Project Area mainly consist of small, isolated patches that are not large enough to support resident populations. Furthermore, many of these allscale patches are not contiguous with large adjoining blocks of good quality habitat.

Two years (2006 and 2007) of protocol trapping in allscale patches in Sections 28, 29, 32, and 33 failed to detect the species.

A number of protocol trapping efforts in monotypic allscale stands on abandoned agricultural land in Kern and Los Angeles counties have failed to detect MGS.

However, since there is suitable habitat on adjoining lands to the west, south, and east, transient individuals may occasionally be present in these patches of allscale vegetation.

There is some empirical evidence that transient individuals may be temporarily present in the Project Area. A single MGS was observed and captured in the northeast quarter of Section 32 in May 2007. This individual had a burrow in a roadway adjacent to an irrigated alfalfa field. Judging by its body mass, it was a yearling that had very likely dispersed to this location from its birthplace in good habitat to the south of the Project Area. When the Project Area was inspected again in April 2008, there was no sign of MGSs or active burrows.

Finally, the MSP would not affect connectivity of MGS populations in the MGS Conservation Area to the south and west. There is ample undisturbed habitat within the Conservation Area that would accommodate dispersing juveniles. The areas of allscale vegetation that would be used for Project facilities actually lead into completely unsuitable areas such as the existing Harper Lake SEGS and the Harper Lake playa.

Positive Benefits to Mohave Ground Squirrel

In the Mojave Desert, both active and abandoned agricultural lands attract common ravens and help to support unnaturally abundant raven populations. These lands provide artificial subsidies to ravens in the form of food (insect and rodent populations), water (irrigation), and nest sites (trees). Ravens are active predators and are known to take ground squirrels.

Agricultural crop land can also attract dispersing juvenile MGS, as shown by the individual captured in Project Area at the edge of an alfalfa field in 2007. It is likely that these areas act as population sinks, exposing the dispersing animals to raven predation and attracting them to areas that lack diverse natural food sources.

The MSP will actually result in positive indirect impacts to regional MGS populations. Removal of raven subsidies and implementation of a Raven Management Plan should reduce raven predation in the area, providing a beneficial impact. In addition, the conversion of agricultural lands to a solar installation would reduce the likelihood that dispersing MGS would be attracted to very low-quality habitat that is incapable of supporting permanent populations.

5.3.9.3 Mitigation Strategy for Western Burrowing Owl

The CBOC's mitigation guidelines used by CDFG recommend that mitigation for impacts to WBOs be based on the number of pairs directly impacted. Mitigation ratios are based on whether suitable acquired habitat is occupied by the species or is contiguous to the impact area. The CBOC and CDFG mitigation guidelines recommend a ratio of 6.5 to 19.5 acres per pair of WBOs (or single individual) impacted, depending on whether the replacement habitat is occupied and/or contiguous with the occupied area to be impacted, and also Project-specific negotiations with CDFG. WBOs were observed within and adjacent to the Project Area boundary from 2006 through 2008, with the number of pairs and/or individuals fluctuating from four (4) individuals in 2006, three (3) individuals and one (1) pair in 2007, and one (1) individual in 2008. Assuming that the 2008 survey is the current existing condition for impact assessment, mitigation is anticipated to be 6.5 to 19.5 acres of suitable habitat at a location approved by CDFG. Funding for the long-term management of the land preserved would also be provided (on a per-acre-of-impact basis).

5.3.9.4 Summary of Proposed Mitigation for Desert Tortoise, Mohave Ground Squirrel, and Western Burrowing Owl

The following qualitative criteria for compensation lands would facilitate optimum compensation for the loss of occupied habitat at MSP:

1. Compensation lands should be part of a larger block of lands that are either already protected or planned for protection, or feasibly could be protected by a public resource agency (e.g., CDFG) or a private biological reserve organization (e.g., the Desert Tortoise Preserve Committee).

2. Parcels should have inherently moderate to good habitat that is likely to regenerate naturally when current disturbances are removed. Parcels should not be subject to such intensive recreational, grazing, or other uses that recovery is rendered unlikely or lengthy. Nor should those invasive species that are likely to jeopardize habitat recovery (e.g., Saharan mustard) be present in uncontrollable numbers, either on or immediately adjacent to the parcels under consideration.

3. Parcels should provide habitat that is as good, or better, than the habitat being impacted by the Project. Preferably, the lands would comprise sufficiently good habitat that they are either currently occupied or would likely be occupied by the three (3) species once they are protected from anthropogenic impacts and/or otherwise enhanced.

4. The parcels should be connected to known, occupied lands. Preferably, the existing population on these occupied lands would represent a population that is stable, recovering, or likely to recover.

The acquisition of compensation lands is dependent upon all parties agreeing upon the number of acres that need to be acquired, since that can affect availability and cost. The ultimate goal is to acquire compensatory lands that would offset the loss of the biological values associated with construction and operation of the MSP that cannot be completely addressed on-site. Species specialists who are knowledgeable about the habitat requirements of WBO would evaluate candidate properties. As potential compensatory lands are identified, the MSP team, or third party approved by the agencies, would coordinate closely with CEC, CDFG, and USFWS to obtain consensus that the targeted lands are suitable. A Property Analysis Record (PAR), or a PAR-like analysis, would be conducted on compensation lands that are provisionally acceptable to both MSP and the resource agencies or are similar to lands likely to be acquired. The PAR would model the anticipated costs associated with the acquisition of land, as well as management expenses (e.g., fencing, habitat enhancement, monitoring, etc.), while accounting for escalation in costs associated with inflation. The result of the PAR model would be an accurate estimate of the long-term endowment costs that would be required to fully implement all compensation measures.

5.3.10 Required Permits and Permit Schedule

5.3.10.1 Involved Agencies

As shown in Table 5.3-11, it is anticipated that the MSP would require coordination with the following agencies: U.S. Department of Energy; BLM; USFWS; USACE; CDFG; and County of San Bernardino.

5.3.10.2 Required Permits and Permit Schedule

As shown in Table 5.3-12, it is anticipated that construction and operation of the MSP may require the following permits and/or authorizations specific to biological resources:

ESA, Section 10 ITP and HCP, with potential Section 7 consultation and Biological Opinion;

CESA, Section 2081 ITP;

RWQCB ROWD;

FGC Section 1600 SAA;

County Development Permit or Development Agreement; and,

County Native Plant/Tree Removal Permit.

5.3.11 References

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Tables 5.3-1 through 5.3-12

Table 5.3-1. LORS Applicable to MSP

LORS	Applicability	Where Discussed In AFC
Federal		
Endangered Species Act (ESA) of 1973 and implementing regulations, 16 U.S. Code (USC) §1531 et seq.; 50 Code of Federal Regulations (CFR) §17.1 et seq.	Designates and protects federally threatened and endangered plants and animals and their critical habitats. Consultation under Section 10 of the ESA requires the project proponent to prepare a Habitat Conservation Plan that would be reviewed by the U.S. Fish and Wildlife Service (USFWS), prior to issuance of an incidental take authorization for listed species. However, the Department of Energy (DOE) loan guarantee program may be used as a federal nexus for ESA consultation under Section 7, which would require federal agency consultation with USFWS and issuance of Biological Opinion and incidental take authorization for listed species.	Section 5.3.2
Migratory Bird Treaty Act (MBTA) 16 USC §§703- 711	Prohibits take of protected migratory birds.	Section 5.3.2
Bald and Golden Eagle Protection Act (BGEPA), 16 USC §668	Prohibits take of bald and golden eagles.	Section 5.3.2
Clean Water Act (CWA) (as amended; 33 USC §1251 et seq.) (specifically Section 404 of the CWA; 33 USC §1344 et seq.)	Restores and maintains the chemical, physical, and biological integrity of the nation's waters and regulates the discharge of pollutants and dredged or fill material to the jurisdictional waters of the United States.	Section 5.3.2

LORS	Applicability	Where Discussed In AFC
National Environmental Policy Act (NEPA) of 1969, 42 USC §4321 et seq.	Establishes a national environmental policy that seeks to protect, maintain, and enhance the environment by providing a process for federal agencies to follow for any proposed actions that may have a significant effect on the environment.	Section 5.3.2
State		
California Environmental Quality Act (CEQA), Public Resources Code (PRC) §21000 et seq.	Requires State and local agencies to evaluate the environmental impacts of their actions and to identify significant environmental effects of proposed projects, as well as avoid, minimize, and mitigate significant effects on the environment.	Section 5.3.2
California Endangered Species Act (CESA) of 1984, California Fish and Game Code (FGC) §2050 et seq.	Protects California's endangered and threatened species, including species designated as candidates for listing. Requires incidental take authorization under Sections 2080.1 or 2081 for listed species.	Section 5.3.2
Title 14 California Code of Regulations (CCR) §670.2 and §670.5	Listings of plants and animals of California declared to be threatened or endangered.	Section 5.3.2
Fully Protected Species, FGC §3511: Fully protected birds; FGC §4700: Fully protected mammals; FGC §5050: Fully protected reptiles and amphibians; FGC §5515: Fully protected fishes	Prohibit the taking of listed plants and animals that are classified as "Fully Protected" in California.	Section 5.3.2
FGC §3503, §3503.5, and §3513	Provides protection for the nests and eggs of all birds, and protects raptors (birds of prey) and nongame migratory birds.	Section 5.3.2

LORS	Applicability	Where Discussed In AFC
Title 14 CCR §460	Provides specific information regarding protection and take of fur-bearing animals in California.	Section 5.3.2
FGC §4150	Provides for the protection of nongame mammals.	Section 5.3.2
Native Plant Protection Act (NPPA) of 1977, FGC §1900 et seq.	Provides specific protection measures for identified populations of state rare and endangered plants.	Section 5.3.2
California Desert Native Plants Act (CDNPA), Food and Agricultural Code §80001 et seq.	Protects nonlisted California desert native plants from unlawful harvesting on both public and privately owned lands.	Section 5.3.2
Streambed Alteration Agreement (SAA), FGC §1600 et seq.	Requires California Department of Fish and Game (CDFG) to review project impacts to waters of the state (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.	Section 5.3.2
The 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne); PRC §13000 et seq.	Regulates discharges of waste and fill material to waters of the state, including "isolated" waters and wetlands.	Section 5.3.2
Local		
San Bernardino County General Plan	Implements programs that maintain and enhance biological diversity and healthy ecosystems throughout the County by ensuring that proposed development projects demonstrate a high degree of compatibility with sensitive biological resources and that coordination with state and federal agencies is exercised so that protection of biological resources parallels the goals of those agencies.	Section 5.3.2

LORS	Applicability	Where Discussed In AFC
Plant Protection and Management, San Bernardino County Development Code, §89.0101 et seq.	Promotes the continued health of plant resources by providing regulations and guidelines for the management of the plant resources in the unincorporated areas of San Bernardino County on property or combinations of property under private or public ownership.	Section 5.3.2

Table 5.3-2. Animal Species Observed during Biological Resource Surveys for the Mojave Solar Project

SCIENTIFIC NAME	COMMON NAME
ARTHROPODS	
LEPIDOPTERA	Butterflies
Family Pieridae	
Pieris rapae	cabbage white butterfly
Colias eurytheme	orange sulphur
REPTILES	
TESTUDINES	Turtles
Family Testudinidae	
Gopherus agassizii (FT/ST)	desert tortoise
SQUAMATA	Lizards and Snakes
Family Colubridae	
Pituophis catenifer	pacific gopher snake
Masticophis flagellum	coach whip
Family Crotaphytidae	
Gambelia wislizenii	long-nosed leopard lizard

SCIENTIFIC NAME	COMMON NAME
Family Iguanidae	
Dipsosaurus dorsalis	desert iguana
Family Phrysonomatidae	
Callisaurus draconoides	zebra-tailed lizard
Sceloporus graciosus	sagebrush lizard
Sceloporus magister	desert spiny lizard
Uta stansburiana	side-blotched lizard
Family Teiidae	
Aspidoscelis tigris tigris	Great Basin whiptail
Family Viperidae	
Crotalus scutulatus	Mojave green
Crotalus mitchellii	speckled rattlesnake
BIRDS	
PELECANIFORMES	Tropic Birds, Pelicans, and Relatives
Pelecanus erythrorhynchos (CDFG SSC)	American white pelican
CICONIIFORMES	Herons, Storks, Ibises, and Relatives
Family Ardeidae	
Ardea alba	great egret
Ardea herodias	great blue heron
Egretta thula	snowy egret
Family Cathartidae	
Cathartes aura	turkey vulture

SCIENTIFIC NAME	COMMON NAME
Family Threskiornithidae	
Plegadis chihi	white-faced ibis
ANSERIFORMES	Screamers, Ducks, and Relatives
Family Anatidae	
Anas platyrhynchos	mallard
FALCONIFORMES	Diurnal Birds of Prey
Family Accipitridae	
Buteo jamaicensis	red-tailed hawk
Buteo swainsoni (ST)	Swainson's hawk
Circus cyaneus (CDFG SSC)	northern harrier
Family Falconidae	
Accipiter cooperii (WL)	Cooper's hawk
Falco columbarius (WL)	merlin
Falco mexicanus (WL)	prairie falcon
Falco peregrinus (SE)	American peregrine falcon
Falco sparverius	American kestrel
Pandion haliaetus	osprey
GALLIFORMES	Magapodes, Curassows, Pheasants and Relatives
Family Odontophoridae	
Callipepla gambelii	Gambel's quail
CHARADRIIFORMES	Shorebirds, Gulls, and Relatives
Family Charadriidae	
Charadrius vociferus	killdeer

SCIENTIFIC NAME	COMMON NAME
Family Scolopacidae	
Tringa flavipes	lesser yellowlegs
COLUMBIFORMES	Pigeons and Doves
Family Columbidae	
Columba livia	rock dove (feral pigeon)
Streptopelia decaocto	Eurasian collared dove
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
CUCULIFORMES	Cuckoos and Relatives
Family Cuculidae	
Geococcyx californianus	greater roadrunner
STRIGIFORMES	Owls
Family Tytonidae	
Tyto alba	barn owl
Family Strigidae	
Athene cunicularia (CDFG SSC)	burrowing owl
Asio flammeus (CDFG SSC)	short-eared owl
Bubo virginianus	great horned owl
CAPRIMULGIFORMES	Goatsuckers and Relatives
Family Caprimulgidae	
Chordeiles acutipennis	lesser nighthawk
Family Cathartidae	
Cathartes aura	turkey vulture

SCIENTIFIC NAME	COMMON NAME
APODIFORMES	Swifts and Hummingbirds
Family Trochilidae	
Calypte anna	Anna's hummingbird
PICIFORMES	Woodpeckers and Relatives
Family Picidae	
Picoides scalaris	ladder-backed woodpecker
PASSERIFORMES	Perching Birds
Family Aegithalidae	
Psaltriparus minimus	bushtit
Family Alaudidae	
Eremophila alpestris	horned lark
Family Corvidae	
Corvus corax	common raven
Family Emberizidae	
Amphispiza belli	sage sparrow
Passerculus sandwichensis	savannah sparrow
Junco hyemalis	dark-eyed junco
Melospiza melodia	song sparrow
Passerella iliaca	fox sparrow
Pipilo aberti	Abert's towhee
Spizella atrogularis	black-chinned sparrow
Zonotrichia albicollis	white-crowned sparrow
Family Fringillidae	
Carpodacus mexicanus	house finch

SCIENTIFIC NAME	COMMON NAME
Carduelis psaltria	lesser goldfinch
Carduelis tristis	American goldfinch
Family Hirundinidae	
Hirundo rustica	barn swallow
Petrochelidon pyrrhonota	cliff swallow
Stelgidopteryx serripennis	northern rough-winged swallow
Tachycineta bicolor	tree swallow
Family Icteridae	
Agelaius phoeniceus	red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Molothrus ater	brown-headed cowbird
Quiscalus mexicanus	great-tailed grackle
Icterus spp.	oriole
Sturnella neglecta	western meadowlark
Xanthocephalus xanthocephalus	yellow-headed blackbird
Family Laniidae	
Lanius ludovicianus (CDFG SSC)	loggerhead shrike
Family Mimidae	
Mimus polyglottos	northern mockingbird
Toxostoma lecontei	Le Conte's thrasher
Family Parulidae	
Dendroica coronata	yellow-rumped warbler
Dendroica petechia (CDFG SSC)	yellow warbler

SCIENTIFIC NAME	COMMON NAME
Wilsonia pusilla	Wilson's warbler
Family Remizidae	
Auriparus flaviceps	verdin
Family Sturnidae	
Sterna caspia	Caspian tern
Sturnus vulgaris	European starling
Family Sylviidae	
Polioptila melanura	black-tailed gnatcatcher
Family Turdidae	
Ixoreus naevius	varied thrush
Family Tyrannidae	
Contopus cooperi	olive sided flycatcher
Contopus sordidulus	western wood-pewee
Empidonax traillii (SE)	willow flycatcher
Myiarchus cinerascens	ash-throated flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus sp.	kingbird
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin's kingbird
MAMMALS	
LAGOMORPHA	Rabbits, Hares, and Pika
Family Leporidae	
Sylvilagus audubonii	desert cottontail

SCIENTIFIC NAME	COMMON NAME
Lepus californicus	black-tailed jackrabbit
RODENTIA	Rodents
Family Cricetidae	
Neotoma lepida	desert woodrat
Peromyscus maniculatus	deer mouse
Family Heteromyidae	
Chaetodipus formosus	long tailed pocket mouse
Dipodomys merriami	Merriam's kangaroo rat
Dipodomys panamintinus	Panamint kangaroo rat
Perognathus longimembris	little pocket mouse
Family Sciuridae	
Ammospermophilus leucurus	white-tailed antelope squirrel
Spermophilus beecheyi	California ground squirrel
Spermophilus mohavensis (ST)	Mohave ground squirrel
CARNIVORA	Carnivores
Family Canidae	
Canis latrans	coyote
Vulpes macrotis macrotis	desert kit fox
Family Felidae	
Felis rufus	bobcat

KEY:

FT - Federally Threatened

SE - State Endangered

ST - State Threatened

CDFG SSC - California Department of Fish and Game Species of Special Concern

WL - California Department of Game Watch List

Table 5.3-3. Plant Species Observed during Biological Resource Surveys for the Mojave Solar Project

	SCIENTIFIC NAME	COMMON NAME
ANGIOSPERMS		
EUDICOTS		
Amaranthaceae		
	Atriplex canescens	four-wing saltbush
	Atriplex confertiflora	shadescale
	Atriplex parryi	Parry's saltbush
	Atriplex phyllostegia	arrowscale
	Atriplex polycarpa	allscale
	Atriplex spinifera	spinescale saltbush
	Bassia hyssopifolia *	five-hook bassia
	Chenopodium album*	lambsquarters
	Grayia spinosa	hopsage
	Krasheninnikovia lanata	winter fat
	Monolepis nuttalliana	Nuttall's povertyweed
	Salsola tragus*	Russian thistle
	Sarcocornia utahensis	Utah glasswort
	Suaeda calceoliformis	horned sea-blite
	Suaeda moquinii	bush seepweed
Apiaceae		
	Cymopterus deserticola (CNPS List 1B.2)	desert cymopterus
	Lomatium mohavense	Mojave desert parsley
Asclepiadaceae		

	SCIENTIFIC NAME	COMMON NAME
	Asclepias erosa	desert milkweed
Asteraceae		
	Acamptopappus sphaerocephalus	goldenhead
	Ambrosia [Hymenoclea] salsola	cheesebush
	Ambrosia ancanthicarpa	annual bursage
	Ambrosia dumosa	white bursage
	Baccharis salicifolia	mule fat
	Chaenactis fremontii	Fremont pincushion
	Chaenactis xantiana	Mojave pincushion
	Ericameria (=Chrysothamnus) nauseosus	rubber rabbitbrush
	Chrysothamnus viscidiflorus	sticky rabbitbrush
	Coreopsis bigelovii	Bigelow's tickseed
	Encelia virginensis	Virgin River brittlebush
	Ericameria cooperi	Cooper's goldenbush
	Eriophyllum pringlei	Pringle's woolly sunflower
	Eriophyllum wallacei	woolly easterbonnets
	Filago depressa	dwarf cottonrose
	Gutierrezia microcephela	desert matchweed
	Helianthus annuus	western sunflower
	Lactuca serriola*	prickly lettuce
	Lasthenia californica	California goldfields
	Layia glandulosa	tidy-tips
	Lepidospartum squamatum	broom sage
	Malacothrix californica	California dandelion
	Malacothrix coulteri	snake's head
	Malacothrix glabrata	desert dandelion

	SCIENTIFIC NAME	COMMON NAME
	Nicolletia occidentalis	hole-in-the-sand plant
	Rafinesquia neomexicana	New Mexico plumeseed
	Stephanomeria pauciflora	wire lettuce
	Tetradymia stenolepis	Mojave cottonthorn
	Xylorhiza tortifolia var. tortifolia	Mojave woody aster
Boraginaceae		
	Amsinckia tessellata var. tessellata	bristly fiddleneck
	Cryptantha circumcissa	cushion cryptantha
	Cryptantha micrantha	redroot cryptantha
	Cryptantha nevadensis	Nevada cryptantha
	Cryptantha pterocarya	wingnut cryptantha
	Cryptantha utahense	scented cryptantha
	Heliotropium curassavicum	salt heliotrope
	Pectocarya linearis ssp. ferocula	sagebrush combseed
	Plagiobothrys arizonicus	Arizona popcorn flower
	Tiquilia plicata	tiquilia
Brassicaceae		
	Brassica tournefortii*	Asian mustard
	Caulanthus coulteri	Coulter's wildcabbage
	Descurainia pinnata	western tansymustard
	Descurainia sophia*	herb sophia
	Lepidium flavum	yellow pepperweed
	Lepidium fremontii	desert pepperweed
	Lepidium nitidum var. howellii	shining pepperweed

	SCIENTIFIC NAME	COMMON NAME
	Sisymbrium irio*	London rocket
	Stanleya pinnata	prince's plum
	Tropidocarpum gracile	dobie pod
Cactaceae		
	Sclerocactus polyancistrus (CNPS List 4.2)	Mojave fish-hook cactus
	Cylindropuntia echinocarpa ssp. echinocarpa	silver cholla
Capparaceae		
	Cleomella obtusifolia	Mojave stinkweed
	Isomeris arborea	bladder pod
Caryophyllaceae		
	Spergularia marina	salt marsh sand spurry
Chenopodiaceae		
	Kochia californica	rusty Molly
	Salicornia depressa	annual pickleweed
	Sarcobatus vermiculatus	greasewood
Cuscutaceae		
	Cuscuta sp.	dodder
Euphorbiaceae	Chamaesyce albomarginata	white margin sandmat
	Croton californicus	croton
	Croton [Eremocarpus] setigerus	dove weed
	Stillingia linearifolia	queensroot
	Stillingia paucidentata	stillingia
Fabaceae		
	Lupinus microcarpus	chick lupine

	SCIENTIFIC NAME	COMMON NAME
	Lupinus odoratus	Mojave lupine
	Lupinus shockleyi	desert lupine
	Medicago sativa*	alfalfa
	Prosopis glandulosa var. torreyana	mesquite
	Psorothamnus arborescens var. minutifolius	Johnson's indigo bush
	Senna armata	spiny senna
Frankeniaceae		
	Frankenia salina	alkali heath
Geraniaceae		
	Erodium cicutarium*	redstem stork's bill
Hydrophyllaceae		
	Emmenanthe penduliflora	whisperingbells
	Nama demissum	purplemat
	Phacelia distans	distant phacelia
	Phacelia fremontii	Fremont's phacelia
	Pholistoma membranaceum	white fiesta flower
Krameriaceae		
	Krameria erecta	rhatany
Lamiaceae		
	Salazaria mexicana	bladder sage
	Salvia carduacea	thistle sage
	Salvia columbariae	chia
Lennoaceae		

	SCIENTIFIC NAME	COMMON NAME
	Pholisma arenarium	desert christmas tree
Loasaceae		
	Eucnide urens	desert stingbush
	Mentzelia albicaulis	whitestem blazingstar
	Mentzelia eremophila	pinyon blazingstar
	Mentzelia involucrata	whitebract blazingstar
	Petalonyx thurberi	sandpaper plant
Malvaceae		
	Eremalche exilis	white mallow
	Sphaeralcea ambigua	desert apricot mallow
Nyctaginaceae		
	Abronia villosa Mirabilis bigelovii	desert sand verbena wishbone bush
Onagraceae		
	Camissonia campestris	Mojave sun cups
	Camissonia claviformis ssp. claviformis	brown eyes
	Camissonia palmeri	Palmer's evening primrose
Papaveraceae		
	Eschscholzia glyptosperma	Mojave poppy
	Eschscholzia munitiflora ssp. minutiflora	pygmy poppy
	Platystemon californicus	cream cups
Plantaginaceae		
	Plantago ovata	desert plantain
Polemoniaceae		

	SCIENTIFIC NAME	COMMON NAME
	Eriastrum eremicum ssp. eremicum	
	Gilia brecciarum ssp. brecciarum	Nevada gilia
	Gilia cana ssp. speciosa	showy gilia
	Gilia malior	scrub gilia
	Gilia sinuata	rosy gilia
	Linanthus bigelovii	Bigelow's linanthus
	Linanthus parryae Loeseliastrum matthewsii	sandblossoms desert calico
Polygonaceae		
	Chorizanthe brevicornu ssp. brevicornu	brittle spineflower
	Chorizanthe rigida Chorizanthe spinosa (CNPS List 4.2)	spiny-herb Mojave spineflower
	Eriogonum angulosum	anglestem buckwheat
	Eriogonum fasciculatum var. foliosum	eastern Mojave buckwheat
	Eriogonum inflatum	desert trumpet
	Eriogonum mohavense	western Mojave buckwheat
	Eriogonum pusillum Rumex hymenosepalus	puny buckwheat canaigre dock
Portulacaceae		
	Calyptridium monandra	common pussypaws
Rosaceae		
	Coleogyne ramosissima	blackbrush
	Prunus fasciculata	desert almond
Solanaceae		
	Datura wrightii	sacred thorn-apple
	Lycium andersonii	Anderson's boxthorn

	SCIENTIFIC NAME	COMMON NAME
	Lycium cooperi	peach thorn
	Lycium pallidum var. oligospermum	rabbit thorn
Tamaricaceae		
	Tamarix ramosissima*	tamarisk
Zygophyllaceae		
	Larrea tridentata	creosote bush
ANGIOSPERMS		
MONOCOTS		
Agavaceae		
	Yucca brevifolia	Joshua tree
Cyperaceae		
	Schoenoplectus robustus	scirpus (remnant)
	Schoenoplectus maritimus	alkali bulrush
Liliaceae		
	Calochortus sp.	mariposa lily
Poaceae		
	Acnatherum hymenoides	Indian ricegrass
	Acnatherum speciosum	desert needlegrass
	Avena barbata*	slender wild-oat
	Bromus madritensis ssp. rubens*	red brome
	Bromus tectorum*	cheat grass
	Distichlis spicata	saltgrass
	Hordeum murinum ssp. leporinum*	hare barley
	Pleuraphis rigida	big galleta grass

	SCIENTIFIC NAME	COMMON NAME
	Poa annua*	bluegrass
	Schismus arabicus*	split grass
	Vulpia myuros*	rat-tail fescue
Themidaceae		
	Dichelostemma capitatum	blue dicks
Typhaceae		
	Typha sp.	cattail (remnant)
	Typhus domingensis	southern cattail
Zannichelliaceae		
	Zannichellia palustris	horned pondweed
GYMNOSPERMS		
GNETALES		
Ephedraceae		
	Ephedra nevadensis	Nevada jointfir
	Ephedra viridis	mormon tea

* Indicates a nonnative plant species (introduced).

CNPS

List 1B.2 Rare, threatened, or endangered in California and elsewhere. Fairly endangered in California.

List 4.2 Limited distribution (Watch List). Fairly endangered in California.

Remnant - These plants were identified based on nonliving remnant growth in the field. No flowering parts or chlorophyllic plant matter was available for observation at the time of surveys.

Table 5.3-4. Special Status Animal Species Detected or Those Having a Potential to Occur within the Project Area

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurrence
Reptiles			
Testudines (Turtles)			
Desert tortoise (DT) Gopherus agassizii	ESA: Threatened CESA: Threatened	Various desert scrubs and desert washes up to about 5,000 feet, but not including large, unvegetated playas.	Detected. DT individuals were not detected during 2009 surveys; however, in 2008, 35 DTs were encountered in the Survey Area, with six (6) observed on Zone of Influence (ZOI) transects for a total of 41 DT observations. No DTs were documented within the Project Area during 2007 or 2008 surveys. One female DT was observed twice near and within one of the ranches located in the Project Area during reconnaissance surveys in 2006 (EREMICO, 2006); however, this DT may have been preyed upon by dogs residing at the home as it was not seen during 2007 or 2008 surveys.
Birds			
Pelecaniformes (Tropicbirds, Pelicans, and Relatives)			

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurrence
American white pelican Pelecanus erythrorhynchos	CDFG: Species of Special Concern	Breeds in northeastern California, winters throughout central and southern California. Rivers, lakes, estuaries, bays, marshes, nests usually in brackish or freshwater lake islands.	Detected. Remains of this species were found in August 2007, north of the Project Area within the one-mile buffer. The carcass was scavenged.
Falconiformes (Vultures, Hawks, and Falcons)			
Swainson's hawk Buteo swainsoni	CESA: Threatened	Migrant that breeds in North America and winters in South America. Forages in open grasslands, agricultural areas, sparse shrublands, and small open woodlands. Nests in scattered trees within grasslands, shrublands, or agricultural landscapes.	Detected. One individual of this species was observed perched within the Project Area near the southern boundary in June 2007. Two other individuals were observed soaring above the one-mile buffer in August 2007.
Northern harrier Circus cyaneus	CDFG: Species of Special Concern	Occurs in grasslands and agricultural fields during migration and in winter.	Detected. Two individuals of this species were observed within the one-mile buffer, one in May 2007, and one in August 2007. This species was also detected during 2006 reconnaissance surveys (EREMICO, 2006; EDAW, 2006).

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurrence
American peregrine falcon Falco peregrinus anatum	CESA: Endangered CDFG: Fully Protected	Open habitats from tundra, moorlands, steppe, and seacoasts to mountains, and open forested regions, especially where there are suitable nesting cliffs.	Detected. One individual of this species was observed within the Project Area perched on a utility line north of the active agricultural field in August 2007. This individual was likely a transient or at most may use the area in the vicinity of the Survey Area as a peripheral and occasional part of its home range.
Charadriiformes (Shorebirds, Gulls, and Relatives)			
Western snowy plover Charadrius alexandrinus nivosus *Federal listing applies only to the Pacific coastal population.	CDFG: Species of Special Concern (nesting)	Sandy beaches, dunes, and salt flats. Outside the breeding season they are more widespread.	Low potential for this species to occur. This bird was reported as occurring on the southwestern edge of Harper Dry Lake in 1978, with an estimated count of 94 birds. Most individuals appeared to be displaying nesting behavior; one nest found with three (3) eggs. Since that time, the marsh area has become degraded due to loss of artificial water inputs from agricultural operations; therefore, habitat for this species is not present, and it is not expected that this species would utilize the Project Area as habitat.
Strigiformes (Owls)			

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurrence
Short-eared owl Asio flammeus	CDFG: Species of Special Concern	Nests in well-vegetated open areas including grasslands, grain fields, riparian edges, and marshes. Many populations of this species are migratory.	High potential for this species to occur. This species was detected within the Project Area during a reconnaissance survey conducted in 2006 (EREMICO, 2006). Suitable nesting habitat for this species occurs in the active agricultural field.
Western burrowing owl (WBO) Athene cunicularia	CDFG: Species of Special Concern	Found mainly in grassland and open scrub from the seashore to foothills. Strongly associated with ground squirrel burrows.	Detected. In 2008, one WBO was observed within the Project Area. Also, one owl pellet was observed in the northwestern corner of the Project Area in 2008. In 2007, a pair of WBOs was observed; however, they were not observed during 2008 surveys. An unchained domestic dog was observed within this area, so the loss of the pair may have been due to dog predation, or the WBO may have moved. A reconnaissance survey conducted in 2006 (EREMICO, 2006) resulted in detection of four (4) WBOs within the Project Area.
Passeriformes (Perching Birds)			

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurrence
Yellow warbler Dendroica petechia	CDFG: Species of Special Concern	Breeds in mature riparian woodlands that consist of cottonwood, willow, alder, and ash trees.	Detected. This species was observed within the Project Area during May 2007 surveys. Suitable breeding habitat for this species does not occur within the Project Area or the one-mile buffer; therefore, this individual was likely a migrant and was not mapped.
Willow flycatcher Empidonax traillii	ESA: Endangered (only *E. t. extimus* is federally listed) CESA: Endangered	Riparian woodlands with current or evidence of recent water flow and scouring. Riparian corridors must be at least 33 feet wide, closed canopy, relatively dense understory, and open mid-story.	Detected. One individual of this species was observed using a small stand of ornamental trees within the Project Area near the southern boundary in June 2007. Suitable breeding habitat for this species does not occur within the Project Area or the one-mile buffer; therefore, this individual was likely a migrant.
Loggerhead shrike Lanius ludovicianus	CDFG: Species of Special Concern	Occurs in semiopen country with utility posts, wires, and trees to perch on.	Detected. Suitable habitat for loggerhead shrike occurs throughout the Survey Area. Loggerhead shrikes were observed in the Project Area during 2007 and 2009. This species was also detected during 2006 reconnaissance surveys (EREMICO, 2006; EDAW, 2006).
Mammals			

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Probability of Occurrence
Mohave ground squirrel (MGS) Spermophilus mohavensis	CESA: Threatened	Mojave desert scrub, alkali scrub, and Joshua tree woodland between 1,800 and 5,000 feet. Sandy to gravelly soils.	Detected. In 2007, one MGS was trapped (one [1] adult female; age approx. one [1] year) within the Project Area at the edge of an active alfalfa field in the northeast quarter of Section 32 during a reconnaissance survey (EREMICO, 2006).
American badger Taxidea taxus	CDFG: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	High potential for this species to occur. A badger den was detected within the Project Area during a reconnaissance survey performed in 2006 (EREMICO, 2006).

[1] Sensitivity Status Key

Federal Endangered Species Act (ESA)

State California Endangered Species Act (CESA)

California Department of Fish and Game (CDFG)

Table 5.3-5. Special Status Plant Species Detected or Those Having a Potential to Occur within the Project Area

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements (CNPS, 2008)	Blooming Period	Probability of Occurrence
Chaparral sand-verbena *Abronia villosa* var. *aurita*	CNPS List 1B.1	Known to occur in chaparral, coastal scrub, and desert dunes or sandy areas.	Annual herb Blooms January through September	Low potential of occurrence within Survey Area. Chaparral sand-verbena is known to occur over five (5) miles from the Survey Area near the town of Hinkley, California (CDFG, 2008). No populations were observed in the Survey Area during 2008 botanical surveys.
Desert cymopterus Cymopterus deserticola	CNPS List 1B.2	Found in Joshua tree woodland and Mojave desert scrub	Perennial herb Blooms March through May	Detected within the Survey Area. One individual was detected in a small wash, south of Santa Fe Avenue, and approximately 4,350 feet southwest of the southernmost section of the Project Area.
Recurved larkspur Delphnium recurvatum	CNPS List 1B.2	Known to occur in chenopod scrub, cismontane woodland, and valley/foothill grassland	Perennial herb Blooms March through June	Low potential of occurrence within Survey Area. Recurved larkspur is not listed as occurring near the Survey Area using a nine-quad search centered on the Lockhart quad (CDFG, 2008). The closest occurrence of recurved larkspur (recorded in 1952) is approximately 20 miles west of the Survey Area, near the northeast corner of Edwards Airforce Base and near State Route 58. No populations were observed in the Survey Area during 2008 botanical surveys.

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements (CNPS, 2008)	Blooming Period	Probability of Occurrence
Barstow woolly sunflower *Eriophyllum mohavense*	CNPS List 1B.2	Creosote bush scrub, desert playas, and desert saltbush scrub	Annual herb Blooms March through April	Moderate to high potential of occurrence within Survey Area. Barstow woolly sunflower is known from a population just north of Harper Lake (CDFG, 2008). No populations were observed in the Survey Area during 2008 botanical surveys.
Sagebrush loeflingia Loeflingia squarrosa var. artemisiarum	CNPS List 2.2	Desert dunes, great basin scrub, and sonorant desert scrub.	Annual herb Blooms April through May	Low potential of occurrence within Survey Area. Sagebrush loeflingia is not listed as occurring near the Survey Area using a nine-quad search centered on the Lockhart quad (CDFG, 2008). No populations were observed in the Survey Area during 2008 botanical surveys.
Mojave monkeyflower *Mimulus mohavensis*	CNPS List 1B.2	Joshua tree woodland and Mojave desert scrub.	Annual herb Blooms April through June	Low potential of occurrence within Survey Area. Mojave monkeyflower is not listed as occurring near the Survey Area using a nine-quad search centered on the Lockhart quad (CDFG, 2008). No populations were observed in the Survey Area during 2008 botanical surveys.

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements (CNPS, 2008)	Blooming Period	Probability of Occurrence
Utah glasswort Salicornia [Sarcocornia] utahensis	CNPS List 2.2	Known to occur along alkali playas and marshes	Perennial succulent Blooms August through September	Moderate potential of occurrence within the Survey Area. According to information in the CNDDB, this species was previously detected near the Rancho Percebu Duck Club Pond, west of Harper Lake (CDFG, 2008). A pickleweed species was found growing in the proximity of alkali marsh in the Survey Area, but based on rigorous field inspection during the appropriate blooming period, it was determined that the species was annual pickleweed.

[1] Sensitivity Status Key

California Native Plant Society (CNPS)

List 1B.1- Plants rare, threatened, or endangered in California and elsewhere; seriously endangered in California.

List 1B.2 - Plants rare, threatened, or endangered in California and elsewhere; fairly endangered in California.

List 2.2 - Plants rare, threatened, or endangered in California, but more common elsewhere; fairly endangered in California.

Table 5.3-6. Description of Desert Tortoise Carcasses within the Project Area Detected during Survey Years 2007 through 2009

Survey Year	Carcass Description
2007	Adult bone fragments shattered; > 4 years TSD.
2007	Male MCL 220 mm; plastron and carapace bone fragments present; 4 years TSD; in open field.
2007	Single plastron bone fragment; 4 years TSD.
2007	Adult size; single plastron bone fragment; 2 to 3 years TSD; in open field.
2007	Immature plastron bone fragments fractured in linear depression; 4 years TSD.
2007	Adult size; carapace and plastron bone fragments; 4 years TSD.
2007	Single marginal bone fragment; > 4 years TSD.
2008, 2009	Female, MCL 210 mm; > 4 years TSD; 65 percent of bone fragments present, 80 percent disartic, scutes peeled off.
2008	Subadult size; > 5 years TSD; bone fragments only; same as TCARC4/5?
2008	Subadult size; > 5 years TSD; bone fragments only; same as TCARC3/5?
2008	Subadult size; > 5 years TSD; bone fragments only; same as TCARC3/4?
2008, 2009	Immature size; whole, intact; limbs present, skin dried; MCL 170 mm; 1 year TSD.
2009	Female, MCL 250 mm; 4 years TSD
2009	Single marginal bone, several fractured carapace bones; > 4 years TSD.

TSD - Estimated time since death

MCL - Mean carapace length

mm - millimeter

Table 5.3-7. Vegetation Communities and Other Cover Types for the Project Area and One-Mile Buffer

Vegetation Communities and Other Cover Types (Holland Code)	Project Area (Acres)	One-mile Buffer (Acres)	Survey Area[1] (Acres)
Mojave Creosote Bush Scrub (34100)	6.0	3,176.5	3,182.5
Desert Saltbush Scrub (36110)	0.6	5,973.0	5,973.6
Disturbed – Desert Saltbush Scrub	1.1	164.9	166.1
Mojave Desert Wash Scrub (34250)	1.9	675.0	676.9
Alkali Marsh (52310)	0.0	42.6	42.6
Desert Sink Scrub (36120)	39.6	354.0	393.7
Unvegetated Dry Lake Bed	9.3	2,359.0	2,368.3
Tamarisk Scrub (63810)	13.2	126.2	139.5
Disturbed	256.1	399.3	655.4
Disturbed - Saltbush Scrub Regrowth	226.0	775.0	1,001.0
Fallow Agricultural - Saltbush Scrub Regrowth	202.9	34.8	237.7
Fallow Agricultural - Ruderal	832.7	1.9	834.6
Active Agricultural	122.6	0.0	122.7
Developed	66.6	1,109.2	1,175.8
Evaporation Pond (Developed)	0.0	23.1	23.1
Total Acreage[2]	1,778.7[3]	15,214.6	16,993.4

[1]The Survey Area includes the Project Area and the one-mile survey buffer (as described in the CEC Draft Survey Guidelines [CEC,2007]) exterior to the Project Area boundary.

[2]Acreage totals for Project Area and one-mile buffer were rounded to the nearest tenth.

[3] The total acreage for all vegetation communities and other cover types within the Project Area (approximately 1,779 acres) is slightly different than the area calculated during the MSP land survey performed by engineers (approximately 1,765 acres). The variation in acreage is attributed to a difference in equipment used for determining acreage of said area (i.e., land survey versus GIS processing).

Table 5.3-8. Potential Jurisdictional Waters of the U.S. and State Occurring within the Project Area

Waters of the U.S.	Type of Habitat (Holland, 1986)	Type of Habitat (Cowardin et al., 1979)	Regulatory Authority	Area of Aquatic Resource (Acres)[1]
Wetland	Tamarisk Scrub (63810)	Palustrine; Scrub/Shrub, Needle-Leaved, Evergreen, Seasonally Flooded/ Saturated, Mixosaline, Alkaline	CDFG, RWQCB, USACE	1.32
Total Waters of the U.S. =				1.32
Waters of the State	Type of Habitat (Holland, 1986)	Type of Habitat (Cowardin et al., 1979)		Area of Aquatic Resource (Acres)[1]
Riparian Extent	Tamarisk Scrub (63810)	Palustrine; Scrub/Shrub, Needle-Leaved, Evergreen, Seasonally Flooded/Saturated, Mixosaline, Alkaline	CDFG, RWQCB	1.74
Lakebed	Alkali Playa (46000)	Lacustrine, Littoral, Unconsolidated Bottom, Sand, Intermittently Flooded/Temporary, Hypersaline, Alkaline	CDFG, RWQCB	9.44
Total Waters of the State[2] =				12.5

1 Jurisdictional waters acreage was determined by utilizing GIS program (ArcMap, Version 9.3).

2 Waters of the State include waters of the U.S. (1.74 + 9.44 + 1.32 = 12.5 acres).

Table 5.3-9. Impacts to Allscale Vegetation within the Project Area

Legal Description	Vegetation Type	Acreage
Section 28	Disturbed - Saltbush Scrub Regrowth	39.2
Section 29	Disturbed - Saltbush Scrub Regrowth	39.5
Section 30	Desert Saltbush Scrub	0.63
	Disturbed - Saltbush Scrub Regrowth	117.9
	Fallow Agricultural- Saltbush Scrub Regrowth	202.9
Section 32	Disturbed Desert Saltbush Scrub	0.3
	Disturbed - Saltbush Scrub Regrowth	14.4
Section 33	Disturbed Desert Saltbush Scrub	0.9
	Disturbed - Saltbush Scrub Regrowth	12.7
	Total Acreage[1]	428.4

[1] A very small portion (northwestern corner; see Figure 5.3-a) of Section 4 is depicted as being within the Project Area; however Section 4 is not included as part of this impact table. Although represented as being within the Project Area, there will not be impacts to this area as it will only be used temporarily, during the process of connecting the MSP to the existing Kramer-Cool Water 230-kV transmission lines.

Table 5.3-10. Proposed Mitigation for Impacts to Potential Habitat for Special Status Wildlife Species

Listed Species	Mitigation Ratio	Total Impact[1]	Total Mitigation Acreage
Desert Tortoise	0.5:1	428.4	214.2
Mohave Ground Squirrel	0.5:1	428.4	214.2
Western Burrowing Owl	6.5 to 19.5 acres per pair[2]	1 pair	6.5 to 19.5 acres
Total Mitigation Acreage			214.2[3]

[1] The total impact reflects those suitable habitat areas (for DT and MGS) and assumed WBO pair locations within the Project boundary, which assumes direct, permanent impacts within the limits of the boundary.

[2] Per CBOC/CDFG guidelines.

[3] MSLLC assumes that the mitigation parcel selected to mitigate impacts to DT, MGS, and WBO would provide habitat for all three (3) species, such that the greatest mitigation acreage (214.2 acres) would suffice for all three (3) species.

Table 5.3-11. Agencies and Agency Contacts

Agency Contact	Phone/E-mail	Permit/Issue
U.S. Department of Energy Western Area Power Administration Sierra Nevada Region 114 Parkshore Drive Folsom, CA 95630-4710	(916) 353-4416	Solar Energy Project Development Loan
U.S. Bureau of Land Management Barstow Field Office 2601 Barstow Road Barstow, CA 92311	(760) 252-6000	Memorandum of Agreement associated with implementation of Habitat Conservation Plan (if mitigation proposed on BLM land).
Ashleigh Blackford, Wildlife Biologist; or Ray Bransfield, Senior Wildlife Biologist USFWS 2493 Portola Road, Suite B Ventura, CA 93003	(805) 644-1766, x234 Ashleigh_Blackford@fws.gov (805) 644-1766 Ray_Bransfield@fws.gov	Federal ESA, Section 7 Consultation-Section 10 Habitat Conservation Plan/Incidental Take Permit.
Tonya Moore Environmental Scientist CDFG Region 6-Inland Deserts Region 3602 Inland Empire Blvd. Suite C-220 Ontario, CA 91764 Becky Jones Wildlife Biologist CDFG 36431 41st Street East Palmdale, CA 93552	(909) 484-0167 tmmoore@dfg.ca.gov (661) 285-5867 dfgpalm@roadrunner.com	CESA Incidental Take Permit, Section 2081; Streambed Alteration Agreement, Section 1600.

Agency Contact	Phone/E-mail	Permit/Issue
Gerry Salas Project Manager Los Angeles District Regulatory Division USACE 915 Wilshire Boulevard Los Angeles, CA 90017	(213) 452-3417 gerardo.salas@usace.army.mil	Concurrence that no Project permit is required under CWA Section 404 because there are no impacts to jurisdictional "waters of the United States"
Regional Water Quality Control Board - Lahontan Region Victorville Branch Office 14440 Civic Drive, Suite 200 Victorville, CA 92392	(760) 241-6583	Concurrence that a Report of Waste Discharge filing will not be required for the Project.
County of San Bernardino Land Use Services Department 15456 W. Sage Street Victorville, CA 92392	(760) 843-4340	Permits or a Memorandum of Understanding associated with new developments in unincorporated areas of the county; permit for impacts to native plants/trees.

Table 5.3-12. Required Biological Resource Permits and Permitting Schedule

Permit/Approval	Schedule
Federal Endangered Species Act (ESA), Section 10 Incidental Take Permit (ITP) and Habitat Conservation Plan (HCP)/Section 7 consultation and Biological Opinion	Preliminary analysis indicates that under the ESA the Project will need to either obtain a Section 10 ITP and develop an HCP, or obtain ESA take authorization under Section 7. It is anticipated that the Section 10 ITP process could be completed in 24 months. If a low-effect HCP may be used, it is anticipated that the ITP could be issued in 12 months. If Section 7 consultation is required, a Biological Opinion and associated take statement could be issued within 135 days of initiation of formal consultation with the U.S. Fish and Wildlife Service by the federal consulting agency.
California Endangered Species Act (CESA), Section 2081 ITP	CESA Section 2081 take authorization will be required for species listed under CESA that are not federally protected (e.g., MGS). A draft Section 2081 Permit application will be submitted to California Energy Commission (CEC) and California Department of Fish and Game (CDFG) shortly after filing the Application for Certification (AFC). The 2081 take authorization will be included in the CEC License Decision.
Porter-Cologne	The Regional Water Quality Control Board (RWQCB) will require a Report of Waste Discharge (ROWD) containing information/data regarding any proposed discharge waste that could affect the quality of waters of the state, other than into a community sewer system. The RWQCB will then respond to the ROWD by issuing waste discharge requirements (WDRs) in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs except where the RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest.
California Fish and Game Code (FGC) Section 1600 Streambed Alteration Agreement (SAA)	A Section 1600 Streambed Alteration Agreement notification will be submitted to CEC and CDFG shortly after filing the AFC. The SAA will be included in the CEC License Decision.
County of San Bernardino General Plan	The County of San Bernardino will require a Development Permit or Development Agreement for the MSP.

Permit/Approval	Schedule
County of San Bernardino Plant Protection and Management	The County of San Bernardino will require a Native Plant/Tree Removal Permit (unless negotiated as part of the Development Permit).