

## 3.11 Paleontological Resources

Paleontological resources, or fossils, are the remains of extinct organisms, and provide the only direct evidence of ancient life. They are considered to be non-renewable resources because they cannot be replaced once they are destroyed. The Federal Land Policy and Management Act of 1976 (FLPMA) mandates the treatment of paleontological resources as a scientific value (FLPMA section 102[8]). For the purpose of this analysis, and in accordance with existing BLM policy, scientifically significant paleontological resources are defined as vertebrate fossils that are identifiable to taxon and/or element, noteworthy occurrences of invertebrate and plant fossils, and vertebrate trackways. In general, surface disturbing actions have the potential to cause adverse effects on surface and subsurface paleontological resources in rock units and overlying sediments known to contain them. Direct impacts include destruction due to breakage and fragmentation. Indirect impacts may result from increased accessibility to paleontological resources resulting in an increased likelihood of looting or vandalism. Cumulative impacts are incremental effects and constitute the long-term loss to society as whole of the scientific information that would have been available if surface disturbing actions in the general vicinity of the project area had not taken place.

The project area is located in Imperial County, California, close to the intersection of Interstate 8 and State Route 98 and the town of Ocotillo, approximately one mile south of the Coyote Mountains, and five miles north of the international border. It encompasses approximately 12,500 acres of BLM-administered lands and includes an additional 26 acres of private land.

### 3.11.1 Environmental Setting

This EIS/EIR section is based on data obtained from two paleontological resource technical reports. The first report (Aron and Kelly, 2010) is a programmatic paleontological sensitivity assessment of the OWEF area that includes a review of published scientific literature, geologic maps and museum records, and involved consultation with professional paleontologists who are familiar with the general area. Based on the data obtained during the assessment, the geologic formations within the project area were ranked using the Potential Fossil Yield Classification System (PFYC) (BLM IM 2008-009), and these rankings received BLM concurrence. The PFYC system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. Using the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts, with a higher class number indicating a higher potential (Class 1-5). This classification is applied to the geologic formation, member, or other distinguishable unit, preferably at the most detailed mappable level. The PFYC rankings for the geologic formations within the Project area were used to delineate locations that would be included in a pedestrian field survey (Aron and Kelly, 2010). The second report presents the results of the paleontological field survey (Aron and Kelly, 2011).

According to published geologic mapping (Dibblee, 2008a-d), seven geologic formations of sedimentary origin and one geologic formation of intrusive igneous origin occur within the project area. The intrusive igneous unit consists of undifferentiated plutonic crystalline basement rocks including late Triassic to Jurassic dark gray biotite rich quartz diorite to diorite. Sedimentary units include the middle Miocene Split Mountain Formation, the middle Miocene Alverson Formation, the late Miocene and Pliocene Latrania Formation of the Imperial Group, the Plio-Pleistocene Palm Spring Formation, Quaternary (Pleistocene)

Older Alluvium, Quaternary (Holocene) Alluvium, and Quaternary (Holocene) Terrace Alluvium. Intrusive igneous rocks are formed deep under the earth's surface at high temperatures and pressures, and do not contain fossils. Therefore, they are considered to have very low paleontologic potential (PFYC Class 1). Holocene sedimentary deposits such as alluvium and terrace alluvium are considered to have low paleontological potential (PFYC Class 2) because they are too young to contain in-situ fossils, although these deposits may grade downward into older sediments that may contain them. The sedimentary facies<sup>1</sup> of the Alverson Formation (as opposed to the extrusive igneous facies) and Older Alluvium have produced scattered vertebrate fossil remains (mostly terrestrial mammals, but also wood and mollusks), and have moderate paleontologic potential (PFYC Class 3a). The Split Mountain Formation is sparsely fossiliferous and has unknown paleontologic potential (PFYC Class 3b). The Palm Spring Formation produces locally abundant and diverse terrestrial vertebrate fossil remains (mammals, birds, reptiles), and is considered to have very high paleontologic potential (PFYC Class 5). The mostly marine Latrania Formation of the Imperial Group has produced locally abundant and diverse marine vertebrates and invertebrates and sparse terrestrial mammals, and like the Palm Spring Formation, has very high paleontologic potential (PFYC Class 5).

Based on the records of the San Diego Natural History Museum (SDNHM), Anza-Borrego Desert State Park Desert District Stout Research Center (ABDSP-DSRC), and the Natural History Museum of Los Angeles County (LACM), no previously recorded fossil localities occur within the project area, although ten previously recorded fossil localities occur immediately adjacent to the project area, and numerous other localities have been documented in the same geologic units at other locations in the Imperial Valley.

The paleontological assessment report (Aron and Kelly, 2010) recommended all areas mapped as undifferentiated plutonic crystalline basement rocks (PFYC Class 1) and Quaternary Alluvium and Quaternary Terrace Alluvium (PFYC Class 2) for immediate paleontological clearance because these deposits have little potential for producing in-situ fossils. These deposits were estimated to comprise approximately 11,361 acres of the total study area. Areas mapped as Alverson Formation, Latrania Formation (Imperial Group), Split Mountain Formation, Palm Spring Formation, and Older Alluvium, have a moderate or unknown (PFYC Class 3) to very high potential (PFYC Class 5) for producing scientifically important fossil remains, and were recommended for a 100 percent pre-construction pedestrian inventory focused on areas with good exposures of fossil-bearing bedrock and surficial deposits. Based on the geologic map, these deposits comprise approximately 3,640 acres of the project area. However, it was determined in the field that the areal extent of paleontologically sensitive geologic formations within the project area is significantly greater than that shown on the published geologic maps cited above. This type of geologic mapping imprecision is not uncommon since many geologic maps are prepared using aerial photography with limited field checking. The additional paleontologically sensitive acreage was included in the pedestrian field survey.

A paleontological field survey was completed in December 2010 and January 2011. Fifty six quarter-quarter sections (2,240 acres) that include exposed rocks of the Alverson Formation, Split Mountain Formation, Latrania Formation, Palm Spring Formation, and Pleistocene older alluvium were surveyed. The survey was designed as a block survey of all areas that could contain scientifically important surface

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<sup>1</sup> Sedimentary facies are bodies of sediment recognizably different from adjacent sediment which has been deposited in a different manner.

fossils, so that adjustments to the locations of proposed project facilities within the project area will not result in the need for additional paleontological surveys. Block paleontological surveys involve systematic inspections of all outcrops of paleontologically sensitive bedrock and surficial sediments.

Thirty six fossil localities were documented during the field survey. These include four localities in the Mio-Pliocene Latrania Formation consisting of fossil marine invertebrates, and 32 fossil localities in the Plio-Pleistocene Palm Spring Formation consisting of fossil vertebrates. Thirty three of the vertebrate and marine invertebrate fossil localities that were documented did not preserve scientifically important fossils. Three fossil localities that preserved scientifically significant vertebrate fossils were initially documented and then collected following BLM consultation. These fossils include specimens consisting of turtle carapace (upper section of the shell) and plastron (underside of shell) fragments and limb elements; camelid<sup>2</sup> post-crania (all or part of the skeleton apart from the skull) including a distal 1<sup>st</sup> phalanx (bones that form fingers and toes) of the extinct llama (cf. *Hemiauchenia* sp.), a lumbar vertebral centrum (lower spine) of the extinct camel (cf. *Camelops* sp.); and unidentified mammal bones collected from the Palm Spring Formation (written communication, G. Jefferson, ABDSP-DSRC, 2011). These fossils have been prepared, identified, and have been transferred to ABDSP-DSRC for permanent museum storage. Occurrences of well-preserved fossil wood were found to be widespread throughout the Palm Spring Formation within the project area, and as a result, none of these fossil localities were documented, collected or recommended for avoidance. Deposits of Pleistocene older alluvium, although widespread, were found to be devoid of fossils, and it is recommended that these be downgraded to PFYC Class 2 within the project area for future resource management purposes (although they were designated PFYC Class 3a at the time of this analysis). Two areas of Palm Spring Formation within the greater project area were identified during the field survey as having relatively high densities of vertebrate fossils on the ground surface. Based on the project design plans, these areas are not anticipated to be impacted by project construction, but it is recommended that they be avoided by future surface disturbing actions in order to preserve the fossils in their native geologic context.

### 3.11.2 Applicable Regulations, Plans, and Standards

#### 3.11.1.1 Federal

The management and preservation of paleontological resources on public lands are governed under various laws, regulations, and standards. For the past several decades, the BLM has used the Federal Land Management and Policy Act (FLPMA, 1976) as the legislative foundation for its paleontological resource management policies. The BLM has also developed general procedural guidelines (Manual H-8720-1; Instructional Memorandum [IM] 2008-009; IM 2009-011) for the management of paleontological resources (BLM, 2007, 2008). Paleontological resource management objectives include the evaluation, management, protection and location of fossils on BLM managed lands. Management policy also includes measures to ensure that proposed land-use projects do not inadvertently damage or destroy scientifically significant paleontological resources.

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<sup>2</sup> Camelids are large even-toed ungulates (hoofed animals) with slender necks and long legs, and are strictly herbivorous; they are classified in the order Artiodactyla, along with pigs, peccaries, hippopotamuses, camels, deer, giraffe, cattle, goats, antelope and many others.

The implementation of paleontological mitigation measures designed in compliance with the following federal and state laws and the BLM guidelines cited above would reduce adverse impacts on scientifically significant paleontological resources to a less than significant level by preventing the destruction of significant fossils during project-related surface disturbance.

**The National Environmental Policy Act of 1969, as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 § 4(b), Sept. 13, 1982).** Recognizes the continuing responsibility of the Federal Government to “preserve important historic, cultural, and natural aspects of our national heritage . . .” (Sec. 101 [42 USC § 4321]) (#382).

**Federal Land Management and Policy Act of 1976 (43 U.S.C. 1712[c], 1732[b]); sec. 2, Federal Land Management and Policy Act of 1962 [30 U.S.C. 611]; Subpart 3631.0 et seq.), Federal Register Vol. 47, No. 159, 1982.** Defines significant fossils as: unique, rare or particularly well-preserved; an unusual assemblage of common fossils; being of high scientific interest; or providing important new data concerning [1] evolutionary trends, [2] development of biological communities, [3] interaction between or among organisms, [4] unusual or spectacular circumstances in the history of life, [5] or anatomical structure.

**Paleontological Resources Preservation, Omnibus Public Lands Act, Public Law 111-011, Title VI, Subtitle D (OPLA-PRP, 2009).** This legislation directs the Secretaries (Interior and Agriculture) to manage and protect paleontological resources on federal land using “scientific principles and expertise.” OPLA-PRP incorporates most of the recommendations of the report of the Secretary of the Interior entitled Assessment of Fossil Management on Federal and Indian Lands (2000) in order to formulate a consistent paleontological resources management framework. In passing the OPLA-PRP, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The OPLA-PRP codifies existing policies of the BLM, National Park Service, USDA Forest Service, Bureau of Reclamation, and U.S. Fish and Wildlife Service, and provides the following:

- Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal lands
- Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants)
- Uniform definitions for “paleontological resources” and “casual collecting”
- Uniform requirements for curation of federal fossils in approved repositories

Federal legislative protections for scientifically significant fossils applies to projects that take place on federal lands (with certain exceptions such as DOD), involve federal funding, require a federal permit, or involve crossing state lines. Because the vast majority of the proposed project area occurs on BLM managed lands, federal protections for paleontological resources apply under NEPA, FLPMA, and OPLA-PRP.

### **3.11.1.1 State and Local Regulations and Laws**

The procedures, types of activities, persons, and public agencies required to comply with CEQA are defined in: Guidelines for the Implementation of CEQA, as amended March 29, 1999 (Title 14, Chapter 3, California Code of Regulations: 15000 et seq.). One of the questions listed in the CEQA

Environmental Checklist (Section 15023, Appendix G, Section XIV, Part A) is: “Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?”

The State of California Public Resources Code (Chapter 1.7), Section 5097.5 and 30244, includes additional State level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on State lands, define the removal of paleontological “sites” or “features” from State lands as a misdemeanor, and prohibit the removal of any paleontological “site” or “feature” from State land without permission of the applicable jurisdictional agency. These protections apply only to State of California land, and thus apply only to portions of the proposed OWEF, if any, that occur on State land.

No other State or local laws and regulations are applicable to the proposed project, including none in the Imperial County General Plan.

## 3.12 Public Health and Safety

The following discussion addresses existing environmental conditions in the affected area of the proposed OWEF site, and describes existing laws and regulations relevant to public health and safety. The affected environment for public health and safety includes evaluation of several program areas, including aircraft operations, hazardous materials, seismic hazards, and public health. The study area is the proposed OWEF site as defined in Figure 2.3-1.

### 3.12.1 Environmental Setting

#### 3.12.1.1 Aircraft Operations

The proposed OWEF site is not located within two miles of a public airport. The closest public airport is the Jacumba Airport, located approximately 7.1 miles southwest of the proposed OWEF site. However, the Emory Ranch private airport is located approximately 0.2 mile south of the northeast portion of the proposed OWEF site and approximately 2 miles northwest of the community of Ocotillo. The airport is currently operating with one runway, Runway 04/22, with dimensions of 2,400 feet in length and 40 feet in width (SkyVector, 2011). After consulting with aviation and airspace consultants, the Applicant eliminated certain turbine locations to preserve a buffer for airplane operations at the Emory Ranch private airport. The Applicant also consulted with the owner of the Emory Ranch private airport to discuss these buffer zones at each end of the runway, and reached agreement with the owner regarding same.

Additionally, the proposed OWEF would be located approximately five miles southwest of Naval Reservation Target 103, which is identified as a live bombing area. The U.S. Navy, Department of Defense (DOD) Airspace Consultation Area would be located immediately north of the proposed OWEF site. Wind turbines located on the northern portion of the proposed OWEF site would underlie a low-level military training route which has a lower altitude or “floor” of 200 feet above ground level. Therefore, wind turbines would encroach into the route and could affect military training conducted along the route. Pursuant to a Memorandum of Understanding between the DoD and BLM regarding wind energy development on BLM-administered lands, consultations occurred among the BLM, the Applicant, and various DoD and Department of Homeland Security agencies. The result of such consultation was issuance of a letter from DoD with two mitigation requests: (i) that all wind turbines within the area 1.5 nautical miles south of the centerline of the Airspace Consultation Area are less than 400 feet tall at the maximum blade tip height, and (ii) that aviation lighting be of a type that is not incompatible with night-vision goggles sometimes used by military pilots (DOD, 2010). The Federal Aviation Administration (FAA) requires a notice of proposed construction for a project so that it can determine whether it would adversely affect commercial, military, or personal air navigation safety. The FAA issued Determinations of No Hazard for 244 wind turbines at the site, based on the maximum number of turbines initially contemplated for the project. Applications for the revised 155 turbine layout received FAA approval on December 9, 2011.

Hazards to flight also include visual and electronic forms of interference with the safety of aircraft operations. Land use development that may cause an increase in the level of attraction to birds is also considered a hazard. Other potential hazards to aviation for wind energy projects located in sufficient

proximity to airports include potential electromagnetic interference from the power plant and transmission lines.

### **3.12.1.2 Seismic Hazards**

Geologic hazards are normally associated with issues such as seismicity (ground shaking), slope instability, subsidence, and expansive soils. Seismic hazards related to ground shaking include ground rupture, slope instability, liquefaction, seismic compaction, tsunamis, and seiches. A discussion of the affected environment of the proposed OWEF regarding geologic hazards, including earthquakes and seismic activity is included in Section 3.15.1 (Soil Resources).

### **3.12.1.3 Hazardous Materials**

Several factors associated with the area in which a project is to be located affect the potential for an accidental release of a hazardous material that could cause public health impacts. These include:

- local meteorology;
- terrain characteristics;
- location of population centers and sensitive receptors relative to the project;
- existing public health concerns; and
- existing environmental site contamination.

### **Meteorological Conditions**

Meteorological conditions, including wind speed, wind direction, and air temperature, affect both the extent to which accidentally released hazardous materials would be dispersed into the air and the direction in which they would be transported. This affects the potential magnitude and extent of public exposure to such materials, as well as exposure to associated health risks. When wind speeds are low and the atmosphere stable, dispersion is reduced but could lead to increased localized public exposure.

Based on historic weather data from El Centro, average summer (June-September) high and low temperatures in the study area range from 107°F to 68°F, respectively. Average winter (December-March) high and low temperatures in the study area range from 79°F to 41°F. The project site area is characterized by predominant and strong winds from the southwest and west southwest with average hourly wind speeds of 9.4 miles per hour and 10.4 miles per hour from each direction, respectively. Recorded wind speeds and ambient air temperatures are described in Section 3.2, Air Resources.

### **Terrain Characteristics**

The location of elevated terrain is often an important factor in assessing potential exposure. An emission plume resulting from an accidental release could impact high elevations before impacting lower elevations. The topography of the proposed OWEF site indicates a dip trend from the east to the northeast (ranges between approximately 1,650 above sea level at the southwest edge of the OWEF site and 550 feet above sea level at the northeast edge of the OWEF site). The OWEF site is bordered to the west and south by the Inkopah and Jacumba Mountains, to the north by the Coyote Mountains, and to the east by the Imperial Valley and Yuha Desert.

### **Location of Exposed Populations and Sensitive Receptors**

The general population includes many sensitive subgroups that could be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a major bearing on health risk.

One residence is located within the project boundary on the private land leased by the Applicant; this residence is not considered a sensitive receptor as the residents have accepted the construction and operation of the project as part of the agreement in leasing their land to the Applicant (Hamilton, 2011). As such, the nearest sensitive receptors to the proposed OWEF site are located immediately south of the northeastern portion of the project site in the unincorporated community of Ocotillo; and east of the southeastern portion of the project site in the No Mirage development. The closest residence to the project site is located approximately 2,640 feet (0.5 mile) from the closest proposed wind turbine and on-site road. The Ocotillo Community Park (Figure 3.10-2), is the closest sensitive receptor to County-owned lands to be developed as part of the project. The park's property line is located approximately 2,960 feet (0.56 mile) from the nearest wind turbine. Other sensitive areas in proximity to the project site include the Jacumba Wilderness Area, which is located approximately 2,400 feet south of the nearest proposed wind turbine.

### **Existing Environmental Site Contamination**

According to the Department of Toxic Substances Control (DTSC) Hazardous Waste and Substances site "Cortese" list, no hazardous waste facilities subject to corrective action are located on the proposed OWEF site (DTSC, 2011). Additionally, results of an Environmental Data Resources Report prepared on February 4, 2011, showed that the project site was not located in any of the environmental database searches and that no properties of environmental concern were located within 1 mile of the project site (EDR, 2011). A Phase 1 Environmental Site Assessment is currently under preparation and will be completed prior to project construction.

### **Pesticide Use**

Pesticides are substances that are used to control living organisms that cause damage or economic loss, or transmit or produce disease. Pests include insects, fungi, weeds, rodents, nematodes, algae, viruses, or bacteria. Pesticides include herbicides, fungicides, insecticides, rodenticides, and disinfectants, as well as insect growth regulators. In California, adjuvants (substances added to enhance the efficacy of a pesticide) are also subject to the regulations that control pesticides. The amount of pesticides applied in Imperial County has decreased significantly overall in the past seven years, even while accounting for fewer acres harvested. In 1999, 8,647,468 pounds were applied in the County, compared to 4,820,543 pounds in 2006. Imperial County's pesticide use has gone from 7th in the state in 1999 to 11th in the state in 2006.

From 1997 to 2006, there were 13 cases of reported exposures to pesticides in Imperial County that were classified as definite, meaning there was a high degree of correlation between the pattern of exposure and the resulting symptoms exhibited, requiring both medical evidence and physical evidence of exposure. During that same period, there were 72 probable cases, which indicated a relatively high degree of correlation evident, but medical or physical evidence was inconclusive or unavailable; and 29 possible

cases, which had some degree of correlation evident but both medical and physical evidence were inconclusive or unavailable.

No evidence of prior or current pesticide use was located as part of a records search for the proposed OWEF site (EDR, 2011).

#### **Abandoned Mined Lands**

Abandoned mines and openings are discussed in Section 3.8 (Mineral Resources) of this EIS/EIR.

#### **Unexploded Ordnance (UXO)**

No evidence of UXO or any type of military trash has been identified by EIS/EIR preparers or the Applicant during project site visits. Additionally, no evidence has been discovered to show that military operations have previously occurred on the project site.

#### **3.12.1.4 Emergency Response**

Although the turbines contain relatively few flammable components, the presence of electrical generating equipment and electrical cables, along with various oils (lubricating, cooling, and hydraulic) creates the potential for fire or a medical emergency within the tower or the nacelle. Storage and use of these substances may occur at the project substation, in electrical transmission structures, staging area(s), and the operation and maintenance (O&M) building/facility. A comprehensive Fire Management Plan will be prepared prior to construction.

The Imperial County Sheriff's Department is the primary law enforcement agency in Imperial County. The Sheriff's Department includes 11 divisions, including Communications, Crime Prevention, Civil, Fiscal, Information Systems, South County Investigations, North County Investigations, Records, Off Highway Vehicle Enforcement Safety Team., Explorers, and Scientific Investigations Unit (ICSO, 2009). The California Highway Patrol provides traffic service for the unincorporated areas of Imperial County (CHP, 2010). There are six fire stations within the county (ICFD, 2011). Imperial County has two hospitals (El Centro Regional Medical center and Pioneers Memorial Hospital) that provide acute care, rehabilitation facilities, an emergency department, and a variety of clinics and private physicians (ICFD, 2011).

#### **3.12.1.5 Public Health**

##### **Existing Public Health Concerns**

The current public health status of residents of rural Imperial County is evaluated as it relates to environmental health factors that could be potentially affected by the Proposed Action and alternatives. Vector-borne disease incidence as well as potential issues related to shadow flicker and electro-magnetic fields (EMF) are presented in this section. Information related to air quality is presented in Section 3.2. Specific information on sensitive receptors in the community of Ocotillo is not available. Most of the information in this section was obtained from the 2008 Imperial County Health Status Report, the latest year for which the report is available.

Vector-borne diseases include infectious diseases that are transmitted to humans by vectors such as mosquitoes, ticks, fleas, lice, or rodents. The purpose of vector control is to decrease contact between humans and vectors through education, surveillance, and integrated pest management strategies.

Surveillance is conducted primarily for the three most prevalent mosquito-borne viruses in California: West Nile virus (WNV), St. Louis Encephalitis (SLE), and Western Equine Encephalomyelitis (WEE) as discussed in additional detail below.

### **Mosquito-Borne Diseases**

Mosquitoes are known to be the carriers of many serious diseases. The mosquito genus *Anopheles* carries the parasite that causes malaria, which is the leading cause of premature Western equine encephalitis (WEE), which occurs in the U.S. where they cause disease in humans, horses, and some bird species. WEE is regarded as one of the most serious mosquito-borne diseases in the U.S. due to their high mortality rates.

According to the Centers for Disease Control and Prevention (CDC), the SLE virus is transmitted to humans by the bite of an infected mosquito. Most cases of SLE have occurred in eastern and central states. Most persons infected with SLE have no apparent illness. Initial symptoms of those who become ill include fever, headache, nausea, vomiting, and tiredness. Severe neuro-invasive disease (often involving encephalitis, an inflammation of the brain) occurs more commonly in older adults. In rare cases, long-term disability or death can result. There is no specific treatment for SLE infection; care is based on symptoms (CDC, 2011). Both WEE and SLE have also been detected in mosquito pools or sentinel chicken flocks, although not consistently each year, during the last five years.

In 2003, Imperial County reported one of the first three indigenous human cases of WNV in California, in addition to being one of the three counties that detected WNV in mosquito pools and sentinel chicken flocks that year. WNV has been detected in either mosquito pools or sentinel chicken flocks every year since 2003. It is not known how long WNV has been in the U.S., but CDC scientists believe the virus has been in the eastern U.S. since the early summer of 1999, and possibly longer (CDC, 2008).

### **Rodents**

The accumulation of organic waste presents the potential for significant populations of mice and rats. Rodents can spread or accelerate the spread of disease from contaminated areas to uncontaminated areas via their droppings, feet, fur, urine, saliva, or blood. In addition, mice provide a food source that could attract wild predatory animals (e.g., skunks, foxes, coyotes, and stray dogs), which could pose other disease problems.

Mice are generally nocturnal and secretive animals with keen senses of taste, hearing, smell, and touch. They are small enough to enter any opening larger than one quarter of an inch. Mice prefer cereal grains, if available, but will eat garbage, insects, meat, and even manure. Mice reproduce at high rates, making early control important in minimizing the potential for infestation. Although the life span of a mouse is only nine to twelve months, a female mouse can have five to ten litters per year with five or six young in each litter. Mice do not consume large quantities of food but can cause significant economic damage due to physical structure damage and site contamination.

### **Valley Fever**

Coccidioidomycosis, commonly known as Valley Fever, is primarily a disease of the lungs that is common in the southwestern U.S. and northwestern Mexico. Valley Fever is caused by the fungus *Coccidioides immitis*, which grows in soils in areas of low rainfall, high summer temperatures, and

moderate winter temperatures. These fungal spores become airborne when the soil is disturbed by winds, construction, farming, and other activities. In susceptible people and animals, infection occurs when a spore is inhaled. Valley Fever symptoms generally occur within 3 weeks of exposure. Valley Fever is not a contagious disease. Secondary infections are rare.

It is estimated that more than 4 million people live in areas where Valley Fever fungus is prevalent in the soils. According to the California Department of Public Health (CDPH), Imperial County has an incidence rate for Valley Fever of 0.1 to 5 cases for every 100,000 people, which is relatively low compared to the higher incidence rate in counties such as Kern County which has an incidence rate 15.1 to 183 cases per every 100,000 people (CDPH, 2009).

People working in certain occupations such as construction, agriculture, and archaeology have an increased risk of exposure and disease because these jobs result in the disturbance of soils where fungal spores are found. Valley Fever infection is highest in California from June to November. In addition, many domestic and native animals are susceptible to the disease, including dogs, horses, cattle, coyotes, rodents, bats, and snakes. Most Valley Fever cases are very mild. It is estimated that 60 percent or more of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention.

#### **Shadow Flicker**

With the installation of wind turbine generators (WTGs) as part of the OWEF, the proposed project has the potential to result in a phenomenon known as “shadow flicker”. Shadow flicker is the alternating change in light intensity that occurs when rotating WTG blades cast moving shadows on the ground or on structures. It has been alleged that shadow flicker may have the potential to cause seizures in certain epileptic individuals. There is no valid scientific study that has shown a link between WTGs and seizures. The OWEF has been designed to avoid shadow flicker on sensitive receptors through a combination of careful siting of turbines in relation to residences, and the commitment to deploy Siemens technology which prevents blade rotation on individual turbines as needed to avoid causing shadow flicker on residences.

#### **Wind Turbine Syndrome**

Wind Turbine Syndrome (WTS) is a term that has been coined by Dr. Nina Pierpont. According to Pierpont, wind turbines associated with wind farms can cause illness in certain individuals due to the rotating blades which creates noise and vibration. Symptoms that are believed to result from WTS are: sleep disturbance, headache, Tinnitus (ringing in ears), ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia, irritability, problems with concentration and memory and panic episodes associated with sensations of internal pulsation or quivering, which arise while awake or asleep (Pierpoint, 2009). There is no known dose-response relationship between exposure to wind turbine noise/vibration and health effects. Pierpoint’s single clinical study reported a correlation between distance to large (1.5 to 3 MW) wind turbines and WTS, and suggested that symptoms are eliminated by siting wind turbines a minimum of 1.25 miles away from sensitive receptors. However, the small clinical case study does not support a dose-response relationship, and more research is needed to identify whether wind turbine noise and vibration may cause the reported symptoms.

## Electromagnetic Fields

EMFs are associated with electromagnetic radiation, which is energy in the form of photons. Radiation energy spreads as it travels and has many natural and human-made sources. The electromagnetic spectrum, the scientific name given to radiation energy, includes light, radio waves, and x-rays, among other energy forms. Electric and magnetic fields are common throughout nature and are produced by all living organisms. Concern over EMF exposure, however, generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems.

Commonly known human-made sources of EMF are electrical systems such as electronics, telecommunications, electric motors, and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most living environments, the level of such radiation plus background natural sources of EMF are low.

Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs. Power frequency EMF is a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

Possible health effects associated with exposure to EMFs have been the subject of scientific investigation since the 1970s. Concern about EMF originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Although the health effects of EMF are uncertain, field intensity, transients, harmonics, and changes in intensity over time are some of the EMF characteristics that may need to be considered to assess human exposure effects. These characteristics may vary from power lines to appliances to home wiring and so may create different types of exposures. The exposure most often considered is intensity or magnitude of the field. The OWEF's electric collection system cables will be buried underground to a depth of at least 3.5 feet. The proposed project's substation will be located adjacent to the Sunrise Powerlink, and remote from any residences.

Reviews of the scientific literature conducted by the National Institute of Environmental Health Sciences, the National Research Council/National Academy of Sciences, the International Agency for Research on Cancer (a division of the World Health Organization), and the American Cancer Society from the 1990s through 2001 have consistently indicated insufficient evidence of an association between EMF exposure and adverse health effects in humans. The National Institute of Environmental Health Sciences (1999) recognized published reports of associations between EMF and certain cancers, particularly leukemia, but noted the lack of supporting evidence in the literature from animal or mechanistic studies. The National Research Council/National Academy of Sciences (1999) corroborated the findings of the National Institute of Environmental Health Sciences and concluded that EMF does not pose an unrecognized health hazard. The World Health Organization evaluated the carcinogenic risk to humans from static and extremely low frequency EMF and concluded that there was limited evidence of carcinogenicity in humans and less-than-sufficient evidence for carcinogenicity in animals (World Health Organization, 2001). The American Cancer Society (1996) reviewed epidemiological studies of residential exposure to EMF and cancer and found little evidence to suggest an association between exposure and cancer.

Since 2001, further research concerning possible health effects associated with EMF has been consistent with earlier studies. For example, Feychting (2005) examined non-cancer effects—principally, adverse pregnancy outcomes—associated with EMF exposure and concluded that such studies have not indicated

these effects. On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the CPUC in March 1992. Based on the work of the Consensus Group, written testimony, and evidentiary hearings, the CPUC issued its decision (93-11-013) on November 2, 1993 to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.

This continues to be the stance of the CPUC with regard to establishing standards for EMF exposure. Currently, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities.

#### **3.12.1.6 Intentionally Destructive Acts**

The number and high profile of international and domestic terrorist attacks during the last decade presents a new and realistic threat to the safety and security of the people of the U.S., infrastructure, and resources. There is a potential for intentional destructive acts, such as sabotage or terrorism events, to cause impacts to human health and the environment. As opposed to industrial hazards, collisions, and natural events, where it is possible to estimate event probabilities based on historical statistical data and information, it is not possible to accurately estimate the probability of an act of terrorism or sabotage. These risk events generally focus on the consequences of such events. In general, the consequences of a sabotage or terrorist attack on a wind facility would be expected to be similar to those discussed above in Sections 3.12.1.6.2 (Seismic Hazards) and 3.12.1.6.3 (Hazardous Materials) regarding accidental and natural events.

### **3.12.2 Applicable Regulations, Plans, and Standards**

Applicable regulations, plans, and standards regarding seismic hazards are included in Section 3.15.2 (Soil Resources) of this EIS/EIR.

#### **3.12.2.1 Federal**

##### **Comprehensive Environmental Response and Liability Act (CERCLA). Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 USC Section 9601 et seq.)**

The SARA amends CERCLA and governs hazardous substances. The applicable part of SARA for the proposed OWEF is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key sections of the law are:

- **Section 302** — Requires one time notification when extremely hazardous substances (EHSs) are present in excess of their threshold planning quantities (TPQs). EHSs and their TPQs are found in Appendices A and B to 40 Code of Federal Regulations (CFR) Part 355.
- **Section 304** — Requires immediate notification to the local emergency planning committee (LEPC) and the state emergency response commission (SERC) when a hazardous material is released in excess of its reportable quantity (RQ). If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, D.C. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.
- **Section 311** — Requires that either material safety data sheets (MSDSs) for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and local fire department.

#### **Clean Air Act (CAA) (42 USC 7401 et seq. as amended)**

Regulations under the CAA are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store a Threshold Quantity (TQ) or greater of listed regulated substances to develop a Risk Management Plan (RMP), including hazard assessments and response programs to prevent accidental releases of listed chemicals.

#### **Clean Water Act (CWA) (40 CFR 112)**

The Spill Prevention, Control, and Countermeasures (SPCC) program under the CWA is designed to prevent or contain the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Regulations under the CWA require facilities to prepare a written SPCC Plan if they store oil and its release would pose a threat to navigable waters.

#### **Toxic Substances Control Act (15 USC 2605)/Resource Conservation and Recovery Act (RCRA) (42 U.S. Code [USC] 6901 et seq.)/Hazardous and Solid Waste Act (HSWA)**

The Federal Toxic Substances Control Act (1976) and the RCRA of 1976 established a program administered by the U.S. Environmental Protection Agency (EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the HSWA, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes.

#### **U.S. Department of Transportation (DOT). Hazardous Materials Transport Act (49 USC 5101)**

The U.S. DOT, in conjunction with the EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S. DOT to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

#### **Federal Aviation Administration (FAA), 49 CFR Part 77.13**

The FAA regulates aviation at regional, public, private, and military airports. The FAA regulates objects affecting navigable airspace and structures taller than 200 feet. The U.S. and California Departments of Transportation also require the applicant to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration. According to 49 CFR Part 77.17, notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing any adverse impacts on the safe and

efficient use of navigable airspace. Any structure that would constitute a hazard to air navigation, as defined in FAA Part 77, requires issuance of a permit from the California Department of Transportation's Aeronautics Program. The permit is not required if the FAA aeronautical study determines that the structure has no impact on air navigation.

### **Occupational Safety and Health Administration (OSHA), Title 29 CFR 1910**

The OSHA's mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs.

#### **3.12.2.2 State**

##### **Health and Safety Code, Section 25249.5 et seq.**

**Safe Drinking Water and Toxics Enforcement Act, Proposition 65.** This law identifies chemicals that cause cancer and reproductive toxicity, provides information for the public, and prevents discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically. The Act is administered by California's Office of Environmental Health Hazard Assessment.

##### **Health and Safety Code, Section 25270**

**Aboveground Petroleum Storage Act.** Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the federal CWA. The law applies to facilities that operate a petroleum AST with a capacity greater than 660 gallons or combined ASTs capacity greater than 1,320 gallons or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in "harmful quantities" into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare a SPCC plan.

##### **Health and Safety Code, Section 25500 et seq.**

This code and the related regulations in 19 California Code of Regulations (CCR) 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local Certified Unified Program Agency (CUPA) and to report releases to their CUPA and the State Office of Emergency Services.

##### **Health and Safety Code, Section 25531 et seq.**

This code and the California Accidental Release Program (CalARP) regulate the registration and handling of regulated substances. Regulated substances are any chemicals designated as an extremely hazardous substance by the U.S. Environmental Protection Agency (USEPA) as part of its implementation of Superfund Amendments and Reauthorization Act (SARA) Title III. Health and Safety Code Section 25531 overlaps or duplicates some of the requirements of SARA and the CAA. Facilities handling or storing regulated substances at or above TPQs must register with their local CUPA and prepare a Risk Management Plan (RMP).

### **Health and Safety Code, Section 41700**

This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.”

### **CCR Title 8, Section 5189**

**Process Safety Management of Acutely Hazardous Materials.** Requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While these requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

### **Hazardous Materials Release Response Plans and Inventory Act of 1985**

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

### **Hazardous Waste Control Act (HWCA)**

The HWCA created the State hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the HWCA and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances and Control (DTSC).

### **Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)**

This program requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a CUPA. The Program Elements consolidated under the Unified Program are:

- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a., Tiered Permitting),
- Aboveground Petroleum Storage Tank SPCC,
- Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or “Community-Right-To-Know”),
- Cal ARP,
- Underground Storage Tank (UST) Program, and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA.

#### **California Environmental Protection Agency (Cal/EPA)**

The Cal/EPA was created in 1991, which unified California’s environmental authority in a single cabinet-level agency and brought the Air Resources Board (ARB), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), Integrated Waste Management Board (IWMB), DTSC, Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation (DPR) under one agency. These agencies were placed within the Cal/EPA “umbrella” for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect and enhance the environment, to ensure public health, environmental quality, and economic vitality.

#### **Department of Toxic Substance Control (DTSC)**

The DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. The DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Government Code §65962.5 (commonly referred to as the Cortese List) includes the DTSC listed hazardous waste facilities and sites, Department of Health Services (DHS) lists of contaminated drinking water wells, sites listed by the SWRCB as having underground storage tank leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

#### **California Office of Emergency Services (OES)**

In order to protect the public health and safety and the environment, the California OES is responsible for establishing and managing Statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available

to firefighters, public safety officers, and regulatory agencies needs to be included in business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1–Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2–Hazardous Materials Management (Sections 25531 to 25543.3).

CCR Title 19, Public Safety, Division 2, OES, Chapter 4–Hazardous Material Release Reporting, Inventory, And Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum Statewide standards for Hazardous Materials Business Plans (HMBPs). These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance,
- 55 gallons of a liquid,
- 200 cubic feet of compressed gas,
- A hazardous compressed gas in any amount, and
- Hazardous waste in any quantity.

#### **California Occupational Safety and Health Administration (Cal/OSHA)**

Cal/OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

#### **California Highway Patrol (CHP)**

A valid Hazardous Materials Transportation License, issued by the CHP, is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by State regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, CCR, Chapter 6, Article 1, Sections 1150-1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, CCR, Chapter 6, Article 2.5, Sections 1157-1157.8). Radioactive materials are restricted to specific safe routes for transportation of such materials.

### **California Public Utilities (CPUC) General Order (GO) 95: Rules for Overhead Electric Line Construction**

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. The latter, governed by rule 35, and inspection requirements, governed by Rule 31.2 are summarized here.

GO 95: Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 Volts or more, but less than 300,000 Volts. This requirement would apply to the proposed 230-kV lines.

GO 95: Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

### **Public Resources Code (PRC) 4292, Powerline Hazard Reduction**

PRC 4292 requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Proposed project structures would be primarily exempt due to their design specifications.

### **PRC 4293, Powerline Clearance Required**

PRC 4293 presents guidelines for line clearance including a minimum of 10 feet of vegetation clearance from any conductor operating at 110,000 volts or higher.

### **CCR Title 14, Section 1254**

CCR 14 Section 1254 presents guidelines for minimum clearance requirements on non-exempt utility poles. The proposed project structures would be primarily exempted from the clearance requirements with the exception of cable poles and dead-end structures.

As shown in Figure 4.8-1 of CCR 14 Section 1254, the firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire

- From 0 to 2.4 m (0 to 8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

### 3.12.2.3 Local

#### Imperial County General Plan

#### Seismic and Public Safety Element

#### Land Use Planning and Public Safety

#### Goal 1: Include public health and safety considerations in land use planning.

- **Objective 1.1** Ensure that data on geological hazards is incorporated into the land use review process, and future development process.
- **Objective 1.4** Require, where possessing the authority, that avoidable seismic risks be avoided; and that measures, commensurate with risks, be taken to reduce injury, loss of life, destruction of property, and disruption of service.
- **Objective 1.6** Ensure environmental hazards are considered when siting critical facilities.
- **Objective 1.7** Require developers to provide information related to geologic and seismic hazards when siting a proposed project.
- **Objective 1.9** Encourage the reclamation of lands where mining, irrigation, landfills, solid waste, hazardous materials/waste storage or disposal, and natural soil erosion has occurred, so as to pose no danger to public health and safety.

#### Emergency Preparedness

#### Goal 2: Minimize potential hazards to public health, safety, and welfare and prevent the loss of life and damage to health and property resulting from both natural and human-related phenomena.

- **Objective 2.1** Ensure the adequacy of existing emergency preparedness and evacuation plans to deal with identified hazards and potential emergencies.
- **Objective 2.2** Reduce risk and damage due to seismic hazards by appropriate regulation.
- **Objective 2.4** Support and assist in informing the public and other agencies of the hazards and risks of earthquakes and of techniques to employ to reduce those hazards.
- **Objective 2.5** Minimize injury, loss of life, and damage to property by implementing all state codes where applicable.
- **Objective 2.6** Maintain, utilize, and provide geologic and seismic information as furnished by the State Geologist as required.
- **Objective 2.8** Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other

geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.

- **Objective 2.9** Reduce vehicle accidents through appropriate standards.

### **Control Hazardous Materials**

#### **Goal 3: Protect the public from exposure to hazardous materials and wastes.**

- **Objective 3.1** Discourage the transporting of hazardous materials/waste near or through residential areas and critical facilities.
- **Objective 3.2** Minimize the possibility of hazardous materials/waste spills.
- **Objective 3.3** Discourage incompatible development adjacent to sites and facilities for the production, storage, disposal, and transport of hazardous materials/waste as identified in the County General Plan and other regulations.
- **Objective 3.4** Adopt and implement ordinances, policies, and guidelines that assure the safety of County ground and surface waters from toxic or hazardous materials and wastes.

### **Programs and Policies**

#### ***Seismic/Geologic Hazards***

1. Implement codified ordinances and procedures which require the review and restriction of land use due to possible natural hazards.
2. Monitor, evaluate, and analyze existing seismic and geological data as it pertains to Imperial County to determine future regulations and programs.
3. Implement the geologic hazards section of the County's Codified Ordinances pursuant to the requirements of the Alquist - Priolo Geologic Hazards Zone Act.
4. Ensure that no structure for human occupancy, other than one-story wood frame structures, shall be permitted within fifty feet of an active fault trace as designated on maps compiled by the State Geologist under the Alquist - Priolo Geologist Hazards Zone Act.
5. The County should require suppliers of all existing utilities which cross active faults to file with the County an operation plan describing the probable effects of failures at the fault and the various emergency facilities and procedures which exist to assure that failure does not threaten public safety.
6. Ensure that proposed highway construction which falls within an Alquist - Priolo Act Special Studies Zone shall be reviewed to ensure that grade-separated interchange structures are not located on or near an active fault.
7. Periodically update maps of existing faults, slide areas, and other geographically unstable areas in the unincorporated area of the County.
8. Support the safety awareness efforts of the Office of Emergency Services of Imperial County and other agencies through public information and educational activities.

9. Continue to implement the Alquist - Priolo requirements in designated special study zones in the Imperial County Ordinance.

### **Agricultural Element**

#### **Irrigation Runoff and Environmental Issues**

**Goal 5: Improve the quality of irrigation water runoff and reduce the extensive use of pesticides and other chemicals to minimize impacts to downstream water bodies, wetland habitats, and the overall environment.**

- **Objective 5.5** Encourage uses of naturally occurring biological control; alternate plant species or varieties that resist pests; pesticides with a lower toxicity to humans or nontarget organisms; and irrigation, cultivation, and fertilizing practices that reduce pest problems.
- **Objective 5.6** Use broad spectrum pesticides only as a last resort when careful monitoring indicates they are needed according to pre-established guidelines. When treatments are necessary, the least toxic and most target-specific pesticides should be chosen.
- **Objective 5.7** The Agricultural Commissioner's Office shall continue to ensure that applicators of farm chemicals are educated regarding current pesticides and other chemicals, their hazards, and applications.

#### **Imperial County Office of Emergency Services (OES)**

The Imperial County Fire Department (ICFD) serves as the local OES in Imperial County. The OES Coordinator is the County Fire Chief, who is assisted by an Assistant OES Coordinator, maintains the OES program for the County of Imperial. ICFD acts as the lead agency for the Imperial County Operational Area (OA) and provides leadership in all phases of developing the emergency management organization, including public education, training, Emergency Operations Center operations, interagency coordination, and plan development.

#### **Imperial County Public Health Department**

##### ***Emergency Medical Services Agency (EMS)***

The EMS Agency of the Imperial County Public Health Department plans, implements, and evaluates the EMS system in Imperial County. The EMS system incorporates ambulance companies, hospitals, fire departments, police departments and other public and private providers into an integrated and coordinated system of services.

##### ***Vector Control District***

The Vector Control District is part of the Imperial County Public Health Department. The Vector Control District detects and reduces the spread of mosquito-borne disease through surveillance and abatement activities.

##### ***Agricultural Commissioners Office***

The Agricultural Commissioners Office is also under the Imperial County Public Health Department. The Agricultural Commissioners Office deals with permitting and monitoring of pesticide use to ensure legal

and safe use of products. They also deal with investigation of illnesses, environmental damage, and property damage caused by pesticides.

## 3.13 Recreation

The following discussion addresses existing recreational resources within the project area, and describes existing laws and regulations relevant to those resources. The affected environment for this analysis describes “baseline” conditions, or existing environmental conditions that contribute to recreational resources at the time of publishing the Draft EIS/EIR. For the purposes of this analysis, the recreation study area has been defined as the area within 16 miles of the proposed OWEF site. Additional recreation resources that are outside of the 16 mile radius but which have national, regional, or local significance are also included in this analysis. This is an appropriate study area for recreation because it captures all major recreation resources (refer to Table 3.13-1 below) that contribute to baseline conditions and could potentially be affected by activities related to the proposed OWEF.

### 3.13.1 Environmental Setting

#### 3.13.1.1 Recreation Resources on the Project Site

The proposed OWEF would be located on 12,500 acres of open desert land in Imperial County that is currently used for recreation activities. Based on a site visit in May 2010, recreation activities include camping, off-highway vehicle (OHV) use, and shooting. The majority of the project site is within the Multiple-Use Class (MUC), Limited Use (L), under the BLM’s CDCA Plan. This classification allows for low to moderate recreation activities, including non-competitive vehicle touring and events on approved routes of travel (BLM, 1980). In addition, the Western Colorado Desert Routes of Travel Designations (WECO) is an amendment to the BLM’s CDCA Plan. There are approximately 27 open routes of travel designated by WECO within the project site (BLM, 2002). A map of the open routes designated by this plan is included in Appendix A, Figure 3.13-1.

#### 3.13.1.2 Recreation Resources Surrounding the Project Site

Ocotillo Community Park is administered by the County and is located south and east of the project site on Imperial Highway. The park includes a community center, picnic tables, a playground, a basketball court, and horseshoe pits. In addition, the BLM administers wilderness areas, campgrounds, long term visitor areas (LTVAs), trails, interpretive sites, and an extensive network of backcountry approved travel and OHV routes in the vicinity of the site. Areas of critical environmental concern (ACECs) and wilderness also provide dispersed recreation opportunities in the region. Local residents and long-term winter visitors make up the majority of the recreational users. These areas are identified in Table 3.13-1 (beginning with the area closest to the site), and are discussed below. A map of the regional recreation resources is also included in Appendix A, Figure 3.13-2.

#### Wilderness Areas

Wilderness areas surrounding the proposed OWEF site are major attractions for recreation activities including hiking and camping, and biological resources are also an attraction for nature observation. The wilderness areas closest to the project site are the Jacumba Mountains Wilderness and the Coyote Mountains Wilderness. The Jacumba Mountains Wilderness is 31,358 acres and is generally bounded by I-8 to the north and the California-Mexico border to the south (BLM, 2010a). The Coyote Mountains Wilderness is 18,631 acres and offers recreational activities, such as hiking, camping, and sightseeing

(BLM, 2010b). This area is designated as Peninsular Bighorn Sheep Critical Habitat, and is notable for private lands and recreational activities including camping and hunting (BLM, 2002).

Recreation Area	Jurisdiction/ Administration	Approximate Distance from the Proposed Project	Approximate Acreage	Allowed Uses
Jacumba Mountains Wilderness (BLM, 2010a)	BLM	The southern boundary of OWEF Site 2 abuts this recreation area	31,358	Camping, hunting, fishing, trapping, horseback riding
Ocotillo Community Park	Imperial County	0.6 mile from the closest wind turbine	< 1	Community center, picnic tables, a basketball court, horseshoe pits, playground
Anza-Borrego Desert State Park (CSP, 2005)	California State Parks	Adjacent to west end of project boundary	+600,000	Camping, hiking, natural exhibits
Coyote Mountains Wilderness/Fossil Site ACEC (BLM, 2010b)	BLM	1.5 miles north of the northern project boundary	18,631	Camping, hunting, fishing, trapping, horseback riding
Yuha Basin ACEC (BLM, 2002)	BLM	1.5 miles east and southeast	+175,000	On-route OHV (off-route OHV is prohibited), limited camping
Table Mountain ACEC (BLM, 2011d)	BLM	5 miles southwest	Information not available	Information not available
Carrizo Gorge Wilderness Area (BLM, 2011a)	BLM	6 miles west	14,740	Camping, hunting, fishing
In-Ko-Pah Mountains ACEC (BLM, 2011e)	BLM	6.5 miles west	21,500	Information not available
Plaster City Open Area (BLM, 2010d)	BLM	6.5 miles east	41,000	OHV, camping
Fish Creek Mountains Wilderness Area (BLM, 2011b)	BLM	8.5 miles north	21,390	Camping, hunting, fishing
Juan Bautista de Anza National Historic Trail	National Park Service	4 miles east	1,200-mile trail	Auto tour, hiking, biking, historical resources, special events
McCain Valley Resource Conservation Area/Lark Canyon OHV Area and Campground (BLM, 2010e)	BLM	10 miles west	38,692	OHV, camping, hunting, hiking, horseback riding
West Mesa ACEC (BLM, 2002)	BLM	11 miles northeast	20,295	OHV, camping, hunting, hiking, horseback riding
Sawtooth Mountains Wilderness Area (BLM, 2011c)	BLM	12 miles northwest	33,612	Camping, hunting, fishing
Cleveland National Forest	USDA Forest Service	15 miles west	460,000	Camping, hunting, hiking, OHV, shooting, fishing, mountain biking, bird-watching
Superstition Mountain OHV Open Area (BLM, 2010f)	BLM	16 miles northeast	13,000	OHV, camping

The Wilderness Act limits allowable types of recreation on wilderness lands to those that are primitive and unconfined, are dependent on a wilderness setting, and do not degrade the wilderness character of the area. Motorized or mechanized vehicles or equipment are not permitted in wilderness. The BLM regulates such recreation on wilderness lands within its jurisdiction in accordance with the policies, procedures, and

technologies set forth in the Code of Federal Regulations (43 CFR 6300), BLM 1983 Manual 8560 (Management of Designated Wilderness Areas), BLM 1988 Handbook H-8560-1 (Management of Designated Wilderness Areas), and BLM's 1995 Principles For Wilderness Management In The California Desert. More specifically, camping, hiking, rockhounding, hunting, fishing, non-commercial trapping, backpacking, climbing, and horseback riding are permissible (BLM, 1988). By contrast, physical endurance contests (such as races, competitive trail rides and survival contests), commercial recreational activities, and the use of motorized or mechanized vehicles (including OHVs, aircraft and motor boats) generally are prohibited (16 USC 1133(c); BLM, 1988).

### **Long Term Visitor Areas**

The BLM manages seven LTVAs: five are in California and two are in Arizona. LTVAs accommodate visitors who wish to camp for as long as seven consecutive months. Of the three LTVAs located within southern Imperial County, the Hot Springs LTVA is the closest which is approximately 40 miles east of the proposed OWEF site. In addition to long-term camping, recreational opportunities at LTVAs include hiking; OHV use; rockhounding; viewing cultural sites, wildlife, and desert scenery; and solitude.

### **Areas of Critical Environmental Concern**

As shown in Figure 3.13-2, the Yuha Basin ACEC, Table Mountain ACEC, Coyote Mountains Fossil Site ACEC, In-Ko-Pah Mountains ACEC, and West Mesa ACEC are in the vicinity of the proposed OWEF site. The Yuha Basin ACEC contains several unique attractions including the Juan Bautista de Anza National Historic Trail (Anza Trail); geoglyphs, which are drawings or designs on the ground created by Native Americans; an area of rare crucifixion thorns; oyster shell beds; and the Yuha Well (BLM, 2010c). Within the Coyote Mountains Wilderness, the Coyote Mountains Fossil Site ACEC consists of unusual sandstone rock formations believed to be about six million years old (BLM, 2010b). The West Mesa ACEC primarily protects cultural and biological resources.

Recreational activities allowed in ACECs are determined by the resources and values for which the ACECs were established, and by the associated ACEC Management Plan. Most ACECs allow low-intensity recreation use that is compatible with protection of the relevant values.

## **3.13.2 Applicable Regulations, Plans, and Standards**

### **3.13.2.1 Federal**

The OWEF would be located almost entirely on BLM-administered lands in the Imperial Valley. The following is a discussion of the federal plans and policies that would be applicable to the project site.

#### **Federal Land Policy and Management Act of 1976**

Establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. In particular, the FLPMA's relevance to the proposed project is that Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy. Under FLPMA, the BLM is responsible for the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and that takes into account the long-term needs of future generations for renewable and non-

renewable resources. Among those use, FLPMA recognizes that the public lands be managed in a manner which will provide for outdoor recreation.

#### **California Desert Conservation Area Plan**

The 25 million-acre CDCA Plan Area contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. Approximately 10 million acres of the CDCA public lands are administered by the BLM.

The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each of the plan elements provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern as well as more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.

The CDCA Plan defines MUCs for BLM-managed lands in the CDCA, which includes the land area encompassing the proposed project location.

#### **Western Colorado Desert Routes of Travel Designations (WECO)**

As an amendment to the CDCA Plan, the WECO Plan modifies previous route designations and existing routes in approximately 475,000 acres and approximately 2,320 miles of off-road vehicle limited areas within Imperial County. The purpose of the WECO Plan is to designate routes of travel as open, limited or closed on land that is managed by the BLM. The goal of this project is to support the recreational and general access uses of BLM managed land while conserving cultural and natural resources. A reasonable network of routes currently exists that is able to provide general access and recreational opportunities to the public. Approximately 27 designated OHV routes would be directly or indirectly affected by the Proposed Action.

#### **3.13.2.2 State**

There are no state regulations that are applicable to recreational resources within the project site.

#### **3.13.2.3 Local**

##### **Ocotillo/Nomirage Community Area Plan**

The Ocotillo/Nomirage Community Area Plan designates the proposed distribution and general location and extent of the uses of land for housing, business, industry, open space, including natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, solid waste disposal facilities and other categories of public and private uses of land.

##### **Imperial County General Plan, Conservation and Open Space Element (Imperial County 2006a)**

The Conservation and Open Space Element identifies goals and policies to insure the managed use of environmental resources. The goals and policies are also designed to prevent limiting the range of resources available to future generations.

The purpose of the Conservation and Open Space Element is to:

- promote the protection, maintenance, and use the county's natural resources with particular emphasis on scarce resources and resources that require special control and management;
- prevent the wasteful exploitation, destruction, and neglect of the State's natural resources;
- recognize that natural resources must be maintained for their ecological value as well as for the direct benefit to the public; and
- protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety.

Applicable goals and objectives set forth in the Conservation and Open Space Element are as follows:

#### Preservation of Open Space

Goal 10: Open space shall be maintained to protect the aesthetic character of the region, protect natural resources, provide recreational opportunities, and minimize hazards to human activity.

Objective 10.1 Confine future urbanization within adopted Sphere of Influence areas.

Objective 10.2 Recognize the regional significance of the development and conservation of recreational opportunities in Imperial County.

Objective 10.9 Conserve desert lands, within the county's jurisdiction for wildlife protection, recreation, and aesthetic purposes.

## 3.14 Social and Economic Setting

This section describes the social and economic background and existing conditions of areas in the vicinity of the proposed OWEF. As shown in Figure 1-1, the proposed OWEF site is located in close proximity to the unincorporated community of Ocotillo. The western boundary of the site would run along Imperial County’s border with San Diego County. The unincorporated communities of Jacumba and Boulevard, California are located approximately eight and ten miles west of the proposed OWEF, respectively. Construction and operation workers for the OWEF would commute to the site from the City of El Centro (approximately 25 miles east) of the OWEF and other area of San Diego County. Thus, both Imperial and San Diego Counties comprise the study area for the OWEF. Information in this section is based on regional and national sources.

### 3.14.1 Environmental Setting

The proposed OWEF would be located in a sparsely populated, rural area north of Interstate 8 (I-8) along the western border of Imperial County. The proposed OWEF site would be immediately north of the unincorporated town of Ocotillo and approximately 25 miles west of the nearest incorporated city, El Centro. While Ocotillo originally began as a retirement community in the 1950s, El Centro and its surroundings have a history of farming, with settlers originally coming to the area after Colorado River water was diverted to the Imperial Valley desert floor by canals.

#### 3.14.1.1 Population

Current and forecasted population in the study area is summarized in Table 3.14-1. As shown in the table, between 2010 and 2030, while San Diego County is projected to have a greater increase in total population, Imperial County is expected to grow at a faster rate proportional to its current population.

Jurisdiction	1990	2000	2010	2020	2030
Imperial County	109,303	142,361	189,675	239,149	283,693
San Diego County	2,498,016	2,813,833	3,199,706	3,550,714	3,950,757

Source: DOF 2007, DOF 2010a, US Census 2000a, US Census 1990.

#### 3.14.1.2 Housing

In order to characterize the housing profile of the study area, current housing trends for the study area are summarized in Table 3.14-2, Housing Profile of the Study Area, Year 2010. As shown in Table 3.14-2, the study area contains a high number of housing units, with unincorporated San Diego County and El Centro containing a similar vacancy rate. Unincorporated Imperial County, however, had a high vacancy rate with over 27.2 percent of its total housing available.

Jurisdiction	2010 Housing Units	2010 Vacancy Rate (%)	2010 Rental Vacancy Rate (%)
Unincorporated Imperial County	15,156	27.2	7.5
Unincorporated San Diego County	167,104	6.19	5.5
El Centro	14,461	6.69	N/A

Source: DOF 2010b, US Census 2010a, US Census 2010b.

While a few residential properties are located adjacent to the proposed OWEF site boundary, the closest of these residences is 0.5 miles from the nearest wind turbine and most housing in the community of Ocotillo is at least .75 miles from the wind turbines. Please see Section 3.19, Visual Resources, for a description of typical views of the wind turbines from these residences. As of April 2011, the median home price in Ocotillo was \$99,900 and declining. In contrast, the median price for homes in El Centro was \$138,900 and increasing, although this is after the housing market bottoming out with 31.4 percent of homeowners owing more than the value of their homes (Zillow, 2011; Woolsey, 2008).

Temporary accommodations in the area include the Ocotillo Motel and Jackson’s Hide-A-Way RV Parks in Ocotillo and El Centro has approximately 20 hotels, motels, inns, and bed and breakfasts (TripAdvisor, 2011; Yahoo Local, 2011).

### 3.14.2 Economic Conditions

The following section provides an economic background for the regional economy in which the proposed OWEF would be located, including the community of Ocotillo, the City of El Centro, and Imperial and San Diego Counties. Ocotillo, with a 2010 population of 312, has few businesses, most of which cater to travelers on I-8. As described above in Section 3.14.1.2, Housing, home prices in the community of Ocotillo have been on the decline, demonstrating the contraction in economic activity in the area immediately adjacent to the proposed OWEF site. El Centro has been hard hit by the recession, with the highest unemployment rate for a metropolitan area in the country. Imperial County’s economy is largely driven by agriculture, though in the last few years has seen a massive influx from the renewable energy industries. San Diego County’s economy, by contrast, is driven by industries in and around the City of San Diego, including military/defense, international trade, manufacturing, as well as tourism and recreation, which are the primary economic drivers for the region of unincorporated San Diego County nearest the proposed OWEF.

#### 3.14.2.1 Employment

Table 3.14-3 presents employment by sector for Imperial and San Diego counties for January 2011. As shown in the table, San Diego County has the higher total employment commensurate with a greater population. Government employs the largest proportion of individuals in both Imperial and San Diego counties. Among all private industries within the study area, the trade, transportation, and utilities industry has the highest total employment in Imperial County; in San Diego County, professional and business services is the largest employment sector.

Industry	Imperial County	Imperial County (% of total employment)	San Diego County	San Diego County (% of total employment)
Farming	10,800	20	8,400	1
Mining, Logging, and Construction	1,100	2	55,800	5
Manufacturing	2,200	4	90,600	7
Trade, Transportation, and Utilities	10,200	19	200,800	16
Information	400	1	35,400	3
Financial Activities	1,300	2	68,600	6
Professional and Business Services	2,600	5	201,500	16
Educational and Health Services	3,700	7	148,400	12
Leisure and Hospitality	3,300	6	152,600	12

Industry	Imperial County	Imperial County (% of total employment)	San Diego County	San Diego County (% of total employment)
Other Services	800	1	47,800	4
Government	18,500	34	223,600	18
Total Employed	54,900	100	1,233,500	100

Source: CAEDD 2011a, CAEDD 2011b.

### 3.14.2.2 Income

Since the most comprehensive set of economic data is available at the county level, the following highlights income information and trends for Imperial and San Diego Counties. In 2009 Imperial County had a per capita personal income (PCPI) of \$28,681. In contrast, San Diego in 2009 had a PCPI of \$45,706. Imperial County's PCPI ranked 49th in the state and was 68 percent of the state average, \$42,395, while San Diego's PCPI ranked 13th in the state and was 108 percent of the state average. The 2009 Imperial County PCPI reflected an increase of 0.1 percent from 2008, while San Diego County's PCPI decreased by 2.8 percent from 2008 to 2009. The 2008-2009 state change was -3.3 percent and the national change was -2.6 percent. The 1999-2009 average annual growth rate of PCPI was 4.2 percent for Imperial County and 3.9 percent for San Diego County. The average annual growth rate for the state was 3.3 percent and for the nation was 3.4 percent (BEA 2009a, BEA 2009b).

Industry	Imperial County (\$ millions)	Imperial County (% of total GDP)	San Diego County (\$ millions)	San Diego County (% of total GDP)
Farming	(D)	N/A	637	0
Mining and Natural Resources	688	16	232	0
Construction	108	3	6,411	4
Utilities	168	4	3,453	2
Manufacturing	194	5	13,588	8
Wholesale Trade	225	5	6,894	4
Retail Trade	383	9	9,044	5
Transportation	100	2	1,801	1
Information	44	1	10,956	6
Financial Activities	124	3	8,291	5
Real Estate	265	6	34,387	20
Professional and Technical Services	82	2	19,956	12
Management	13	0	1,534	1
Administrative and Waste Services	100	2	4,639	3
Educational Services	176	4	1,541	1
Health Care	176	4	9,322	5
Arts, Entertainment, and Recreation	6	0	1,607	1
Accommodation and Food Services	95	2	5,330	3
Other Services	104	2	3,760	2
Government	1412	33	31,088	18
Total Employed	4296	100	171,471	100

(D) - Not shown in order to avoid the disclosure of confidential information; estimates are included in higher level totals.

Source: BEA, 2011.

### 3.14.2.3 Labor Force

The number of unemployed in Imperial County is approximately 21,300, nearly 28.3 percent of the civilian population, but down from almost 32 percent in July through September. In San Diego County, the unemployed numbered 156,900, approximately 10.1 percent, down from 10.4 percent in November. Imperial County's unemployment rate is substantially higher than California's state average of approximately 12.3 percent, while San Diego County's unemployment rate is lower (CAEDD, 2011a; CAEDD, 2011b). According to the Bureau of Labor Statistics, as of April 30, 2009 the El Centro area had a 25.0% unemployment rate, the highest for a Metropolitan Area in the country, although this figure is inflated due to El Centro's seasonal farming economy, which results in the city having a fixed baseline unemployment rate of 12 percent (Woolsey, 2009).

### 3.14.2.4 Government Tax Revenues

While tax revenues for Imperial County declined from fiscal year (FY) 2008-2009 to FY 2009-2010, projected revenues for FY 2010-2011 increased from FY 2009-2010, as shown in Table 3.14-5. Similarly for San Diego County, tax revenues declined between FY 2008-2009 and FY 2009-2010, but increased for FY 2010-2011, as also shown in Table 3.14-5.

Revenue	FY 2008-2009	FY 2009-2010	FY 2010-2011
<b>Imperial County</b>			
Property Tax	\$15,499,626	\$13,092,556	\$13,303,685
Sales and Use Tax	\$1,889,434	\$1,351,241	\$1,500,000
Other Tax	\$463,161	\$360,984	\$395,000
Public Safety Tax	\$9,364,656	\$9,068,976	\$9,000,000
<b>San Diego County</b>			
Property Tax	\$543,100,000	\$496,300,000	\$496,900,000
Sales and Use Tax	\$42,500,000	\$29,300,000	\$31,100,000
Other Tax	\$108,200,000	\$115,900,000	\$115,600,000
Property Tax in Lieu of Vehicle License Fee	\$321,000,000	\$309,300,000	\$309,300,000

Source: Imperial County, 2011;

### 3.14.3 Applicable Regulations, Plans, and Standards

#### Federal

##### NEPA

Under NEPA (42 United States Code (USC) 4321 et seq.), an EIS must include an analysis of the Proposed Action's economic, social, and demographic effects related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.

#### State

##### CEQA

Title 14 of the California Code of Regulations, Chapter 3, Guidelines for Implementation of the CEQA, Article 9(a), Section 15131, states the following with regard to economic and social effects:

*(a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.*

*(b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project. For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant. As an additional example, if the construction of a road and the resulting increase in noise in an area disturbed existing religious practices in the area, the disturbance of the religious practices could be used to determine that the construction and use of the road and the resulting noise would be significant effects on the environment. The religious practices would need to be analyzed only to the extent to show that the increase in traffic and noise would conflict with the religious practices. Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant.*

*(c) Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. If information on these factors is not contained in the EIR, the information must be added to the record in some other manner to allow the agency to consider the factors in reaching a decision on the project.*

## **Local**

In San Diego County, the Proposed Action would affect only unincorporated areas. In Imperial County, the OWEF would affect unincorporated county areas as well as the incorporated City of El Centro. The City of El Centro, however, has no policies or plans applicable to the proposed OWEF. The relevant policies of Imperial and San Diego Counties are summarized below.

### **Imperial County**

The General Plan for Imperial County includes a Housing Element (Imperial County, 2000). Section Three of the Housing Element provides goals for housing, and identifies objectives and policies to achieve each goal, which include:

- Housing Demand and Accessibility. Goal 1: Ensure the provision of housing sites in suitable locations and with adequate services which collectively accommodate a range of housing types, sizes, and prices meeting the needs of all economic segments of the county's population.
- Housing Supply and Affordability. Goal 2: Provide the opportunity to obtain affordable housing which is safe, decent, and sanitary and within a suitable living environment with reasonable accessibility to employment.
- Housing Opportunities. Goal 3: Ensure that housing opportunities are available to all income groups in all communities without discrimination on the basis of race, religion, ethnicity, sex, age, marital status, or household composition.

### **San Diego County**

**San Diego Association of Governments Regional Comprehensive Plan (RCP) (SANDAG, 2004).** San Diego Association of Governments (SANDAG) Regional Comprehensive Plan (RCP) is the long-term planning framework for the San Diego region. The RCP is intended to provide a broad context in which local and regional decisions can be made to foster a healthy environment, a thriving economy, and a high quality of life for all residents.

## 3.15 Soil Resources

This section describes the existing geology, soil conditions, and seismicity in the project area in terms of local topography, geologic substrate, soil resources, and regional seismicity. This section also identifies local geologic and seismic hazards that could potentially affect structures associated with the proposed OWEF. Regulations, plans, and policies including Federal, State, and local laws related to geologic and seismic considerations that may be relevant to the Proposed Action are also discussed.

### 3.15.1 Environmental Setting

The alluvial plain on which the proposed OWEF site is located is bounded to the west and south by the Inkopah and Jacumba Mountains, to the north by the Coyote Mountains, and to the east the area grades into the Imperial Valley and Yuha Desert (NAA, 2010). Elevations in the proposed OWEF site range from approximately 1,490 feet above mean sea level (amsl) in the southwest portion of the proposed OWEF site to 300 feet amsl in the northeast portion of the proposed OWEF site. Elevation generally decreases from the west to the east. To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

#### Regional Geology

The Imperial Valley, located within the Salton Trough, is a broad, flat, alluvial area that lies partly below sea level, bounded to the east by branches of the San Andreas Fault and the Brawley Seismic Zone, and to the west by the San Jacinto-Coyote Creek and Elsinore-Laguna Salada Faults (Imperial County, 2006b). The proposed OWEF site is situated in the southwestern-most portion of the Colorado Desert geomorphic province, which encompasses an area that extends roughly 100 miles in width from the Peninsular Ranges on the west to the Colorado River on the east, bounded to the north by the Transverse Ranges. The oldest rocks in the province are Pre-Cambrian metamorphic rocks in the Chocolate, Cargo Muchacho, Orocopia, and Chuckwalla Mountains. The most recent units are lake deposits formed in the ancient Lake Cahuilla, which underlies the current Salton Sea and much of the Salton Trough. (NAA, 2010)

#### Local Geology

The proposed OWEF site is an alluvial highland that extends east northeast from the Jacumba Mountain region towards the Imperial Valley near the southern end of the Salton Sea. Sedimentary materials in the basin record information about interactions among fault systems, store groundwater (see Section 3.20, Water Resources), and have been utilized for sand and gravel resources (see Section 3.8, Mineral Resources). The proposed OWEF site is undeveloped and relatively barren, with a sparse growth of desert vegetation. Soils consist primarily of younger Holocene to Pleistocene age alluvium. The surface soil consists of medium-dense to dense, poorly graded sands with little fines at the surface. The sands become somewhat cemented in the subsurface, while non-cemented poorly graded sands generally become more dense with depth. (NAA, 2010)

Table 3.15-1, provided below, describes the soils found at the proposed OWEF site and surrounding area.

Code	Series	Description	Geographic Setting	Drainage / Permeability
CA605	Beeline	Shallow and very shallow, formed in mixed alluvium weathered from sandy conglomerate.	Fan terraces and hills with slopes of 3-45%; elevations 1,400-2,000 feet above msl*.	Well drained; medium to rapid runoff; moderately rapid permeability.
CA918	LaPosa	Moderately deep, formed in slope alluvium from schist, granite, gneiss, rhyolite, and eolian deposits.	Hills and mountains with slopes of about 10-75%; elevations 400-3,200 feet above msl.	Somewhat excessively drained; rapid runoff; moderate permeability.
CA604	Rositas	Very deep, formed in sand eolian material.	Dunes and sand sheets with slopes of 0-30%; elevations 270-2,000 feet above msl.	Somewhat excessively drained; negligible to low runoff; rapid permeability.
CA627	Sheephead	Shallow, formed in material weathered from mica, schist, gneiss, or granite.	Mountainous uplands with slopes of 9-75%; elevations 2,000-7,500 feet above msl.	Somewhat excessively drained; medium to very rapid runoff; moderately rapid permeability.
CA632	Omstott	A member of the loamy, mixed, nonacid, mesic, shallow family of typic xerorthents.	Gently rolling to steep uplands with elevations of 3,600-5,000 feet above msl.	Well-drained; rapid to medium runoff; moderate and moderately rapid permeability.

Source: NAA, 2010. See Plate 1A, Soils Location Map; NRCS, 2010  
\* msl: mean sea level

The Preliminary Geotechnical Investigation prepared for the proposed OWEF describes that the project site and Yuha Desert surface material is composed of silts, sands, limited clays, gravels, cobbles and boulders, as verified in the soils descriptions presented above. Quaternary lake deposits, alluvium, stream channel deposits, fan deposits, and Pleistocene non-marine deposits comprise the majority of the material with local origin from the Inkopah and Jacumba Mountains to the west and south, and by the Coyote Mountains to the north. The thickness of alluvial sediments around the proposed OWEF site appear to range from 50 feet or less at the edge of the mountains, upwards to 350 feet in cross-section near the deeper middle alluvial fan portions of the site. (NAA, 2010)

No unique geologic features or geologic features of unusual scientific value for study or interpretation have been identified or would be disturbed or otherwise adversely affected by the proposed OWEF. Fossil Canyon, also known as Shell Canyon, is located in the Anza-Borrego Wilderness to the west of the proposed OWEF site, and is identified as an Area of Critical Environmental Concern (ACEC), but is not located within the geographic area of study for the affected environment relevant to soil resources. Unique and/or unusual cultural and paleontological resources are addressed in Sections 4.4 (Cultural Resources) and 4.10 (Paleontological Resources) of this EIS/EIR.

### Geologic Hazards

As described in the Seismic and Public Safety Element of the Imperial County General Plan, earthquakes are the principal geologic activity affecting public safety in the County (Imperial County, 2006b). Potential impacts to public safety associated with earthquakes and seismic activity, as relevant to the Proposed Action, are addressed in Section 4.11 (Public Health and Safety) of this EIS/EIR. The following discussion characterizes geologic hazards in the proposed OWEF area, including earthquakes and seismic activity, as relevant to the environmental setting for soil resources.

**Seismic Ground Shaking.** The highland on which the proposed OWEF is located is traversed by multiple strands of the Coyote Mountain and Laguna Salada Faults, and is punctuated by localized compression that forms dome-shaped hills of uplifted sand and gravel. The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the affected area and the

epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project area. Earthquakes occurring on faults closest to the proposed OWEF area would most likely generate the largest ground motion. The proposed OWEF site and surrounding area will be subject to ground shaking associated with earthquakes on the faults listed below, in Table 3.15-2.

Earthquake Fault Source	Geometry*	M <sub>max</sub> **	Distance (mi)
Elsinore – Coyote Mountain	rl-ss	6.8	2.7
Laguna Salada	rl-ss	7.0	11.8
San Jacinto – Borrego	rl-ss	6.6	17.7
Superstition Mountain (San Jacinto)	rl-ss	6.6	17.8
Elsinore – Julian	rl-ss	7.1	21.3
Superstition Hills (San Jacinto)	rl-ss	6.6	21.8
Elmore Ranch	ll-ss	6.6	22.1
Earthquake Valley	rl-ss	6.5	28.6
San Jacinto – Coyote Creek	rl-ss	6.8	30.4
Imperial	rl-ss	7.0	31.3
San Jacinto – Anza	rl-ss	7.2	34.1
Brawley Seismic Zone	rl-ss	7.0	35.6
San Andreas – Coachella	rl-ss	7.2	45.3
San Andreas – Southern	rl-ss	7.2	45.3
Rose Canyon	rl-ss	7.2	61.6

Source: NAA, 2010

\* Geometry = (ss) strike slip, (r) reverse, (n) normal, (rl) right lateral, (ll) left lateral, (o) oblique

\*\* M<sub>max</sub> = Maximum moment magnitude calculated from relationships (Rupture area) derived by Wells and Coppersmith (1994).

The intensity of earthquake-induced ground motions, or seismic ground shaking, can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). Peak ground acceleration is the maximum acceleration experienced by a particle on the Earth’s surface during the course of an earthquake, and the units of acceleration are most commonly measured in terms of fractions of g, the acceleration due to gravity (980 cm/sec<sup>2</sup>). Given the latitude and longitude of the proposed OWEF site, and the proximity of fault sources listed above in Table 3.15-2, the site has a peak design ground acceleration of 0.416g, in accordance with Section 1802.2.7 of the 2007 California Building Code (NAA, 2010).

The proposed OWEF site is not located within an Alquist-Priolo Special Studies Zone, which maps surface traces of known active faults; however, the site is within three miles of the Elsinore-Coyote Mountain Fault surface trace, and the potential for strong ground shaking is considered high due to this proximity. The potential for surface rupture at the proposed OWEF site is low. (NAA, 2010)

Due to the proposed OWEF site location within a seismically active area, additional measures would be implemented during design and construction of proposed infrastructure to prevent structural failures from occurring. International Building Code (IBC) standards and design parameters described in the proposed OWEF geotechnical report (NAA, 2010) require the structural engineer to account for large horizontal ground accelerations that would be caused from a maximum credible earthquake (MCE) event. The engineer would account for additional steel and possibly foundation size to resist seismic loads associated with loads from horizontal ground accelerations. Using the IBC methodology, a seismic site class is selected based on review of the soil type and observed soil strength for this site. The site class is considered with the site specific earthquake shaking parameters defined by the USGS, as well as overall

turbine and tower geometry, stiffness and weights to calculate the seismic load (forces and moments) transferred into the foundation from the design seismic event. These maximum seismic design loads are then combined with the appropriate operational load event (from wind and weight of tower/foundation) to calculate the maximum force and moment combination resulting from a seismic event. The appropriate operational plus seismic load combination is compared against the extreme wind event to determine if the extreme seismic event or the extreme wind event should control the infrastructure design. The controlling load case is then used for designing the turbine foundation. (Pattern, 2011)

**Liquefaction.** Liquefaction occurs when saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground-shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. The proposed OWEF site is considered to have low potential for liquefaction. There is no evidence in the area that liquefaction induced by seismic ground motions has occurred. The lack of groundwater in the upper 50 feet along with the age and density/stiffness of the geologic formation is not prone to liquefaction surface distress. (NAA, 2010)

**Lateral Spreading.** Lateral spreading of the ground surface can occur within liquefiable beds during seismic events. Factors such as distance from the earthquake epicenter, the magnitude of the seismic event, and the thickness and depth of liquefiable layers affect the amount of lateral spreading that may occur. As described above, the proposed OWEF site is considered to have low potential for liquefaction; therefore the potential for lateral spreading to occur is also considered low.

**Dynamic Compaction.** Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state. The decrease in volume can result in settlement of overlying structural improvements. (BLM, 2010)

Due to geologic characteristics of the project site, the potential for dynamic compaction to occur is considered low.

**Hydrocompaction.** Hydrocompaction, or hydro-collapse, is generally limited to young soils that were deposited rapidly in a saturated state, most commonly by a flash flood. The soils dry quickly, leaving an unconsolidated, low density deposit with a high percentage of voids. Foundations built on these types of compressible materials can settle excessively, particularly when landscaping irrigation dissolves the weak cementation that is preventing the immediate collapse of the soil structure. (BLM, 2010)

Due to geologic characteristics of the project site, the potential for hydrocompaction to occur is considered low.

**Subsidence.** Subsidence is a settlement or lowering of the ground surface elevation due to factors such as tectonic movement, seismic compaction, hydrocompaction, consolidation induced by groundwater withdrawal, and consolidation under applied loads. Regional ground subsidence is typically caused by petroleum or groundwater withdrawal that increases the effective unit weight of the soil profile, increasing stress on deeper soils and resulting in consolidation or settlement of underlying soils (BLM, 2010). Regional subsidence of the Salton Trough is occurring due to ongoing tectonism and possibly basin

loading (BLM, 2010). However, minor settling spread over the Salton Trough is considered unlikely to result in localized subsidence in the proposed OWEF area.

**Expansive Soils.** Expansive soils are characterized by their ability to undergo volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from precipitation, irrigation, utility leakage, and/or perched groundwater, among other factors. Expansive soils are typically very fine grained with a high to very high percentage of clay. The soil characteristics presented in Table 3.15-1 (Soils in the Vicinity of the Proposed OWEF) indicate a low shrink-swell potential for soils at the proposed OWEF site and vicinity. In addition, the “Soil Survey of Imperial County” indicates that the Rositas series, which is most likely to occur on the proposed OWEF site per characteristics listed in Table 3.15-1 (Soils in the Vicinity of the Proposed OWEF), has a low shrink-swell potential (NRCS, 1981). Therefore, the subsurface in the vicinity of the proposed OWEF is not considered to be expansive.

**Landslides.** The Imperial County General Plan Landslide Activity map indicates moderate potential for landslide activity within and to the south of the community of Ocotillo, low potential for landslide activity within and west-southwest of the community of Ocotillo, and no potential for landslide activity to the north and east (Imperial County, 2006a; see Figure 8, Landslide Activity). As such, portions of the proposed OWEF site are located in the vicinity of areas mapped as having some potential for landslide activity. However, the Preliminary Geotechnical Investigation indicates that the project site is not located close enough to any of the surrounding hillside mountains to be affected by either a debris flow or a landslide (NAA, 2010). Therefore, this topic is not discussed further in this analysis.

## 3.15.2 Applicable Regulations, Plans, and Standards

### 3.15.2.1 Federal

**International Building Code.** The 2006 International Building Code (IBC) is a model building code developed by the International Code Council (ICC) that sets rules specifying the minimum acceptable level of safety for constructed objects such as buildings in the United States. As a model building code, the IBC has no legal status until it is adopted or adapted by government regulation. California has adopted the IBC. The IBC was developed to consolidate existing building codes into one uniform code that provides minimum standards to ensure the public safety, health and welfare insofar as they are affected by building construction and to secure safety to life and property from all hazards incident to the occupancy of buildings, structures and premises. With some exceptions, the California Building Code discussed below is based on the ICB.

**Federal Land Policy and Management Act of 1976 as Amended.** The Federal Land Policy and Management Act (FLPMA) establishes policy and goals to be followed in the administration of public lands by the BLM. The intent of FLPMA is to protect and administer public lands within the framework of a program of multi-use and sustained yield, and the maintenance of environmental quality. Particular emphasis is placed on the protection of the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources and archaeological values. FLPMA is also charged with the protection of life and safety from natural hazards.

**California Desert Conservation Area Plan.** The California Desert Conservation Area (CDCA) Plan defines multiple-use classes for BLM-managed lands within the CDCA, which includes land area

encompassing the proposed OWEF site. With respect to geological resources, the CDCA Plan aims to maintain the availability of mineral resources on public lands for exploration and development.

### 3.15.2.2 State

**California Building Code.** The California Building Code (California Building Code 2007) includes a series of standards that are used in project investigation, design and construction (including grading and erosion control). The CBC 2007 Edition is based on the 2006 ICB as published by the International Code Council, with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

**Alquist-Priolo Earthquake Fault Zoning Act.** The Alquist-Priolo Earthquake Fault Zoning Act of 1972 regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. This act provides mitigations against surface fault rupture of known active faults beneath occupied structures, and requires disclosure of the presence of any seismic faults to potential real estate buyers and a 50-foot setback for new occupied buildings. The Alquist-Priolo Earthquake Fault Zoning Act helps define where fault rupture is most likely to occur. This act groups faults into categories of active, potentially active and inactive.

**Seismic-Hazards Mapping Act.** The Seismic Hazards Mapping Act of 1990 directs the California Geological Survey to delineate seismic hazard zones. The purpose of this act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. These seismic hazards include areas that are subject to the effects of strong ground shaking such as liquefaction, landslides, tsunamis and seiches. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by the California Geological Survey in their land use planning and permitting processes. This act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

### 3.15.2.3 Local – Imperial County

The Seismic and Public Safety Element of the County of Imperial (County) General Plan contains requirements for the avoidance of geologic hazards and/or the protection of unique geologic features. Section 5.3.5.3 of the County's Seismic and Safety Element requires utilities that cross active faults to prepare an operations plan.

## **3.16 Special Designations**

This section describes the special designations of the proposed OWEF site. The following discussion addresses existing special designations in the proposed OWEF area, and existing laws and regulations relevant to special designations. The study area is the proposed OWEF area as defined in Figure 2.3-1.

### **3.16.1 Environmental Setting**

#### **3.16.1.1 Regional Setting**

The proposed OWEF would be located in the Imperial Valley in southwestern Imperial County. Nearly the entire project site is located within the Yuha Desert Recreation Area. The proposed OWEF site is located immediately north of the Jacumba Wilderness, approximately two miles east of the Yuha Area of Critical Environmental Concern (ACEC), approximately 1.5 miles southwest of the Plaster City Off-Highway Vehicle Open Area, approximately one mile south of the Coyote Mountains Wilderness, and adjacent to the Anza-Borrego Desert State Park. The proposed OWEF would be potentially visible from these special land use areas. Figure 3.16-1 displays these special land use areas in relation to the project site.

#### **3.16.1.2 Project Setting**

The proposed OWEF would be located almost entirely on BLM-administered lands in the Imperial Valley. A new high-voltage transmission line, known as the Sunrise Powerlink, crosses the proposed project site (Figure 2.3-1). Undeveloped range land is currently present on the proposed OWEF site. Additionally, a number of BLM rough bladed or two-tracked surface roads cross the proposed OWEF site. Current and historic uses of the proposed OWEF site include open space, off-road recreational vehicle activities, hunting, hiking, and camping. The proposed OWEF would be located in the Colorado Desert bioregion. Onsite vegetation consists of desert scrub communities such as brittle bush scrub, creosote bush scrub, teddy bear cholla scrub, white bursage scrub, and Wolf's cholla scrub. Other vegetation communities include smoke tree woodland, un-vegetated sand dunes, un-vegetated streambed, and badlands.

No designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance exists within the project area (DOC, 2008). No Williamson Act Contract land is present and no forest land designated by the California Department of Forestry and Fire Protection or the United States Department of Agriculture, Forest Service exists on the project site.

#### **3.16.1.3 Areas of Critical Environmental Concern (ACEC)**

The BLM uses the ACEC designation to highlight public land areas where special management attention is necessary to protect and prevent irreparable damage to: important historical, cultural, and scenic values; fish or wildlife resources; or other natural systems or processes.

The ACEC designation may also be used to protect human life and safety from natural hazards. The BLM identifies, evaluates, and designates ACECs through its resource management planning process. Allowable management practices and uses, mitigation, and use limitations, if any, are described in the planning document.

**Coyote Mountains Fossil Site ACEC.** The Coyote Mountains Fossil Site ACEC is managed by the BLM, comprises approximately 5,870 acres and is designated as an ACEC because of its significant cultural and historic resources. The proposed OWEF would be located approximately 1.8 miles south of this ACEC and would be potentially visible from this special land use area.

**Table Mountain ACEC.** The Table Mountain ACEC is managed by the BLM, comprises approximately 4,300 acres and is designated as an ACEC because of its significant natural, cultural and historic resources. The proposed OWEF would be located approximately three miles northeast of this ACEC and would be potentially visible from this special land use area.

**Yuha Basin ACEC.** The Yuha Basin ACEC is managed by the BLM, comprises approximately 71,930 acres and is designated as an ACEC because of its significant natural, cultural and historic resources (e.g., Flat-tail Horned Lizard populations, Yuha well, Yuha geoglyph, and Juan Bautista de Anza National Historic Trail) (BLM, 2004). Camping is permitted only within six BLM-designated primitive campgrounds located south of the proposed OWEF and Interstate 8 in the Yuha Desert. The BLM primitive campgrounds are widely dispersed, and undeveloped (i.e., without toilets, electricity, or water). These BLM primitive campgrounds are located along the Juan Bautista de Anza National Historic Trail (BLM, 2004). The proposed OWEF would be located approximately two miles west of this ACEC and would be potentially visible from this special land use area.

#### **3.16.1.4 Back Country Byways**

No Back Country Byways are located within the vicinity of the proposed OWEF.

#### **3.16.1.5 National Recreation Areas**

**Plaster City Off Highway Vehicle (OHV) Open Area.** This area provides 41,000 acres of open desert terrain for OHV recreationists and includes two staging areas, Plaster City East and Plaster City West, that are popular primitive camping and day use areas (BLM, 2009a). Vehicles and camping are permitted anywhere in the area. The proposed OWEF would be located approximately 1.5 miles southwest of this area and would potentially be visible from this special land use area. Development of the proposed OWEF and security measures may impact the OHV traffic and associated recreational experiences due to rerouting of roads, closures of existing travel routes, creation of strong visual contrasts, and implementation of site security measures.

#### **3.16.1.6 National Scenic and Historic Trails**

The Juan Bautista de Anza National Historic Trail meanders through terrain ranging from extreme deserts to mountains and along coastal areas between Nogales, Arizona, and San Francisco, California. This trail is located approximately 4 miles east of the proposed OWEF site and would potentially be visible from this special land use area.

#### **3.16.1.7 Wild and Scenic Rivers**

No wild and scenic rivers are located within the vicinity of the proposed OWEF.

### 3.16.1.8 Wilderness Areas

National Wilderness Areas, designated by Congress, are defined by the Wilderness Act of 1964 as places “where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” Designation is aimed at ensuring these lands are preserved and protected in their natural condition. Wilderness Areas, which are generally 5,000 acres or more in size, offer outstanding opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological, or other features that have scientific, scenic, or historical value.

With some exceptions, commercial enterprises, construction of temporary or permanent roads, use of motorized vehicles and other mechanical transport, aircraft landings, and construction of structures and other installations may not occur in wilderness areas.

**California Desert Conservation Area (CDCA) Plan.** The proposed OWEF would be located in an area governed by the CDCA Plan. The 25 million-acre CDCA is a special planning area administered by the BLM that contains over 12 million acres of public lands within the California Desert, which includes the Mojave, the Sonoran, and a small portion of the Great Basin Deserts. The goal of the CDCA Plan is to provide for economic, educational, scientific, and recreational uses of public lands and resources in the CDCA in a manner that enhances use without diminishing the environmental, cultural, and aesthetic values of the desert. The CDCA Plan, as amended (BLM, 1980), identifies wind energy development as an authorized use of public lands, consistent with the Plan and the NEPA. Consequently, public lands located in the CDCA are not restricted from wind energy development.

**California Desert District.** The mission of the California Desert District (CDD) of the BLM is to protect the natural, historic, recreational and economic riches of the California Desert for generations to come. In 1976, the United States Congress created the California CDCA, which covers nearly one quarter of the State. As one of the government’s primary authorities for the management of public lands, the BLM - through the CDD - acts as steward for 10.4 million acres of this 26 million-acre preserve. In an effort to provide the most benefit to the most people, while preserving this rugged and awe inspiring landscape, the CDD developed a balanced, multiple-use plan to guide the management of this vast expanse of land. The plan, completed in 1980 with the help of the public, divides the desert into multiple-use classes. These classes were created in order to define areas in critical need of protection, while allowing for the use and development of less-vital parts of the desert.

**Jacumba Wilderness.** The Jacumba Wilderness is a 31,357-acre federal wilderness area administered by the BLM. The Jacumba Mountains sit on the eastern flank of southern California’s coastal peninsular ranges, extending to the international border. The Jacumba Mountains are a broad range, made up of ridges and intervening valleys (BLM, 2009b). The Davies Valley is the largest valley in the wilderness area and is used for hiking, equestrian use, photography, and nature study. A staging area for hiking and riding into Davies Valley is located at the end of Clark Road, south of Ocotillo on State Route 98. The proposed OWEF would be located immediately north of the Jacumba Wilderness and would potentially be visible from this special land use area.

**Coyote Mountain Wilderness.** Approximately 40 percent of the Coyote Mountain Wilderness is occupied by the Coyote Mountains. Overall, the Coyote Mountain Wilderness encompasses approximately 18,000 acres. Part of the Carrizo Badlands lies within the northern portion of the wilderness. The narrow, twisting gullies of the Badlands give the landscape a harsh, forbidding appearance. A group of unusual

sandstone rock formations, believed to be six million years old, adds to the character of this wilderness. Fossil Canyon ACEC is located within the Coyote Mountains Wilderness (BLM, 2009c). The proposed OWEF would be located approximately one mile south of the Coyote Mountain Wilderness area and would potentially be visible from this special land use area.

**Anza-Borrego Desert State Park.** Anza-Borrego Desert State Park is the largest state park in California. Five-hundred miles of dirt roads, 12 wilderness areas and miles of hiking trails are found in this part of the California Desert. Running about 25 miles east-to-west and 50 miles north-to-south, it is California's largest state park encompassing more than 600,000 acres (Desert USA, 2011). The proposed OWEF would be located immediately adjacent to the east of this State Park and would be potentially visible from these special land use areas.

### **3.16.1.9 Wilderness Study Areas**

**Table Mountain Wilderness Study Area.** The Table Mountain Wilderness Study Area is managed by the BLM and comprises approximately 1,018 acres. The proposed OWEF would be located approximately 2.1 miles northeast of this wilderness study area and would potentially be visible from this special land use area.

### **3.16.1.10 Donated Lands**

The BLM can be the recipient and trustee of land donated by individuals or groups. Often such lands are donated with the expressed interest of preserving the resources that characterize these lands. In so doing, a restrictive instrument such as a conservation easement or deed restriction is attached to the donation and land that would control its use, often in terms of prohibiting development or change to the landscape. There is no record of such a donation and accompanying restrictive instrument associated with the proposed OWEF site.

## **3.16.2 Applicable Regulations, Plans, and Standards**

### **3.16.2.1 Federal**

#### **National Landscape Conservation System**

The National Landscape Conservation System (NLCS) is the primary management framework for specially designated lands or Special Management Areas (SMAs). In June 2000, the NLCS was created by the BLM to bring some of the agency's premier areas into a single system. The NLCS designations include National Monuments, National Conservation Areas, Designated Wilderness Areas and Wilderness Study Areas, National Scenic and Historic Trails, and Wild, Scenic, and Recreational Rivers (BLM, 2005).

Other special areas managed by the BLM outside of the NLCS framework include ACECs, Research Natural Areas, National Natural Landmarks, National Recreation Trails, and a variety of other area designations. The following summarizes the federal regulations, plans, and standards.

The BLM manages certain lands under its jurisdiction that possess unique and important historical, anthropological, ecological, biological, geological, and paleontological features. These features include undisturbed wilderness tracts, critical habitat, natural environments, open spaces, scenic landscapes,

historic locations, cultural landmarks, and paleontologically rich regions. Special management is administered with the intent to preserve, protect, and evaluate these significant components of our national heritage. Most special areas are either designated by an Act of Congress or by Presidential Proclamation, or are created under BLM administrative procedures.

National historic trails, established as provided in section 5 of the National Trails System Act, are extended trails which follow as closely as possible and practicable the original trails or routes of travel of national historic significance. Designation of such trails or routes shall be continuous, but the established or developed trail, and the acquisition thereof, need not be continuous onsite. National historic trails shall have as their purpose the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. Only those selected land and water based components of a historic trail which are on federally owned lands and which meet the national historic trail criteria established in this Act are included as federal protection components of a national historic trail. The appropriate Secretary may certify other lands as protected segments of an historic trail upon application from State or local governmental agencies or private interests involved if such segments meet the national historic trail criteria established in this Act and such criteria supplementary thereto as the appropriate Secretary may prescribe, and are administered by such agencies or interests without expense to the United States.

National scenic or national historic trails may contain campsites, shelters, and related-public-use facilities. Other uses along the trail, which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trail. Reasonable efforts shall be made to provide sufficient access opportunities to such trails and, to the extent practicable, efforts be made to avoid activities incompatible with the purposes for which such trails were established.

#### **3.16.2.2 State**

Special designations refer specifically to the BLM and are not relevant to State government.

#### **3.16.2.3 Imperial County**

Special designations refer specifically to the BLM and are not relevant to Imperial County.

## 3.17 Transportation and Public Access

This section describes existing conditions related to transportation and public access, including applicable plans, policies, and regulations. Information contained within this section was provided primarily by the *Traffic Impact Analysis for the Ocotillo Express Wind Energy Facility, County of Imperial, California*, March 17, 2011, prepared by Linscott, Law, & Greenspan, Engineers (LL&G Engineers), which is included as Appendix H of this EIS/EIR and incorporated by reference herein.

Typical construction traffic would consist of trucks transporting construction equipment and materials to and from the site and vehicles of management and construction employees during the construction period. Since this is a remote area and all materials have to be brought from large distances and personnel would have to travel either from El Centro or San Diego, all traffic would utilize I-8 for regional travel and the Imperial Highway interchange to access the site. Therefore, the interchange and two intersections, one north (Evan Hewes/Imperial highway intersection) and one south (SR 98/Imperial Highway) of I-8 are included as part of the study area.

### 3.17.1 Environmental Setting

#### Regional and Local Roadway Facilities

**Evan Hewes Highway (County Route S80).** Evan Hewes Highway is an east-west road that parallels I-8 to the north. The road begins east of the City of Holtville at a junction at I-8 and travels through El Centro and Seeley before ending in Ocotillo. This road is typically used for local travel and provides an alternative route to I-8. In the project vicinity, Evan Hewes Highway is 2 lanes wide and does not have any bicycle lanes or curb / gutter / sidewalks. The posted speed limit is 55 miles per hour (mph). Evan Hewes Highway is also called Imperial County Route S80 and has been classified as a historic highway by the State of California since it was once part of U.S. Highway 80. Evan Hewes Highway is classified as a Prime Arterial in the Imperial County General Plan Circulation Element.

**Interstate 8.** Interstate 8 (I-8) is an interregional freeway between San Diego and Arizona. Through Imperial County, I-8 provides 2 lanes in each direction. The posted speed limit is 70 mph. The Imperial Highway interchange is the closest access between I-8 and the project site.

**Imperial Highway (County Highway S2).** Imperial Highway is classified as a Collector Road in the Imperial County General Plan Circulation Element. In the project vicinity, Imperial Highway is constructed as a two-lane undivided north-south roadway, providing one lane of travel in each direction north of SR 98 and through the town of Ocotillo. North of the town of Ocotillo, this facility turns west and nearly bisects the project site. No bike lanes or bus stops are provided. There are no curb, gutters or sidewalks and only dirt shoulders are provided. The posted speed limit in town is 35 mph. The posted speed limit through the project site is also 35 mph.

**SR 98 (Yuha Cutoff).** SR 98 is classified as a State Highway in the Imperial County General Plan Circulation Element. In the project vicinity, SR 98 is constructed as a two-lane undivided east-west roadway, providing one lane of travel in each direction. No bike lanes or bus stops are provided. There are no curb, gutters, or sidewalks, but paved shoulders are provided. The posted speed limit on SR 98 is 65 mph.

**Shell Canyon Road.** Shell Canyon Road is classified as a Local road in the Imperial County General Plan Circulation Element.

**Dos Cabezas Road.** Dos Cabezas Road is classified as a Local road in the Imperial County General Plan Circulation Element.

Figure 3.17-1 shows the existing road network in the project study area.

### 3.17.1.1 Existing Traffic Volumes

#### Peak Hour Intersection Turning Movement Volumes

Traffic counts were conducted on December 7, 2010, by LL&G Engineers. Morning (a.m.) and afternoon (p.m.) peak-hour intersection turning movement volume counts were conducted at the following locations:

- West Evan Hewes Hwy. / Imperial Hwy.
- I-8 East Bound Ramps / Imperial Hwy.
- I-8 West Bound Ramps / Imperial Hwy.
- SR 98 (Yuha Cutoff) / Imperial Hwy.

#### Segment Volumes

Daily traffic (ADT) volume counts were conducted by LL&G Engineers on December 7, 2010. Table 3.17-1 summarizes segment ADT volumes based on the traffic count conducted on the study area segments.

Street Segment	Source	Date	ADT <sup>a</sup>
W. Evan Hewes Highway East of Imperial Highway	LLG	December 7, 2010	250
Imperial Highway I-8 EB Ramps to SR-98 Yuha Cutoff	LLG	December 7, 2010	240
SR-98 Yuha Cutoff West of Imperial Highway	LLG	December 7, 2010	1,140

a. Average Daily Traffic Volume.

### 3.17.1.2 Existing Levels of Service

#### Peak Hour Intersection Levels of Service

The project study area is located in a rural setting and all intersections are unsignalized. As shown in Table 3.17-2, all study area intersections are calculated to currently operate at LOS A during both the a.m. and p.m. peak hours.

Intersection	Control Type	Peak Hour	Existing	
			Delay <sup>a</sup>	LOS <sup>b</sup>
West Evan Hewes Highway / Imperial Highway	MSSC <sup>c</sup>	a.m.	9.0	A
		p.m.	8.8	A
I-8 WB Ramps / Imperial Highway	MSSC	a.m.	8.6	A
		p.m.	8.7	A
I-8 EB Ramps / Imperial Highway	MSSC	a.m.	8.8	A
		p.m.	8.8	A
SR 98 (Yuha Cutoff) / Imperial Highway	MSSC	a.m.	8.8	A
		p.m.	9.0	A

Table Notes:

- a. Delay per vehicle in seconds
- b. LOS - Level of service
- c. MSSC - Minor street STOP Controlled intersection. Minor street left-turn delay is reported.

UNSIGNALIZED	
Delay	LOS
0.0 < 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
> 50.1	F

### Daily Street Segment Levels of Service

As described above, the project study area is located in a rural setting and all segments are two-lane facilities. As shown in Table 3.17-3, all study area segments are calculated to currently operate at LOS B or better.

Street Segment	Functional Roadway Classification <sup>a</sup>	Capacity (LOS E) <sup>b</sup>	ADT <sup>c</sup>	V/C <sup>d</sup>	LOS <sup>e</sup>
W. Evan Hewes Highway East of Imperial Highway	2-Lane Collector	16,200	250	0.015	A
Imperial Highway I-8 EB Ramps to SR-98 Yuha Cutoff	2-Lane Collector	16,200	240	0.015	A
SR-98 Yuha Cutoff West of Imperial Highway	2-Lane Collector	16,200	1,140	0.070	A

- a. County of Imperial Valley roadway classification
- b. Roadway capacity corresponding to Level of Service E from Imperial County Standard Street Classification, Average Daily Vehicle Trips table.
- c. Average Daily Traffic volumes
- d. Volume / Capacity ratio.
- e. Level of Service

### 3.17.1.3 Project Access

#### Regional Access

Regional east/west access to project Site 1 (north of I-8) and Site 2 (south of I-8) is via I-8 and access to the north is via I-8/Imperial Highway. Access to the south is via Imperial Highway and SR 98 (Yuha Cutoff).

#### Local Access

Local access for Site 1 is from the I-8/Imperial Highway interchange, via Imperial Highway and Evan Hewes Highway. Local access for Site 2 is from the I-8/Imperial Highway interchange, via SR 98 and Imperial Highway. All surface streets in the study area are undivided two-lane roadways, generally with dirt shoulders. The section of Imperial Highway between the eastbound ramps and Evan Hewes Highway has paved shoulders. Curb, gutter and sidewalks are not provided. Project Sites 1 and 2 are served by an adequate network of roadways in this sparsely travelled area.

#### Site Access

Several site access driveways are proposed. Approximately six access driveways are located along Imperial Highway (County Highway S2), a paved two-lane road with dirt shoulders. Another eight access driveways are proposed on other paved two-lane public roadways (Figure 2.1-4). The project should ensure adequate sight distance at these access driveways for trucks to exit the project site without obstructing traffic on public streets.

### **Railways**

The San Diego Imperial Valley Railroad from Plaster City in Imperial Valley to Campo in San Diego County runs through the southern edge of project Site 1 and a rail yard is planned in Site 1.

### **Bicycle Routes**

There are no bicycle routes or facilities such as designated bicycle lanes on the roads discussed in this section.

### **Public Access**

Public access refers to the legal rights of citizens to access public land for certain purposes without barriers or impediments. The affected environment related to public access includes recreational use of land by the public as well as other legal guarantees or limitations on access such as deeds, ROW, easements, leases, licenses, and permits.

The majority of the project study area is open desert land in Imperial County that is currently used for recreation activities. Based on a site visit in May 2010, recreation activities include camping, off-highway vehicle (OHV) use, and shooting.

## **3.17.2 Application Regulations, Plans, and Standards**

Construction of the proposed project could affect access, traffic flow patterns, and parking on public streets and highways. Therefore, it is necessary for the Applicant and/or the construction contractor to obtain encroachment permits or similar legal agreements from the public agencies responsible for the affected roadways and other applicable ROWs. Such permits are needed for ROWs that would be affected by access road construction. For the proposed project, encroachment permits would be issued by, Caltrans, Imperial County, and other affected agencies and companies.

### **Federal**

**Title 49 Code of Federal Regulations (CFR) Subtitle B, Parts 171-173, 177-178, 350-359, 397.9 and Appendices AG.** These code sections address safety considerations for the transport of goods, materials, and substances and governs the transportation of hazardous materials, including types of materials and marking of the transportation vehicles.

### **State**

**Caltrans.** The use of State highways for other than transportation purposes requires an encroachment permit, Caltrans form TR-0100. This permit is required for utilities, developers, and non-profit organizations for use of the State highway system to conduct activities other than transportation (e.g., landscape work, utility installation, film production) within the ROW. The application would be forwarded to Caltrans District 11, which is where the proposed project is located. The Caltrans Traffic Manual (Chapter 5) provides Traffic Controls for Construction and Maintenance Work Zones. Also, any project requirement to transport oversize or overweight loads would require approval from Caltrans.

**Local**

**Imperial County.** Imperial County would require the Applicant to:

- Submit an encroachment permit application together with all required fees to the County of Imperial Public Works Director's Office. Approval and issuance of the permit must be obtained prior to all earth-disturbing activities.
- Submit a Transportation Permit application together with all required fees to the County of Imperial Public Works Director's Office. Approval and issuance of the permit must be obtained prior to all material and equipment hauling activities.
- Obtain approval of a traffic study prior to implementing a new project.

## 3.18 Vegetation Resources

This section describes the environmental setting; vegetation communities; invasive, noxious weeds; special status plant species; and state and federal jurisdictional areas that are present within the proposed 12,435.6-acre OWEF project site (proposed OWEF site), which includes Sites 1 and 2. It also lists the special status plant species that have potential to occur but that were not observed.

This discussion is based, in part, upon information from these sources:

- Vegetation mapping (identified within the biological technical report), a jurisdictional delineation, and special-status plant surveys conducted by 2010 Environmental Planning, Inc. (HELIX 2010, 2011a, 2011b, 2011c, 2011d, and 2011e);
- The California Environmental Resources Evaluation System (CERES 2011);
- The California Natural Diversity Database (CDFG 2010);
- The Inventory of Rare and Endangered Plants (CNPS 2011); and
- Calflora (2010).

### 3.18.1 Environmental Setting

The proposed OWEF site is located in the Yuha Desert, which is in the Colorado Desert region of the larger Sonoran Desert. The seven million-acre Colorado Desert region extends from the border of the higher-elevation Mojave Desert in the north to the Mexican border in the south, and from the Laguna Mountains of the Peninsular Ranges in the west to the Colorado River in the east. The Yuha portion extends from the Jacumba Mountains in the west to the historic West Side Main Canal near El Centro, and from Plaster City in the north to south of Mount Signal in Mexico.

The Colorado Desert is a desert of much lower elevation than the Mojave Desert to the north, and much of the land lies below 1,000 feet above mean sea level (AMSL). Mountain peaks rarely exceed 3,000 feet AMSL. Common habitat includes sandy desert, scrub, palm oasis, and desert wash. Summers are hot and dry, and winters are cool and moist. Anza-Borrego Desert State Park (ABDSP), located mostly in eastern San Diego County, but jutting into Imperial County, is the bioregion's largest recreation area, covering 600,000 acres.

Most of the proposed OWEF site is a designated BLM Limited Use Area in which all motorized vehicles are restricted to the use of marked, designated routes only. BLM dirt roads exist throughout the proposed OWEF site, and a dirt road occurs along the existing 500-kV transmission line which traverses the middle of the proposed OWEF site southwest to northeast. Illegal off-highway vehicle (OHV) trails criss-cross portions of the proposed OWEF site, and some areas are regularly used for camping and firearm activities. This area is also regularly patrolled by the U.S. Border Patrol. Despite the above-mentioned usage, the majority of the proposed OWEF site is relatively undisturbed.

Surrounding land uses include ABDSP to the west and BLM land to the north, east, and west. The Coyote Mountains Wilderness Area is located to the north, the Jacumba Wilderness Area is located to the south, and the Yuha Basin ACEC occurs to the southeast. The town of Ocotillo and several scattered residences outside of the town are located between Sites 1 and 2.

Elevations in the proposed OWEF site range from approximately 1,490 feet AMSL in the southwest portion of the proposed OWEF site to 300 feet AMSL in the northeast portion of the proposed OWEF site. Elevation generally decreases from the west to the east, with the Coyote Mountains to the north, and the Jacumba Mountains to the west and south. To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

The majority of the proposed OWEF site is comprised of desert scrub communities such as brittle bush scrub, creosote bush scrub, teddy bear cholla scrub, white bursage scrub, and Wolf's cholla scrub. Smoke tree woodland is also present on the site; it typically occurs in washes. Unvegetated areas include sand dunes, streambeds, and badlands.

Several named, dry desert washes cut through the proposed OWEF site and run generally from west to east: Palm Canyon Wash cuts through the center of Site 1; Myer Creek Wash cuts through the southern portion of Site 1; a portion of Coyote Wash cuts through the northwest portion of Site 2; and several additional unnamed washes cut through proposed OWEF site.

### **3.18.1.1 Vegetation Communities**

Vegetation mapping within the proposed OWEF site was done through a combination of field surveys and aerial photo interpretation. The aerial photos were scaled at 1" = 400'. Vegetation data points were taken opportunistically with a global positioning system (GPS) to aid in aerial photo interpretation. There are limitations to aerial photo interpretation in the desert as the surface soils and geology often are more influential on the aerial photograph signature than the vegetation.

The BLM required that the National Vegetation Classification System (NVCS) be used for the Proposed Action. The Manual of California Vegetation, 2nd Edition (MCV; Sawyer et al., 2009) is the California extension of the NVCS. The mapping units used reflect the system presented in the MCV.

The MCV includes an introductory section on the difference between vegetation classification and vegetation mapping. This section includes the following thoughts on differences between vegetation classification and mapping.

A vegetation map is a symbolic representation of visually distinct groupings of plants. A vegetation classification can afford much more detail and description. Classifications can afford much more floristic and structural details than those perceptible in aerial photographs, presented in digital signatures, or depicted on maps.

Another important difference between a classification and a map is the issue of scale. A map is limited by the resolution of its base imagery and by its interpretation at a certain scale, but a classification need not be.

The difficulty in interpreting aerial photos and the points presented in the MCV regarding the differences between mapping and classifying vegetation speak to the difficulty in applying this classification system anywhere, and it is even more difficult in the desert. This discussion presents the best effort to communicate the environment within the study area given the limitations detailed here. The accuracy of this mapping could be improved but only at tremendous expense for vast additional hours of field work, including in some situations, mapping lengthy vegetation boundaries with the aid of a GPS.

Not all of the vegetation communities mapped within the proposed OWEF site are listed in the MCV, and those lacking formal names are given provisional names in the following discussion (e.g., Wolf’s cholla scrub). The discussion also includes mapping units that are essentially unvegetated (e.g., rock/large boulder outcrop and badlands), which are not covered in the MCV. It should be noted that the vegetation communities listed in the MCV and discussed in this section are referred to by the less formal name. For example, in the MCV “allscale scrub” is formally referred to as “*Atriplex polycarpa* Shrubland Alliance.”

Nineteen vegetation communities were mapped in the proposed OWEF site as shown (alphabetically) in Table 3.18-1. Unvegetated areas are also included in this table (developed land, railroad, and rock/large boulder outcrop), so that the entire proposed OWEF site is reflected in the total acreage. Each community is described following the table.

None of the communities is considered sensitive (e.g., an unusual plant assemblage) by the BLM according to the California Desert Conservation Area (CDCA) Plan. However, eight communities are considered sensitive (i.e., highly imperiled) by the state (California Department of Fish and Game [CDFG], 2010).<sup>1</sup>

Vegetation Community/Land Cover	Rarity Ranking	Acreage
Allscale Scrub	S4	128.1
Badlands and Mudhills1	--	162.0
Big Galleta Grass Shrub-steppe2	S2	1.9
Brittle Bush Scrub2	S4	92.9
Cheesebush Scrub	S4	1,095.6
Creosote Bush Scrub	S5	938.9
Creosote Bush-Brittle Bush Scrub	S4	2,280.1
Creosote Bush-White Bursage Scrub	S5	5,877.3
Desert Agave Scrub2	S3	248.5
Desert Lavender Scrub2	S3	3.9
Developed1	--	82.9
Disturbed Habitat1	--	7.6
Fourwing Saltbush Scrub	S4	6.5
Mesquite Thicket2	S3.2	0.8
Ocotillo Tall Scrub1, 4	--	23.5
Railroad1	--	12.5
Rock/Large Boulder Outcrop1	--	4.8
Smoke Tree Woodland2	S3	380.9
Streambed1	--	15.3
Teddy Bear Cholla Scrub2, 5	S3	663.0
White Bursage Scrub2	S4	176.2
Wolf's Cholla Scrub3	--	232.3
<b>TOTAL</b>		<b>12,435.6</b>

<sup>1</sup> Unvegetated areas are also included in this table, as are developed land and railroad, so that the entire proposed OWEF site is reflected in the total acreage.

<sup>2</sup> Considered sensitive (i.e., highly imperiled) by the CDFG (2010). Some associations are of high priority for inventory (CDFG 2010).

<sup>3</sup> Not in the Manual of California Vegetation (Sawyer et al. 2009).

<sup>4</sup> A mapping category used in ABDSP.

<sup>5</sup> In the Manual of California Vegetation as teddy bear cholla patches. Teddy bear cholla scrub was, however, a mapping category for ABDSP.

<sup>1</sup> In CDFG 2010, for alliances with state ranks of S1-S3, all associations within them are also considered to be highly imperiled.

### Allscale Scrub

Allscale (*Atriplex polycarpa*) is the dominant species in the shrub canopy. Associated shrub species include white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), and creosote bush (*Larrea tridentata*). Herbaceous layer is variable based on soils and disturbance history. Common herbaceous species observed include desert Spanish-needle (*Palafoxia arida* var. *arida*), desert sunflower (*Geraea canescens*), few-flowered wreath plant (*Stephanomeria pauciflora*), Pierson's evening primrose (*Camissonia claviformis* var. *piersonii*), small-seed sandmat (*Chamaesyce polycarpa*), and Saharan mustard (*Brassica tournefortii*). Its landscape position is on terraces above the active floodplain. Allscale scrub is generally about 3 feet in height and occurs primarily in the northeastern part of the proposed OWEF site, in Palm Canyon Wash.

### Badlands and Mudhills

This mapping category includes hillsides and ridges that are unvegetated or support sparse herbaceous cover and an occasional shrub. The species present varies with the location, soils, and disturbance history. Common herbaceous species include desert pot herb (*Calandrinia ambigua*), narrow-leaf oligomeris (*Oligomeris linifolia*), desert sunflower, woolly plantain (*Plantago ovata*), bristly langloisia (*Langloisia setosissima* var. *setosissima*), desert lily (*Hesperocallis undulata*), and Saharan mustard. The common occasional shrubs observed include creosote bush, white bursage, brittle bush (*Encelia farinosa* var. *farinosa*), and ocotillo (*Fouquieria splendens* subsp. *splendens*). The badlands and mudhills landform occurs at scattered locations in the proposed OWEF site, the largest of which is in the western part of the proposed OWEF site.

### Big Galleta Grass Shrub-steppe

Big galleta grass (*Hilaria [Pleuraphis] rigida*) is the dominant or co-dominant plant species in the herbaceous layer. Within the proposed OWEF site, this habitat consists primarily of the big galleta grass and Saharan mustard. It occurs in the southwest portion of the proposed OWEF site on the dune apron and stabilized sand dunes, and in a few locations as narrow bands in canyon floors. Big galleta grass shrub-steppe is considered a sensitive vegetation community.

### Brittle Bush Scrub

Brittle bush is dominant or co-dominant plant species in the shrub canopy. Associated shrub species include white bursage, teddy bear cholla (*Cylindropuntia bigelovii*), California barrel cactus (*Ferocactus cylindraceus*), ocotillo, pima rhatany (*Krameria erecta*), and creosote bush. Common herbaceous species observed include Pierson's evening primrose, pebble pincushion (*Chaenactis carphoclinia* var. *carphoclinia*), narrow-leaf cryptantha (*Cryptantha angustifolia*), cleft-leaf phacelia (*Phacelia crenulata* var. *minutiflora*), white-hair cryptantha (*Cryptantha maritima*), desert dandelion (*Malacothrix glabrata*), and Saharan mustard. Vegetation in this alliance is typically 1.5 to 3 feet in height. It is typically found on steep, rock strewn hillsides, alluvial fans, and bajadas. It occurs primarily in the southeastern portion of the proposed OWEF site with a few scattered locations in the southwestern portion of the proposed OWEF site. Brittle bush scrub is considered a sensitive vegetation community.

### **Cheesebush Scrub**

Cheesebush is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include rush sweetbush (*Bebbia juncea* var. *aspera*), chuparosa (*Justicia californica*), desert lavender (*Hyptis emoryi*), California ephedra (*Ephedra californica*), Thurber's sandpaper plant (*Petalonyx thurberi* subsp. *thurberi*), and creosote bush. Common herbaceous species observed include few-flowered wreath plant, desert dandelion, small-seed sandmat, desert Spanish-needle, frost mat (*Achyronychia cooperi*), California croton (*Croton californicus*), desert thornapple (*Datura discolor*), and kidney-leaf buckwheat (*Eriogonum reniforme*). Occasionally emergent tree species are present such as smoke tree (*Psorothamnus spinosus*) and desert willow (*Chilopsis linearis* subsp. *arcuata*). The canopy for this scrub is 3 to 6 feet in height and occurs extensively in arroyos, channels, and washes throughout the proposed OWEF site.

### **Creosote Bush Scrub**

Creosote bush is dominant or co-dominant plant species in the shrub canopy. Associated shrub species include white bursage, cheesebush, Palmer's coldenia (*Tiquilia palmeri*), and brittle bush. Occasional ocotillo plants are also present. Common herbaceous species observed include woolly plantain, bristly langloisia, broad-leaf gilia (*Alliella adscensionis*) desert dandelion, brittle spineflower (*Chorizanthe brevicornu* var. *brevicornu*), and pebble pincushion. The shrub canopy for this scrub is 3 to 6 feet in height. It occurs on alluvial fans, bajadas, and drainages, and in scattered locations in the proposed OWEF site. The largest stands occur in the northeastern portion of the proposed OWEF site.

In addition to typical creosote bush scrub, two other creosote bush scrub associations were present in the study area. All three associations have creosote bush as a dominant species, but two of the associations have an additional dominant species (i.e., allscale and fourwing saltbush scrub) and are further described below.

Creosote Bush-Allscale Scrub. Creosote bush and allscale are the two co-dominant plant species in the shrub canopy. Associated shrub species include indigo bush (*Psorothamnus schottii*) and catclaw acacia (*Acacia greggii*). Smoke trees were also present in low density. Common herbaceous species observed include soft prairie clover (*Dalea mollissima*), California croton, desert calico (*Loeseliastrum matthewsii*), Yuma spurge (*Chamaesyce setiloba*), trailing windmills (*Allionia incarnata* var. *villosa*), plicate coldenia (*Tiquilia plicata*), desert chicory (*Rafinesquia neomexicana*), and red-stem filaree (*Erodium cicutarium*). The shrubs in this vegetation type are 3 to 6 feet in height. This association occurs in intermediate part of the floodplain, primarily in the northeastern part of the proposed OWEF site in Palm Canyon Wash.

Creosote Bush-Fourwing Saltbush Scrub. Creosote bush and fourwing saltbush (*Atriplex canescens* var. *canescens*) are co-dominant. Associated shrub species include cheesebush, white rhatany (*Krameria grayi*), and indigo bush. Emergent ocotillo is also present in low density. Common herbaceous species observed include desert sand verbena (*Abronia villosa* var. *villosa*), Spanish needles, Pierson's evening primrose, desert pincushion (*Chaenactis stevioides*), Yuma spurge, Arizona lupine (*Lupinus arizonicus*), desert sunflower, big galleta grass, and Saharan mustard. The shrub canopy for this scrub is 4.5 to 6 feet in height. This association occurs primarily in the northeastern part of the proposed OWEF site along Palm Canyon Wash.

### **Creosote Bush-Brittle Bush Scrub**

Creosote bush and brittle bush are co-dominant in the shrub canopy. Associated shrub species include white bursage, California barrel cactus, pima rhatany, beavertail cactus (*Opuntia basilaris* var. *basilaris*), jojoba (*Simmondsia chinensis*), and California fagonia (*Fagonia laevis*). Emergent ocotillo is also present in places in low density. Common herbaceous species observed include white-hair cryptantha, pebble pincushion, brittle spineflower, woolly plantain, white tack-stem (*Calycoseris wrightii*), rigid spineflower (*Chorizanthe rigida*), cleft-leaf phacelia, desert trumpet (*Eriogonum inflatum*), desert filaree (*Erodium texanum*), brown turbans (*Malperia tenuis*), few-flowered wreath plant, desert lily, and red brome (*Bromus madritensis* subsp. *rubens*). The shrub canopy for this scrub is 3 to 6 feet in height. It occurs on alluvial fans and bajadas. This is the second most extensive in the proposed OWEF site.

Two associations were noted within this alliance. Both have creosote bush and brittle bush as dominant species. Besides the typical association, the second association also has ocotillo as a dominant species.

Creosote Bush-Brittle Bush-Ocotillo Scrub. This vegetation type is similar to creosote bush-brittle bush scrub with the exception that the ocotillo is co-dominant plant species with creosote bush and brittle bush.

### **Creosote Bush-White Bursage Scrub**

Creosote bush and white bursage are the two co-dominant plant species in the shrub canopy. Associated shrub species include rush sweetbush, one or more species of cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), brittle bush, white rhatany, pima rhatany, indigo bush, desert agave (*Agave deserti*), and white dalea (*Psorothamnus emoryi* var. *emoryi*). Emergent ocotillo is also present in many places in low density. Common herbaceous species observed include Spanish needles, desert pincushion, desert dandelion, woolly plantain, several species evening primrose (*Camissonia claviformis* var. *piersonii* and *C. californica*), cleft-leaf phacelia, desert trumpet, several species of cryptantha (*C. angustifolia*, *C. micrantha*, and *C. maritima*), recurved pectocarya (*Pectocarya recurvata*), California croton, soft prairie clover, brittle spineflower, rigid spineflower, big galleta grass, desert calico, red brome and Saharan mustard. It occurs on alluvial fans and bajadas. The shrub canopy for this scrub is 3 to 6 feet in height. This is the most extensive scrub in the proposed OWEF site.

Four associations were noted within this alliance, all having creosote bush and white bursage as dominant species. Three of associations have an additional species (i.e., indigo bush or ocotillo) or growth form (succulents) that are also dominants and are further described below.

Creosote Bush-White Bursage-Indigo Bush Scrub. Indigo bush is a co-dominant plant species with creosote bush and white bursage. This association occurs along the upper terraces of Palm Canyon Wash, in the north-central part of the proposed OWEF site.

Creosote Bush-White Bursage Succulent Scrub. This vegetation type is similar to creosote bush-white bursage scrub with the exception that succulents, such as cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), California barrel cactus, and the stem succulent, ocotillo, are also relatively abundant. This association occurs primarily in the western and central parts of the proposed OWEF site.

Creosote Bush-White Bursage-Ocotillo Scrub. This vegetation type is similar to creosote bush-white bursage scrub with the exception that the ocotillo plant species is co-dominant with creosote bush and white bursage. This association occurs in rocky uplands.

### **Desert Agave Scrub**

Desert agave is a co-dominant plant species in the shrub layer. Associated shrub species include creosote bush, white bursage, rush sweetbush, California barrel cactus, cholla (*Cylindropuntia bigelovii*, *C. echinocarpa*, *C. ramosissima*, and *C. wolfii*), brittle bush, Engelmann's hedgehog cactus (*Echinocereus engelmannii*), pima rhatany, and beavertail cactus. Emergent ocotillo is also present in low-to-moderate density. Common herbaceous species observed include desert pincushion, Spanish needles, several species of cryptantha (*C. angustifolia*, *C. micrantha*, and *C. pterocarya* var. *cycloptera*) and evening primrose (*Camissonia claviformis* var. *piersonii*, *C. californica*, and *C. boothi* subsp. *condensata*), desert lily, big galleta grass, Mojave desert star (*Monoptilon bellioides*), red brome and Saharan mustard. The shrub canopy for this scrub is less than 3 to 6 feet in height. This association occurs on alluvial fans and bajadas in the northwestern part of the proposed OWEF site. Desert agave scrub is considered a sensitive vegetation community.

### **Desert Lavender Scrub**

Desert lavender is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include cheesebush, rush sweetbush, chuparosa, indigo bush, and creosote bush. Emergent catclaw acacia and desert willow are also present in very low densities. The shrub canopy for this scrub is 3 to 6 feet in height. This association occurs primarily in narrow, sandy washes. Desert lavender scrub is considered a sensitive vegetation community.

### **Developed**

Portions of the study have been previously developed. This mapping category consists primarily of roads including Interstate (I-) 8, State Route (SR) 98, County Highway (CH) S2 (Imperial Highway), Shell Canyon Road, and two unnamed paved roads that connect a quarry north of the proposed OWEF site with either the I-8 frontage road at a point east of Ocotillo or CH S2. Developed areas include the paved road surface and maintained road shoulder.

### **Disturbed Habitat**

Disturbed habitat consists of areas that have been previously been cleared of vegetation and that have remained unvegetated, sometimes due to ongoing disturbances (e.g., off road vehicles).

### **Fourwing Saltbush Scrub**

Fourwing saltbush is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include white bursage, cheesebush, allscale, and creosote bush. Emergent honey mesquite (*Prosopis glandulosa* var. *torreyana*) is also present in several locations. The shrub canopy for this scrub is 3 to 6 feet in height. This vegetation type is present in the northeastern portion of the proposed OWEF site on alkaline, sandy soils.

### **Mesquite Thicket**

Honey mesquite is dominant in the low tree canopy. Shrubs including allscale, rush sweetbush, cheesebush, white bursage, fourwing saltbush, and sandpaper plant may also be present. The tree canopy is generally less than 21 feet in height. Within the proposed OWEF site, this vegetation type occurs as

small, dense patches of honey mesquite. It occurs primarily in the eastern part of Palm Canyon Wash within the proposed OWEF site. Mesquite thicket is considered a sensitive vegetation community.

#### **Ocotillo Tall Scrub**

Ocotillo is the dominant or co-dominant species present. Ocotillo occurs throughout the proposed OWEF site and is present in many vegetation communities. What differentiates this vegetation type is that ocotillo is clearly the most abundant species. Many shrub species may also be present including creosote bush, white bursage, brittle bush, white rhatany, California barrel cactus, Wolf's and teddy bear cholla, and indigo bush. Ocotillo may be as tall as 30 feet, but is typically 15 to 21 feet in height. Ocotillo tall scrub occurs on alluvial fans and bajadas in the west central part of the proposed OWEF site.

#### **Railroad**

Railroad tracks, which are currently not being used, snake through the southwestern part of the proposed OWEF site, and also traverse a section of the proposed OWEF site south of SR 98. The disturbance associated with railroad construction occurred many years ago, which has given native and naturalized species time to recolonize this area. Typically the adjacent vegetation is what is currently growing on the banks of the raised railroad bed and, in places, between the railroad ties. The construction of the railroad had other significant affects on the area, particularly in places where fill for the railroad directs what were once broad dynamic flood flows to culverts or trestles.

#### **Rock/Large Boulder Outcrop**

Rock/large boulder outcrop was used to indicate areas where there is limited vegetative cover due to very large boulders. In these areas the boulders are at least several feet across. Ocotillo, creosote bush, brittle bush, and Wolf's cholla occur in this area in very low densities. This mapping category occurs in the southern part of the proposed OWEF site near I-8.

#### **Smoke Tree Woodland**

Smoke tree is the dominant tree or tall shrub canopy species, with desert willow also occurring in the tree canopy. Understory shrubs include catclaw acacia, cheesebush, rush sweetbush, chuparosa, desert lavender, creosote bush, sandpaper plant, and indigo bush. Common herbaceous species observed include few-flowered wreath plant, small seed sandmat, kidney-leaf buckwheat, and desert Spanish needle. This association occurs in arroyos, intermittently flooded channels, and washes with sandy, well drained soils. Within the proposed OWEF site this association occurs in the larger drainages. In some places, such as the Palm Canyon Wash in the western part of the proposed OWEF site, this woodland occurs as a relatively dense and narrow stands. In the broader sections of Palm Canyon Wash in the northeastern part of the proposed OWEF site, this association is less dense and other species provide relative more cover than elsewhere in the proposed OWEF site. There is also a phase of this vegetation type that is relatively broad and dense, but is much more shrub like in stature than elsewhere. This phase occurs along Meyer Creek near east of the west bound section of I-8. Smoke tree woodland is considered a sensitive vegetation community.

#### **Streambed**

Streambed was used to map sections of washes that do not support any vegetation. This is likely due to periodic scouring and deep coarse soils, but may be accentuated by off road vehicle disturbance.

### **Teddy Bear Cholla Scrub**

Teddy bear cholla is dominant plant species in the shrub canopy with white bursage, rush sweetbush, silver and Wolf's cholla, ocotillo, California barrel cactus, and white rhatany. Common herbaceous species observed include desert dandelion, desert pincushion, several species of cryptantha, woolly plantain, desert Spanish needle, desert trumpet, Saharan mustard and Mediterranean schismus (*Schismus barbatus*). Soils are coarse sands to loams. The shrub canopy is less than 6 feet in height. It occurs on alluvial fans, gentle to moderate slopes of rocky highlands. It occurs primarily in the central part of the proposed OWEF site. Teddy bear cholla scrub is considered a sensitive vegetation community.

### **White Bursage Scrub**

White bursage is the dominant or co-dominant plant species in the shrub canopy. Associated shrub species include Palmer's coldenia, teddy bear cholla, Engelmann's hedgehog cactus, brittle bush, and beavertail cactus. Annual species observed include Pierson's evening primrose, desert Spanish needle, and Saharan mustard. Overall, this vegetation type is low growing (less than 3 feet in height) but emergent creosote bush and ocotillo may be present in low densities. This vegetation occurs on older washes and river terraces, alluvial fans and bajadas, rocky hills and partially stabilized and stabilized sand fields. Soil type is variable: sandy, clay-rich, calcareous, and may have desert pavement surfaces. It occurs in scattered locations within the proposed OWEF site. White bursage scrub is considered a sensitive vegetation community.

### **Wolf's Cholla Scrub**

Wolf's cholla is dominant in the shrub canopy with white bursage, creosote bush, teddy bear cholla, brittle bush, rush sweetbush, ocotillo, California barrel cactus, jojoba, and fish-hook cactus (*Mammillaria dioica*). Common herbaceous species include Fremont's desert pincushion (*Chaenactis fremontii*), desert dandelion, desert trumpet, several species of cryptantha, and woolly plantain. The shrubs canopy is less than 6 feet in height. It occurs on alluvial fans, gentle to moderate slopes of rocky highlands. Soils are coarse sands to loams. It occurs in the southwestern part of the proposed OWEF site.

#### **3.18.1.2 Invasive, Noxious Weeds**

Weeds are species of invasive plants of concern to the California Invasive Plant Council (Cal-IPC) or the BLM. A noxious weed is any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife or property (BLM, 2010). Invasive plants include not only noxious weeds but also other plants that are not native to this country or to the area where they are growing (BLM, 2010). BLM considers plants invasive if they have been introduced to an environment where they did not evolve (BLM, 2010). Invasive, noxious weeds are of particular concern in wild lands because of their potential to degrade habitat and disrupt the ecological functions of an area (Cal-IPC, 2006) and can produce significant changes to vegetation composition and/or structure or ecosystem function (BLM, 2010). Specifically, noxious weeds can alter habitat structure, increase fire frequency and intensity, decrease forage (including for special status species), exclude native plants, and decrease water availability for both plants and wildlife. Soil disturbance creates conditions favorable to the introduction of new weeds or the spread of existing populations. Construction equipment, fill, and mulch can act as vectors introducing weeds into an area.

Of the 222 plant species that were documented during the 2010 special status plant species surveys (see Section 3.18.1.3), 14 species were non-native. These species include Saharan mustard, Russian thistle (*Salsola tragus*), nettle-leaf goosefoot (*Chenopodium murale*), prickly-lettuce (*Lactuca serriola*), jointed charlock (*Raphanus raphanistrum*), London rocket (*Sisymbrium irio*), red-stem filaree, athel tamarisk (*Tamarix aphylla*), puncturevine (*Tribulus terrestris*), and five annual grasses including Mediterranean schismus, slender wild oat (*Avena barbata*), red brome, six-weeks fescue (*Vulpia bromoides*), and rattail fescue (*Vulpia myuros*).

Five of these species are listed in the Cal-IPC Invasive Plant Inventory Database for the Sonoran Desert region (Cal-IPC, 2006; Table 3.18-2); the remaining species are not included in the inventory database for the Sonoran Desert region. None of these species is included on the Federal Weed List (7 CFR 360; California Department of Food and Agriculture, 2011a), nor is any, except puncturevine, on the Noxious Weed List—Section 4500 of the Food and Agriculture Code (California Department of Food and Agriculture, 2011b).

Scientific Name Common Name	Overall Cal-IPC Rating*	Cal-IPC Level of Invasiveness	Section 4500 of the California Department of Food and Agriculture Code Weed Rating
<i>Brassica tournefortii</i> Saharan mustard	High	Severe	NA
<i>Bromus madritensis</i> <i>subsp. rubens</i> red brome	High	Moderate	NA
<i>Vulpia myuros</i> rattail fescue	Moderate	Moderate	NA
<i>Erodium cicutarium</i> red-stem filaree	Limited	Limited	NA
<i>Salsola tragus</i> Russian thistle	Limited	Limited	NA
<i>Tribulus terrestris</i> Puncturevine	NA	NA	C

**High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

**Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

**Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

**C** - A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments. If found in the state, they are subject to regulations designed to retard spread or to suppress at the discretion of the individual county agricultural commissioner. There is no state enforced action other than providing for pest cleanliness (California Department of Food and Agriculture, 2011c).

The five species of invasive, noxious weeds are recognized at some level for their invasiveness. Two other non-native species, Mediterranean schismus and jointed charlock, are not listed as invasive but are suitable for inclusion for other reasons. Mediterranean schismus is suggested because it is widespread and appears invasive in the proposed OWEF site. Jointed charlock occurs in one location immediately adjacent to SR 98, but given its location it may have only recently been introduced to the proposed OWEF site but may prove invasive.

Saharan mustard is widespread over the proposed OWEF site but varies in abundance. It is most abundant in sandy substrate particularly where there is a history of human and or natural disturbances.

Red brome is infrequent in the proposed OWEF site. It was noted in at least three vegetation types including Wolf's cholla, creosote bush-white bursage, and brittle bush scrubs. Although these vegetation types cover a significant portion of the proposed OWEF site, red brome does not comprise a significant constituent in the cover of any of these vegetation types. Stands of red brome typically consist of less than five plants, and the stands are widely scattered.

Rattail fescue was very rare in the proposed OWEF site and was only observed in a small handful of locations.

Red-stem filaree is relatively widespread but occurs in low densities. It was observed in big galleta grass shrub-steppe and four scrubs, including creosote bush-white bursage, creosote bush-white bursage scrub, cheesebush, and brittle bush. Nowhere in the proposed OWEF site does this species dominate the landscape. It typically occurs in diffuse numbers. This is the third most abundant weed in the proposed OWEF site.

Russian thistle occurs in very low numbers in the proposed OWEF site. It was noted in one vegetation type, cheesebush scrub, but only rarely.

Mediterranean schismus is widespread in the proposed OWEF site and occurs in many vegetation communities including smoke tree woodland, badlands, and these scrubs: creosote bush-white bursage, creosote bush-white bursage scrub, cheesebush, white bursage, creosote bush-brittle bush. It is most abundant in sandy substrate and uncommon elsewhere. It is the second most abundant weed in the proposed OWEF site.

Jointed charlock is known from one location, on the shoulder of SR 98. Unlike the other invasives that occur in low numbers, jointed charlock only occurs next to the road. This indicates it may have only recently become established and its invasiveness cannot be ascertained. Therefore, it is considered potentially invasive.

Once one of California's most troublesome weeds, puncturevine is currently controlled by stem weevil (*Microlarinus lypriformis*) and seed weevil (*M. lareynii*) introduced from Italy as biocontrol agents in 1961. The habitats for this plant species include disturbed places, roadsides, railways, cultivated fields, yards, waste places, and walkways. It grows best on dry sandy soils, but tolerates most soil types. It is intolerant of freezing temperatures. One puncturevine plant was observed during all of the special status plant species surveys for the proposed OWEF. It was growing in a wash approximately 0.5-mile north of Interstate 8 and just west of Sugarloaf Mountain. This individual plant was collected and properly disposed of off site by the botanist that observed it in fall 2010.

The other species discussed here are essentially naturalized, and their distribution and abundance is not expected to change significantly without some outside influence (e.g., disturbance associated with establishment of a wind energy facility). Saharan mustard may be an exception to this as it has been increasing its distribution throughout southern California's deserts independent of any project-related disturbances.

### 3.18.1.3 Special Status Plant Species

Special status plant species surveys were conducted during the spring, fall, and winter of 2010, and winter and spring 2011 to document the presence, abundance, and status of special status plants within the proposed OWEF site. The spring 2010 surveys focused on the footprint of a preliminary project design with a 500-foot buffer from all project features (e.g., turbine locations, access roads, staging areas, borrow sites, and the operations and maintenance facility). The preliminary project design was a build-out of the majority of the proposed OWEF site. The fall 2010 and winter 2010/2011 survey covered the footprint of the redesigned project footprint with an approximately 500-foot buffer from revised project features. The spring 2011 surveys focused on an additional 220 acres due to project footprint changes.

The surveys were conducted by walking transects such that 100 percent visual coverage was achieved. The area surveyed totaled approximately 8,000 acres in spring 2010, approximately 7,000 acres in fall 2010 and winter 2010/2011, and approximately 220 acres in spring 2011. Each botanist compiled a species list and documented the location and number of special status plant species on an aerial photo, with a GPS, and with photographs. Each botanist also kept a GPS track log during the surveys to document their survey routes and documented the locations of invasive, noxious weed species encountered.

Data were collected and submitted in accordance with the BLM's Survey Protocols for NEPA/Endangered Species Act (ESA) Compliance for BLM Special Status Plant Species (BLM, 2009) and with the CDFG's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG, 2009).

Prior to conducting the surveys, a preliminary review of the California Natural Diversity Database (CDFG, 2010), California Native Plant Society (CNPS, 2011), and CALFLORA (2010) databases was conducted to compile a list of 52 special status plant species whose potential to occur in the proposed OWEF site was considered.

Special status plant species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special status species are of relatively limited distribution and typically require unique habitat conditions. Special status plant species are defined as meeting one or more of the following criteria:

1. Listed as threatened or endangered or candidates for future listing as threatened or endangered under California ESA or federal ESA;
2. Listed as species of concern by CDFG;
3. Plants "presumed extinct in California" (California Rare Plant Rank [CRPR] 1A), plants ranked as "rare or endangered in California" (CRPR 1B and 2), as well as CRPR 3 and 4 species;
4. Plants listed as rare under the California Native Plant Protection Act;
5. Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated in local or regional plans, policies, or ordinances; or
6. Any other species receiving consideration during environmental review under CEQA.

The BLM designates sensitive species as those requiring special management considerations to promote their conservation and reduce the likelihood and need for future listing under ESA. BLM Sensitive Species (BLM, 2004) include all Federal Candidate and Federally Delisted species which were so designated within the last 5 years, and CRPR 1B species that occur on BLM lands. For the purposes of this analysis, all BLM Sensitive Species are considered to be special-status species.

Table 3.18-2 lists all special status plant species evaluated during the analysis that are present or whose potential occurrence in the OWEF proposed OWEF site was considered. Special status species observed during the 2010 field surveys are indicated by bold-face type.

A total of 11 special status plant species were observed, none of which are state or federally listed. Special status plant species that were observed are as follows and below.

- Little San Bernardino Mountains linanthus (*Linanthus maculatus*)
- Haydon's lotus (*Lotus haydonii*)
- Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*)
- Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)
- Brown turbans (*Malperia tenuis*)
- Hairy stick-leaf (*Mentzelia hirsutissima*)
- Wolf's cholla (*Cylindropuntia wolffi*)
- Deboltia (*Cynanchum utahense*)
- Long-lobed four o'clock (*Mirabilis tenuiloba*)
- Thurber's pilostyles (*Pilostyles thurberi*)
- Desert unicorn plant (*Proboscidea althaeifolia*)

**Little San Bernardino Mountains linanthus (*Linanthus maculatus*)**

**Status:** --/--; CRPR 1B.2; BLM Sensitive

**Distribution:** Riverside, San Bernardino, and San Diego counties. Known primarily from the southwestern edge of the Mojave Desert and northwestern edge of the Colorado Desert.

**Habitat and Biology:** A small, annual herb that grows in very loose, soft sand on low benches along washes in Mojave and Sonoran desert scrub from 600 to 6,900 feet AMSL. Blooming period is March to May (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 100 individuals were observed in cheesebush scrub in the western portion of the proposed OWEF site, on the side slopes of the railroad tracks. Cheesebush (*Ambrosia salsola*) was present in the vicinity but not intermixed with the linanthus. Although the numbers of individuals observed is relatively small, the population is healthy and does not appear to be compromised by OHV activity or other disturbance.

**Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site\***

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
<i>Abronia villosa</i> var. <i>aurita</i> Chaparral sand verbena	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Annual herb growing on sandy floodplains or flats in generally inland, arid areas of sage scrub and open chaparral; 240-4,800 ft.	January to September	None. Not known from desert. Previous records of it in vicinity were misidentified.	Not observed.
<i>Amaranthus watsonii</i> Watson's amaranth	Federal – None State – None BLM – None CRPR – 4.3	Annual herb that occurs in Mojavean and Sonoran desert scrubs; 60-5,100 ft.	April to September	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Astragalus insularis</i> var. <i>harwoodii</i> Harwood's milk-vetch	Federal – None State – None BLM – None CRPR – 2.2	Annual herb that occurs in sand and gravelly desert dune areas; <1,000 ft.	January to May	Present.	Approximately 32 individuals were observed in creosote bush scrub, primarily in the northeast portion of the survey area.
<i>Ayenia compacta</i> California ayenia	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb occurring in dry, rocky canyons in Sonoran desert scrub; 450-3,300 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Bursera microphylla</i> Elephant tree	Federal – None State – None BLM – None CRPR – 2.3	Deciduous tree found on rocky slopes in Sonoran desert scrub; 600-2,100 ft.	June to July	Moderate. Species has been documented in the vicinity. Although portions of the proposed OWEF site support suitable rocky habitat, this species would likely have been observed if present.	Not observed.
<i>Calliandra eriophylla</i> Pink fairy-duster	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub occurring in sandy or rocky areas in Sonoran desert scrub; 380-4,500 ft.	January to March	Moderate. Although the proposed OWEF site supports suitable habitat, this species would likely have been observed if present.	Not observed.
<i>Camissonia arenaria</i> Sand evening primrose	Federal – None State – None BLM – None CRPR – 2.3	Annual or bushy perennial found in sandy or rocky areas in Sonoran desert scrub; 0-3,000 ft.	November to May	Moderate. Although the proposed OWEF site supports suitable habitat, this species would likely have been observed if present.	Not observed.
<i>Castela emoryi</i> Crucifixion thorn	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub that occurs in Sonoran desert scrub, on playas, and in gravelly soils; 280-2,000 ft.	April to July	Moderate. Although the proposed OWEF site supports suitable habitat, this species would likely have been observed if present.	Not observed.

**Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site\***

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
<i>Chaenactis carphoclinia</i> var. <i>peirsonii</i> Pierson pincushion	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Annual herb occurring in sandy areas in Sonoran desert scrub; 0-1,500 ft.	March to April	Moderate. Proposed OWEF site supports suitable habitat.	Not observed.
<i>Chamaesyce abramsiana</i> Abram's chamaesyce	Federal – None State – None BLM – None CRPR – 2.2	Annual herb found in sandy soils in desert scrub; 0-2,800 ft.	September to November	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Chamaesyce platysperma</i> Flat-seeded spurge	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Annual herb that occurs on desert dunes and in Sonoran desert scrub with sandy soil.	February to September	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Colubrina californica</i> Las Animas colubrina	Federal – None State – None BLM – None CRPR – 2.3	Deciduous shrub that occurs in creosote bush scrub; <3,000 ft.	April to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Condalia globosa</i> var. <i>pubescens</i> Spiny abrojo	Federal – None State – None BLM – None CRPR – 4.2	Deciduous shrub that occurs in Sonoran desert scrub; 450-3,000 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Coryphantha alversonii</i> Foxtail cactus	Federal – None State – None BLM – None CRPR – 4.3	A California-endemic stem succulent that occurs in Sonoran desert scrub, in sandy or rocky areas, usually granitic; 225-4,500 ft.	April to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Cryptantha costata</i> Ribbed crypthantha	Federal – None State – None BLM – None CRPR – 4.3	Annual herb associated with sand dunes and desert scrub; -200 – 1,640 ft.	February to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Cryptantha holoptera</i> Winged crypthantha	Federal – None State – None BLM – None CRPR – 4.3	Annual herb associated with desert scrub habitats; 325 – 5,500 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Croton wigginsii</i> Wiggins' croton	Federal – None State – None BLM – None CRPR – 2.2	Shrub or subshrub associated with sand dunes in Sonoran desert scrub; 150-300 ft.	March to May	Low. Although portions of the proposed OWEF site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.

<b>Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*</b>					
Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
<i>Cylindropuntia wolfii</i> Wolf's cholla	Federal – None State – None BLM – None CRPR – 4.3	A stem succulent occurring in dry places above valley floors in Sonoran desert scrub; 300-3,600 ft.	March to May	Present.	Approximately 24,735 individuals observed in numerous desert scrub habitats throughout the entire western half of the proposed OWEF site and north-central portion of the proposed OWEF site.
<i>Cylindropuntia wigginsii</i> Wiggins' cholla	Federal – None State – None BLM – None CRPR – 3.3	A stem succulent occurring in sandy areas in Sonoran desert scrub; 90-2,700 ft.	March	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Cynanchum utahense</i> Deboltia	Federal – None State – None BLM – None CRPR – 4.2	Dry, sandy, or gravelly areas in Sonoran desert scrub and Mojavean desert scrub are general habitats utilized by this vine-like perennial herb. Elevation range is 450 to 4,300 ft.	April to June	Present.	Approximately 557 individuals observed in sandy washes occurring within various desert scrub habitats, primarily in the western portion of the proposed OWEF site, in addition to the southeastern corner.
<i>Delphinium parishii</i> ssp. <i>subglobosum</i> Oceanblue delphinium	Federal – None State – None BLM – None CRPR – 4.3	Dry, stony fans and slopes associated with creosote bush scrub, chaparral, or pinyon-juniper woodland in open Sonoran desert scrub; 1,800-5,400 ft.	March to June	Present.	Not observed.
<i>Ditaxis serrata</i> var. <i>californica</i> California ditaxis	Federal – None State – None BLM – None CRPR – 3.2	Perennial herb found in rocky desert chaparral and Sonoran desert scrub; <3,000 ft.	March to December	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Eucnide rupestris</i> Annual rock nettle	Federal – None State – None BLM - None CRPR – 2.2	Annual herb that occurs in Sonoran desert scrub on rock or talus substrate; 1,500-1,800 ft.	December to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Helianthus niveus</i> ssp. <i>tephrodes</i> Algodones Dunes sunflower	Federal – None State – Endangered BLM - Sensitive CRPR – 1B.2	Shrubby perennial found in open, sandy places, dunes; 150-300 ft.	September to May	Low. Although portions of the proposed OWEF site support suitable dune habitat, this species is known only from east of El Centro.	Not observed.
<i>Horsfordia alata</i> Pink velvetmallow	Federal – None State – None BLM - None CRPR – 4.3	Shrub occurring in rocky canyons and washes; 300-1,800 ft.	February to December	Low to moderate. Some suitable habitat present in the proposed OWEF site.	Not observed.

**Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site\***

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
<i>Horsfordia newberryi</i> Newberry's velvetmallow	Federal – None State – None BLM - None CRPR – 4.3	Shrub occurring in creosote bush scrub; <2,400 ft.	February to December	Moderate. Species has been documented in the vicinity. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.
<i>Imperata brevifolia</i> California satintail	Federal – None State – None BLM – None CRPR – 2.1	Rhizomatous grass found in chaparral, coastal scrub, desert scrub, alkaline meadows and seeps, and riparian scrub; 0-1,500 ft.	September to May	Low. This species grows in arid areas where water is available. No suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Ipomopsis effuse</i> Baja California ipomopsis	Federal – None State – None BLM – None CRPR – 2.1	Annual herb that occurs in chaparral and Sonoran desert scrub (alluvial fan) in sandy substrate; <300 ft.	April to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Ipomopsis tenuifolia</i> Slender-leaved ipomopsis	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb that occurs in chaparral, pinyon and juniper woodlands, and Sonoran desert scrub on rocky or gravelly soil between 300 and 3,600 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.
<i>Juncus cooperi</i> Cooper's rush	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found in alkaline areas, meadows, and seeps; <5,000 ft.	April to May	Low. Suitable habitat not present in the proposed OWEF site.	Not observed.
<i>Linanthus maculatus</i> Little San Bernardino Mountains linanthus	Federal – None State – None BLM – Sensitive CRPR – 1B.2	A small annual herb that grows in very loose, soft sand on low benches along washes in Mojave and Sonoran desert scrub from 600 to 6,900 ft.	March to May	Present.	Approximately 100 individuals were observed in cheesebush scrub in the western portion of the proposed OWEF site, on the side slopes of the railroad tracks.
<i>Lotus haydonii</i> Haydon's lotus	Federal – None State – None BLM – None CRPR – 2.3	A diminutive perennial herb that grows on dry, rocky slopes in Sonoran desert scrub between 1,500 and 3,600 ft.	January to June	Present.	Approximately 19 individuals were observed primarily in rocky habitat in the southwestern portion of the proposed OWEF site.
<i>Lupinus excubitus var. medius</i> Mountain Springs bush lupine	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Perennial subshrub that occurs in sandy desert washes in pinyon and juniper woodland and Sonoran desert scrub between 1,300-4,100 ft.	March to May	Present	A single individual was observed along the edge of the central portion of the proposed OWEF site.
<i>Lycium parishii</i> Parish's desert-thorn	Federal – None State – None BLM – None CRPR – 2.3	Shrub found on sandy to rocky slopes, canyons; <3,000 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.

<b>Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site*</b>					
<b>Species</b>	<b>Status</b>	<b>Habitat</b>	<b>Blooming Period</b>	<b>Potential to Occur</b>	<b>Status in the Proposed OWEF site</b>
<i>Lyrocarpa coulteri</i> var. <i>palmeri</i> Coulter's lyrepod	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found on dry slopes, gravelly flats, and washes in Sonoran desert scrub; <1,800 ft.	December to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Malperia tenuis</i> Brown turbans	Federal – None State – None BLM – None CRPR – 2.3	Annual herb that occurs in Sonoran desert scrub with sandy soil; <1,500 ft.	March to April	Present.	Approximately 846,173 individuals observed in various desert scrub habitats in the eastern and western portions of the proposed OWEF site.
<i>Matelea parvifolia</i> Spearleaf	Federal – None State – None BLM – None CRPR – 2.3	Perennial herb that occurs in desert scrub habitats between 1,450 and 3,600 ft.	March to May	Low. Suitable desert scrub habitat is present but the proposed OWEF site is below the known elevation range of this species.	Not observed.
<i>Mentzelia hirsutissima</i> Hairy stick-leaf	Federal – None State – None BLM – None CRPR – 2.3	Occurs in rocky Sonoran desert scrub between 0 and 2,100 ft.	March to May	Present.	Approximately 89 individuals observed in creosote and brittlebush scrubs occurring in the central portion of the proposed OWEF site.
<i>Mimulus aurantiacus</i> var. <i>aridus</i> Bush monkeyflower	Federal – None State – None BLM – None CRPR – 4.3	Occurs in rocky chaparral and Sonoran desert scrub between 2,450 and 3,900 ft.	April to July	Low. Species has been documented in the vicinity. Would have been observed if present.	Not observed.
<i>Mirabilis tenuiloba</i> Long-lobed four o'clock	Federal – None State – None BLM – None CRPR – 4.3	A perennial herb found in Sonoran desert scrub on sandy, gravelly, or rocky slopes. Known sites are xeric (very dry) but relatively well-protected near boulders. Elevation range is 900 to 3,300 ft.	March to May	Present.	Approximately 308 individuals observed primarily in the southeastern corner of the proposed OWEF site along with other scattered occurrences in the central and western portions of the proposed OWEF site.
<i>Nemacaulis denudata</i> var. <i>gracilis</i> Slender woollyheads	Federal – None State – None BLM – None CRPR – 2.2	Annual herb that occurs in coastal dunes, desert dunes, and Sonoran desert scrub between 150 and 1,200 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Palafoxia arida</i> var. <i>gigantea</i> Giant Spanish-needle	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Annual/perennial herb found on desert dunes; 45-300 ft.	February to May	Low. This species is known only from east of El Centro.	Not observed.

**Table 3.18-3. Special Status Plant Species Present or With Potential to Occur in the Proposed OWEF site\***

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
<i>Penstemon clevelandii</i> <i>var. conatus</i> San Jacinto beardtongue	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found on rocky hillsides and in rock crevices in creosote bush scrub, juniper/pinyon woodland, and chaparral; 1,200 to 4,500 ft.	March to May	Low to moderate. Some suitable habitat in the proposed OWEF site.	Not observed.
<i>Penstemon thurberi</i> Thurber's beardtongue	Federal – None State – None BLM – None CRPR – 4.2	Perennial herb found on sandy and gravelly slopes and mesas in chaparral, pinyon/juniper woodland, and Sonoran desert scrub; 1,500 to 3,600 ft.	May to July	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Pholisma sonorae</i> Sand food	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Parasitic perennial herb found on desert dunes; 0-600 ft.	April to June	Low. This species is known only from east of El Centro.	Not observed.
<i>Pilostyles thurberi</i> Thurber's pilostyles	Federal – None State – None BLM – None CRPR – 4.3	Fleshy, parasitic plant found in Sonoran desert scrub flatlands; <1,000 ft.	January	Present.	Observed on 318 host plants (white dalea) in a variety of scrub communities in the central and western portions of the proposed OWEF site.
<i>Proboscidea althaeifolia</i> Desert unicorn plant	Federal – None State – None BLM – None CRPR – 4.3	Perennial herb found in creosote bush scrub and sandy desert scrub; 450-3,000 ft.	May to August	Present.	Six individuals observed in the northeastern portion of the survey area.
<i>Salvia greatae</i> Orocopia sage	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Evergreen shrub found in desert scrub habitats on alluvial slopes; <2,500 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.
<i>Senna covesii</i> Coves' senna	Federal – None State – None BLM – None CRPR – 2.2	Perennial herb found in Sonoran desert scrub in dry sandy washes and on slopes; 900-3,100 ft.	March to June	Moderate. Suitable habitat in the proposed OWEF site.	Not observed.
<i>Spermolepis echinata</i> Bristly scaleseed	Federal – None State – None BLM – None CRPR – 2.3	Annual herb growing in rocky, desert terrain or on sandy flats; 180-4,500 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Tetracoccus hallii</i> Holly-leaved spurge	Federal – None State – None BLM – None CRPR – 4.3	Deciduous shrub found in creosote bush scrub; <3,600 ft.	January to May	Moderate. Suitable habitat occurs in the proposed OWEF site; however, species would likely have been observed if present.	Not observed.

Species	Status	Habitat	Blooming Period	Potential to Occur	Status in the Proposed OWEF site
<i>Teucrium cubense</i> ssp. <i>depressum</i> Dwarf germander	Federal – None State – None BLM – None CRPR – 2.2	Annual herb found on desert dunes, on the edges of playas, and in Sonoran desert scrub; <1,200 ft.	March to May	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Wislizenia refracta</i> ssp. <i>palmeri</i> Palmer's jack-ass clover	Federal – None State – None BLM – None CRPR – 2.2	Deciduous shrub found in chenopod scrub, on desert dunes, in Sonoran desert scrub, and in Sonoran thorn woodland; <1,000 ft.	January to December	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Wislizenia refracta</i> ssp. <i>refracta</i> Jack-ass clover	Federal – None State – None BLM – None CRPR – 2.2	An annual herb occurring in desert scrub, on playas, on desert dunes, and particularly in sandy washes, alkaline flats, and along roadsides; 1,800-2,400 ft.	April to November	Low. Suitable habitat occurs in the proposed OWEF site, but OWEF is 50 miles south of nearest known population.	Not observed.
<i>Xylorhiza cognate</i> Mecca-aster	Federal – None State – None BLM – Sensitive CRPR – 1B.2	A California-endemic perennial herb found in arid canyons, washes, and creosote bush scrub; <1,200 ft.	January to June	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.
<i>Xylorhiza orcuttii</i> Orcutt's woody-aster	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Perennial herb that occurs in Sonoran desert scrub; <1,000 ft.	March to April	Moderate. Suitable habitat occurs in the proposed OWEF site.	Not observed.

\*Species in **bold-face** type were observed. See Section 3.18.1.3 for a description of the areas surveyed for special status plant species.

Status Codes:

**California Rare Plant Rank**

- List 1B = Rare, threatened, or endangered in California and elsewhere
- List 2 = Rare, threatened, or endangered in California but more common elsewhere
- List 3 = Plants which need more information
- List 4 = Limited distribution – a watch list
- 0.1 = Seriously threatened in California (high degree/immediacy of threat)
- 0.2 = Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3 = Not very threatened in California (low degree/immediacy of threats or no current threats known)

**BLM**

BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. BLM Sensitive species also include all Federal Candidate species and Federal Delisted species which were so designated within the last 5 years and CRPR 1B plant species that occur on BLM lands.  
[http://www.blm.gov/style/medialib/blm/wo/Information\\_Resources\\_Management/policy/blm\\_manual.Par.43545.File.dat/6840.pdf](http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.43545.File.dat/6840.pdf).

**Haydon's lotus (*Lotus haydonii*)**

**Status:** --/--; CRPR 1B.3; BLM Sensitive

**Distribution:** Eastern San Diego and Imperial counties and Baja California, Mexico.

**Habitat and Biology:** A diminutive, perennial herb that grows on dry, rocky slopes in Sonoran desert scrub between 1,500 and 3,600 feet AMSL. Blooms January to June (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 19 individuals of Haydon's lotus (also known as pygmy lotus) were observed primarily in rocky habitat in the southwestern portion of the proposed OWEF site. The species was found in a variety of desert scrub habitats with desert lavender, brittle bush, Wolf's cholla, cheesebush, and jojoba among other species. This species occurs in a scattered distribution in the southwest portion of the proposed OWEF site, and the overall occurrence quality and site viability ranges from good to excellent. Most occurrences are not under threat by OHV activity due to the rocky habitat; however, a handful of records located on the periphery of the rocky slopes could be subject to OHV disturbance. Some occurrences are within areas where Saharan mustard, an invasive, noxious weed, is present.

**Mountain springs bush lupine (*Lupinus excubitus* var. *medius*)**

**Status:** --/--; CRPR 1B.3; BLM Sensitive

**Distribution:** Eastern San Diego (near I-8) and Imperial counties and Baja California, Mexico.

**Habitat and Biology:** A perennial subshrub that grows in sandy desert washes in pinyon and juniper woodland and Sonoran desert scrub between 1,300 and 4,100 feet AMSL. Blooms March to May (CNPS, 2011).

**Status in Proposed OWEF site:** A single individual was observed along the edge of the central portion of the proposed OWEF site.

**Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)**

**Status:** --/--; CRPR 2.2

**Distribution:** Central-eastern San Diego, eastern Riverside, and Imperial counties; Arizona; Sonora, Mexico.

**Habitat and Biology:** Sonoran desert scrub in gravelly, sandy washes or dunes below 1,000 feet AMSL is the preferred habitat of this annual herb. Blooms January to May (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 32 individuals were observed in creosote bush scrub, primarily in the northeast portion of the proposed OWEF site. Other species observed in the vicinity include creosote bush, cheesebush, Thurber's sandpaper plant, desert sand verbena (*Abronia villosa* var. *villosa*), allscale, Palmer's coldenia, and Saharan mustard. The population observed is small, and the overall health is fair. A paved road is located near the occurrences of this species, and OHV activity and substantial cover by Saharan mustard, an invasive, noxious weed, also have been documented.

**Brown turbans (*Malperia tenuis*)**

**Status:** --/--; CRPR 2.3

**Distribution:** Eastern San Diego and Imperial counties and Baja California, Mexico.

**Habitat and Biology:** An annual herb that occurs in Sonoran desert scrub at elevations less than 1,500 feet, growing on arid slopes with shallow soils as well as rocky surface rubble with few large boulders and little competition from shrubs. Blooms March through April (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 846,173 individuals observed in various desert scrub habitats in the eastern and western portions of the proposed OWEF site, with the vast majority of individuals found in the southeastern portion of the proposed OWEF site, often in areas with abundant surface gravel or cobbles. Other species observed in the vicinity include brittlebush, creosote bush, ocotillo, Mohave desert star, narrow-leaf oligomeris, pebble pincushion, and woolly plantain. The proposed OWEF site supports a robust population of this species, particularly in the southeast, and the overall health of the population is excellent. Small numbers of this species are subject to disturbance by OHVs and competition with Saharan mustard, an invasive, noxious weed, in the northeast portion of the proposed OWEF site, in the same vicinity as the Harwood's milk-vetch population.

**Hairy stick-leaf (*Mentzelia hirsutissima*)**

**Status:** --/--; CRPR 2.3

**Distribution:** Eastern San Diego and Imperial counties and Baja California, Mexico.

**Habitat and Biology:** An annual herb found below 2,000 feet AMSL in low Sonoran desert scrub. Grows on rocky hillsides and desert mesas. Blooms March to May (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 89 individuals observed in creosote and brittle bush scrubs occurring in the central portion of the proposed OWEF site. Associated species include creosote bush, brittlebush, cheesebush, rush sweetbush, indigo bush, California barrel cactus, and long-lobed four o'clock. Overall health of the population is good, with only minor threats by OHV activity in some areas, as well as competition with Saharan mustard, an invasive, noxious weed.

**Wolf's cholla (*Cylindropuntia wolfii*)**

**Status:** --/--; CRPR 4.3

**Distribution:** Eastern San Diego and Imperial counties and Baja California, Mexico.

**Habitat and Biology:** This large stem succulent grows in Sonoran desert scrub, usually on alluvial fans or rocky slopes in open terrain, at elevations between 300 and 3,600 feet AMSL. Blooms March to May (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 24,735 individuals observed in numerous desert scrub habitats throughout the entire western half of the proposed OWEF site and north-central portion of the proposed OWEF site. Associated species include creosote bush, brittlebush, ocotillo, teddy bear cholla, jojoba, desert lavender, desert agave, indigo bush, pencil cholla (*Cylindropuntia ramosissima*), and silver cholla (*C. echinocarpa*). The population is in good to excellent condition, and individuals are widespread and abundant within the proposed OWEF site. Portions of the population are subject to disturbance by OHVs and competition by Saharan mustard, an invasive, noxious weed.

**Deboltia (*Cynanchum utahense*)**

**Status:** --/--; CRPR 4.2

**Distribution:** Southeastern California, Nevada, Utah, and Arizona.

**Habitat and Biology:** Dry, sandy, or gravelly areas in Sonoran desert scrub and Mojavean desert scrub are general habitats utilized by this vine-like perennial herb. Elevation range is 450 to 4,300 feet AMSL. Blooms April to June (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 557 individuals observed in sandy washes occurring within various desert scrub habitats, primarily in the western portion of the proposed OWEF site, in addition to the southeastern corner. This twining species was primarily observed growing on big galleta grass, few-flower wreath plant, white rhatany, cheesebush, and California fagonia. Populations within the proposed OWEF site generally occur in concentrated locations where suitable sandy or gravelly wash habitat is present and are in good to excellent condition.

**Long-lobed four o'clock (*Mirabilis tenuiloba*)**

**Status:** --/--; CRPR 4.3

**Distribution:** Imperial, Riverside, and San Diego counties; Arizona; Baja California, Mexico.

**Habitat and Biology:** A perennial herb found in Sonoran desert scrub on sandy, gravelly, or rocky slopes. Known sites are xeric (very dry) but relatively well-protected near boulders. Elevation range is 900 to 3,300 feet AMSL. Blooms March to May (CNPS, 2011).

**Status in Proposed OWEF site:** Approximately 308 individuals observed primarily in the southeastern corner of the proposed OWEF site along with other scattered occurrences in the central and western portions of the proposed OWEF site. Associated species include cheesebush, desert lavender, brittle bush, rush sweetbush, smoketree, catclaw acacia, and chuparosa. Overall, the population is in good condition, although portions of the population are threatened by OHV activity and competition with Saharan mustard, and invasive, noxious weed.

**Thurber's pilostyles (*Pilostyles thurberi*)**

**Status:** --/--; CRPR 4.3

**Distribution:** Imperial, Riverside, and San Diego counties; Arizona; Nevada; Baja California and Sonora, Mexico.

**Habitat and Biology:** A perennial, parasitic herb found in Sonoran desert scrub flatlands at less than 1,000 feet AMSL. Typical host plant is white dalea (Baldwin et al., 2002). Blooms in January (CNPS, 2011).

**Status in Proposed OWEF site:** Observed on 318 white dalea host plants in a variety of scrub habitats in the central and western portions of the proposed OWEF site with most occurrences concentrated in the central portion of the proposed OWEF site. Other species present in the vicinity include creosote bush, cheesebush, ocotillo, indigo bush, Thurber's sandpaper plant, Wolf's cholla, pencil cholla, and silver cholla.

### **Desert unicorn plant (*Proboscidea althaeifolia*)**

**Status:** --/--; CRPR 4.3

**Distribution:** Imperial, Riverside, and San Diego counties; Arizona; New Mexico; Baja California and Sonora, Mexico

**Habitat and Biology:** Desert washes in Sonoran desert scrub. Elevation range is 500 to 3,300 feet AMSL. Blooms May to August (CNPS, 2011).

**Status in Proposed OWEF site:** Six (6) individuals observed in the northeastern portion of the survey area.

#### **3.18.1.4 Federal and State Jurisdictional Areas**

Field work for the jurisdictional delineation was conducted in October and November 2010. The results presented below are consistent with input provided by the ACOE (pers comm. Mattson et al., 2010). The ACOE concurred with the field determination. Field work conducted in November was conducted following ACOE input.

Jurisdictional delineation data was collected along 10 transects, which were set up perpendicular along two baselines. Baseline 1 ran east-west through the portion of the proposed OWEF site which is north of I-8. All 10 transects intercept this baseline. Baseline 2 is located in the portion of the proposed OWEF site south of I-8 and was also oriented east-west. Transects 8, 9, and 10 also intercept this baseline. The entire length of each transect was surveyed on foot. Jurisdictional features were mapped with the aid of a GPS that is accurate to less than 3 feet.

#### **Determining Federal Jurisdiction**

All areas with depressions, drainage channels, or wetland vegetation were evaluated for the presence of ACOE Waters of the U.S (WUS). Previous field surveys (such as vegetation mapping, rare plant surveys, etc.) revealed that no jurisdictional wetlands occur within the proposed OWEF site. This conclusion is based on the lack of any vegetation dominated by wetland species.

Areas were determined to be jurisdictional non-wetland WUS where there was evidence of an ordinary high water mark (OHWM). ACOE regulations define OHWM, for the purposes of the Clean Water Act (CWA) at 33 CFR 328.3(e):

“The term *ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, and other appropriate means that consider the characteristics of the surrounding areas.”

Among other points, the Regulatory Guidance Letter (ACOE, 2005) lists the following physical characteristics to consider when making an OHWM determination:

- Natural line impressed on the bank
- Shelving
- Changes in the character of soil
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour

- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Deposition
- Multiple observed flow events
- Bed and Banks
- Water Staining
- Change in plant community

The ACOE has also issued further instructions for identifying the OHWM in desert areas (Lichvar and McColley, 2008), which has also been used as a guide to identifying the limits of ACOE jurisdiction within the proposed OWEF site. This publication relies on stream geomorphology and vegetation response to the dominant stream discharge to aid in identifying the OHWM.

ACOE jurisdictional non-wetland Waters of the U.S. within the proposed OWEF site total 239.16 acres (Table 3.18-4). No ACOE jurisdictional wetlands occur within the proposed OWEF site.

Habitat	ACOE	CDFG
<b>Wetlands</b>		
Allscale scrub	0.00	17.51
Cheesebush scrub	0.00	379.70
Creosote bush-allscale scrub	0.00	216.01
Creosote bush-fourwing saltbush scrub	0.00	9.56
Desert lavender scrub	0.00	3.91
Fourwing saltbush scrub	0.00	6.53
Mesquite thicket	0.00	0.27
Smoke tree woodland	0.00	225.51
<b>Non-Wetlands</b>		
Drainage/Streambed	239.16	158.38
<b>TOTAL</b>	<b>239.16</b>	<b>1,017.38</b>

Source: HELIX 2011a

The results presented here are also consistent with recent court decisions (i.e., *Rapanos v. United States*, *Carabell v. United States*, and *Solid Waste Agency of Northern Cook County v. ACOE*), as outlined and applied by the ACOE (ACOE, 2007; Grumbles and Woodley, 2007), ACOE and U.S. Environmental Protection Agency (ACOE and EPA, 2007), and EPA and ACOE (EPA and ACOE, 2007). These publications explain that the EPA and ACOE will assert jurisdiction over traditional navigable waters (TNW) and tributaries to TNWs that are a relatively permanent water body (RPW), which has year-round or continuous seasonal flow.

### Determining State Jurisdiction

CDFG jurisdictional boundaries were determined based on the presence of riparian vegetation or regular surface flow. Streambeds within CDFG jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation” (Title 14, Section 1.72 California Code of Regulations). This definition for CDFG jurisdictional habitat allows for a wide variety of habitat types to be jurisdictional, including some that do not include wetland species (e.g., smoke tree woodland and cheesebush scrub). Within the proposed OWEF site, however, these were only considered CDFG jurisdictional if associated

with a streambed or watercourse. There are apparent drainages in the proposed OWEF site that show no sign of any stream flow, and these were not regarded as CDFG jurisdictional.

CDFG jurisdictional areas within the proposed OWEF site total 1,017.38 acres and consist of 859.00 acres of wetlands and 158.38 acres of streambed (Table 3.18-4).

### **3.18.2 Applicable Regulations, Plans, and Standards**

This section provides a discussion of federal, state, and regional environmental regulations, plans and standards applicable to the OWEF for vegetation resources and state and federal jurisdictional areas.

#### **3.18.2.1 Federal Regulations**

##### **National Environmental Policy Act**

NEPA (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs “a systematic, interdisciplinary approach” to planning and decision-making and requires environmental statements for “major Federal actions significantly affecting the quality of the human environment.” Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environment and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the OWEF.

##### **Clean Water Act**

The CWA (33 U.S.C. 1251 et seq.) is intended to restore and maintain the quality and biological integrity of the nation’s waters. It prohibits the discharge of pollutants into WUS without a National Pollutant Discharge Elimination System (NPDES) permit from the EPA. By issuing NPDES permits, the EPA can regulate the discharge of pollutants to protect water quality.

Section 404 of the CWA provides that whenever any person discharges dredged or fill material into waters of the U.S. (e.g., streams, wetlands, lakes, bays) a permit is required from the ACOE. The ACOE has issued 50 separate Nationwide Permits (NWP) for different types of projects with impacts to wetlands (as of March 19, 2007). Depending on the level of impact, projects qualifying for an NWP may be required to provide the ACOE with Pre-Construction Notification of the impacts and meet other restrictions. Projects with greater wetland impacts than those allowed under one of the NWPs require an Individual Permit. The process of obtaining an individual permit includes public notice and response to all comments received; the permit decision document includes a discussion of the environmental impacts of the project, the permit addresses public and private needs, alternatives to achieve project purposes if needed, and beneficial and/or detrimental effects of the project on public and private uses. In *SWANCC vs. ACOE*, the Supreme Court ruled that the jurisdiction of the ACOE does not extend to isolated, intrastate, non-navigable waters and wetlands, such as vernal pools, ephemeral streams, and wetlands not associated with a stream channel. The ACOE also authorizes activities that involve structures or work in or affecting navigable WUS under Section 10 of the Rivers and Harbors Act of 1899.

Section 401 of the CWA requires that an applicant for a federal license or permit to discharge into navigable waters must provide the federal agency with a water quality certification, declaring that the discharge would comply with water quality standards requirements of the CWA. ACOE issuance of a Section 404 permit triggers the requirement that a Section 401 certification also be obtained. In California, the Regional Water Quality Control Boards (RWQCBs) issue this certification.

#### **Executive Order 13112 – Invasive Species**

Executive Order 13112 was signed in February 1999 and established the National Invasive Species Council. This Order requires agencies to prevent the introduction of invasive species; to provide for their control; and to minimize the economic, ecological, and human health impacts that invasive species cause to the extent practicable and permitted by law.

#### **Plant Protection Act**

The Plant Protection Act (Public Law 106-224 [June 20, 2000]) replaced the Federal Noxious Weed Act and many other USDA Animal and Plant Health Inspection Service Plant Protection Authorities. This Act consolidates and modernizes all major statutes pertaining to plant protection and quarantine (Federal Noxious Weed Act, Plant Quarantine Act).

#### **Lacey Act, as amended (16 USC 3371-3378)**

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

#### **Federal Endangered Species Act**

The ESA designates threatened and endangered animals and plants and provides measures for their protection and recovery. “Take” of listed animal species and of listed plant species is prohibited without obtaining a federal permit. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not it is currently present, is also prohibited. ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that “may affect” a listed species or its critical habitat must consult with USFWS. For example, the ACOE must issue a permit for projects impacting non-wetland WUS or wetlands under ACOE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., ACOE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 30 days to respond to the federal agency regarding the adequacy of the analysis of effects to the species addressed in the BA. If the BA is deemed adequate then consultation is initiated. At the end of the consultation (135 days by regulations), the USFWS issues its

Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a “no jeopardy” opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest “reasonable and prudent measures” that would result in no jeopardy.

Under Section 10 of the ESA private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an Incidental Take Permit, the applicant must develop a habitat conservation plan (HCP) which specifies effects to listed species, provides minimization and mitigation measures and funding, discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not “appreciably reduce the likelihood of the survival and recovery of the species” it will issue an Incidental Take Permit. Issuance of an Incidental Take Permit requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on private property are protected under ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an Incidental Take Permit.

#### **BLM Sensitive Species**

BLM Sensitive Species are species designated by the State Director that are not already federal listed proposed, or candidate species, or state listed because of potential endangerment. BLM’s policy is to “ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered.” Various offices of the BLM maintain a list of special status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

#### **CDCA Plan**

The CDCA Plan covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the CDCA Plan, essentially zoning the CDCA into four major use categories, as a city or county is zoned for land use classes. The CDCA Plan categories include approximately four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; approximately four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; approximately 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any damage caused by permitted uses; and approximately 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 2007).

The Plan's goals and actions for each resource are established in its 12 elements including the Vegetation Element and the Energy Production and Utility Corridors Element, among several others (BLM, 2007). The proposed OWEF site is located within Class C and Class L lands (BLM, 1980, fold-out map). While there have been amendments to the 1980 Plan, such as the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), none of the amendments affect the proposed OWEF site.

According to the Plan's Multiple Use Class Guidelines, wind/solar power plants are not allowed within Class C lands but may be allowed within Class L lands after NEPA requirements are met (BLM, 1980). The Plan also states, however (in the Energy Production and Utility Corridors Element section), that "Plan amendment procedures will adequately provide for the coordination needed for assuring rapid implementation of these important fuel-replacement alternative energy programs in an environmentally sound manner" (BLM, 1980).

#### **Executive Order 11990 Protection of Wetlands**

This order establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative.

#### **Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (16 U.S.C. 661-666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with the USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

### **3.18.2.2 State Law and Regulations**

#### **California Endangered Species Act**

The California ESA provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike ESA, state listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFG under California ESA Sections 2091 and 2081. Section 2091, like ESA Section 7, provides for consultation between a state lead agency under the CEQA and CDFG, with issuance of take authorization if the project does not jeopardize the listed species. Section 2081 allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFG to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

#### **California Environmental Quality Act**

CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by state and local public agencies. In addition to federal or state listed species, "sensitive" plants and animals receive consideration under CEQA. Sensitive species include, but are not limited to, wildlife Species of Special Concern listed by CDFG, and plant species on the California Native

Plant Society's List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for state listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for state listing).

### **California Fish and Game Code**

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

### **California Native Plant Protection Act**

The Native Plant Protection Act (NPPA) of 1977 directed the CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. The California Endangered Species Act of 1984 expanded on the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the Fish and Game Code. To align with federal regulations, California ESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in California ESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFG and the project proponent.

### **Porter-Cologne Act**

The intent of the Porter-Cologne Act is to protect water quality and the beneficial uses of water, and applies to both surface and groundwater. Under this law, the California State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne include isolated waters that are no longer regulated by ACOE. Developments which impact jurisdictional waters must demonstrate compliance with the goals of the Act by developing Storm Water Pollution Prevention Plans, Standard Urban Storm Water Mitigation Plans, and other measures in order to obtain a CWA Section 401 certification.

### **Lake and Streambed Alteration Program**

Prior to commencement of any activity that would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, the applicant will submit a complete Lake or Streambed Alteration Program notification package and fee to the CDFG. The Lake and

Streambed Alteration Program is a California law that requires that any person, state or local government agency, or public utility notify the CDFG prior to beginning of the activities listed above. The CDFG has 30 days to review the proposed actions and propose measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFG and the project proponent becomes the Lake or Streambed Alteration Agreement. The conditions of agreement and a CWA Section 404 permit often overlap.

### **3.18.2.3 Regional and Local Plans, Policies, and Regulations**

#### **Imperial County General Plan**

The Conservation and Open Space Element and Land Use Element of the General Plan (Imperial County, 1993 and 2008) direct the County to evaluate the compatibility of proposed development projects with the preservation of biological resources and open space.

The Goals and Objectives of Conservation of Environmental Resources and Preservation of Biological Resources within the Conservation and Open Space Element related to vegetation, sensitive plant species, and jurisdictional areas include the following:

Goal 1: Environmental resources will be conserved for future generations by minimizing environmental impacts in all land use decisions.

Objective 1.1 Recognize that the degradation of one natural resource will have a concomitant negative effect upon the total resource base, including water, vegetation, air, wildlife, soil, and minerals.

Objective 1.2 Encourage only those uses and activities that are compatible with the fragile desert, aquatic, and marshland environment.

Objective 1.3 Coordinate the acquisition, designation, and management of important natural resource areas in Imperial County with other appropriate governmental agencies as necessary.

Objective 1.4 Develop standards to protect significant natural resource areas for the purpose of enhancing both the planning and decision-making process.

Objective 1.5 Provide for the most beneficial use of land based upon recognition of natural constraints.

Objective 1.6 Ensure the conservation, development and utilization of the County's natural resources.

Objective 1.7 Provide the opportunity for enjoyment of a quality natural experience to present and future generations.

Objective 1.8 Encourage the acquisition of scientific knowledge by encouraging the preservation of important ecological, archaeological, and other scientific sites.

Goal 2: The County will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats, and plant and animal species.

Objective 2.1 Conserve wetlands, fresh water marshes, and riparian vegetation.

Objective 2.2 Protect significant fish, wildlife, plant species, and their habitats.

Objective 2.3 Protect unique, rare, and endangered plants and animals and their habitats.

Objective 2.4 Use the environmental impact report process to identify, conserve and enhance unique vegetation and wildlife resources.

Objective 2.5 Give wildlife conservation a high priority in County park acquisition and development programs.

Objective 2.6 Attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.

Objective 2.7 Discourage the use of wild native animals as pets.

The Goals and Objectives of Protection of Environmental Resources within the Land Use Element related to vegetation, sensitive plant species, and jurisdictional areas include the following include the following:

Goal 9: Identify and preserve significant natural, cultural, and community character resources and the County's air and water quality.

Objective 9.1 Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

An analysis of compatibility will be provided in Section 4.17 and 4.23, as appropriate.

#### **Imperial County Land Use Ordinance**

The Imperial County Land Use Ordinance provides grading regulations for proposed development projects throughout the unincorporated areas of the county (Imperial County, 2009).

## 3.19 Visual Resources

Visual resources refer to visual considerations in the physical environment. Visual resources analysis is a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The visual resources section describes the existing landscape character and visual quality of the OWEF area, existing views of the proposed project area from various on-the-ground vantage points, the visual characteristics of the proposed project, and the landscape changes that would be associated with the construction and operation of the proposed project as seen from various vantage points.

For the purposes of this analysis, the proposed OWEF study area is defined as the areas and locations from which the proposed project can be seen, also referred to as the project viewshed. From a practical standpoint, the primary area of concern is that portion of the Yuha Desert east of the Jacumba Mountains, south of the Coyote Mountains, west of Plaster City, and north of Jacumba Wilderness.

### 3.19.1 Environmental Setting

#### 3.19.1.1 Regional Setting

The proposed OWEF is located within the Salton Trough of the Basin and Range physiographic province. This area is characterized by rough, rocky mountains formed by northerly trending fault blocks. Typical of this province are desert basins and jagged ranges along with desert alluvial slopes (bajadas) and wide valleys that are interconnected across low divides (Hunt, 1974). Views from travel routes within the vicinity of the study area tend to encompass broad, sweeping desert expanses bordered by rugged mountain ranges. Within this regional setting, the study area for the visual resources analysis is defined by the numerous viewpoints from which the proposed project would be seen. The viewshed is considerable given the relative openness of the landscape, the height of the proposed wind turbines, and the availability of viewing opportunities from travel routes, recreational use areas, and a nearby residential community.

#### 3.19.1.2 Approach to Baseline Analysis

##### General Approach

The Federal Land Policy and Management Act of 1976 (FLPMA) identifies scenic resources as one of the resources for which public lands should be managed. In order to satisfy its responsibilities with respect to scenic resources, the BLM's Visual Resource Management (VRM) Policy establishes a visual assessment methodology to inventory and manage scenic values on lands under its jurisdiction. The BLM manual M-8400 (Visual Resource Management), Handbook H-8410 (Visual Resource Inventory), Handbook H-8431 (Visual Resource Contrast Rating), and Instruction Memorandum 2009-167 (Application of the VRM Program to Renewable Energy) set forth the policies and procedures for determining visual resource values, establishing management objectives, and evaluating proposed actions for conformance with established objectives for BLM-administered public lands.

The three primary elements of the BLM's VRM Policy are: (1) determining resource values; (2) establishing management objectives; and (3) evaluating the conformance of proposed actions with those objectives (each of which are described briefly below; please see Appendix F for more detail).

- **Determining Resource Values:** The primary means to establish visual resource values is through a Visual Resource Inventory (VRI) that results in the assignment of one of four VRI Classes (I to IV) to represent the relative visual value of an area. VRI Class I has the highest value and VRI Class IV has the lowest. VRI Class I is reserved for special congressional designations or administrative decisions such as Wilderness Areas, visually sensitive Areas of Critical Environmental Concern (ACECs), or Wild and Scenic Rivers, etc. VRI Classes II through IV are determined through a systematic process that documents the landscape's scenic quality, public sensitivity, and visibility. Rating units for each of the three factors are mapped individually, evaluated, and then combined through an over-layering analysis. The three factors going into the VRI Class determination are described in Appendix E-2. The combined factors are then cross-referenced with the VRI Matrix to determine the applicable VRI Class. VRI Classes are informational in nature and provide a baseline for existing conditions. They do not establish management direction and should not be used as a basis for constraining or encouraging surface disturbing activities. They provide the baseline data for existing conditions. The applicable Scenic Quality Rating Unit forms are presented in Appendix E-1).
- **Establishing Management Objectives:** VRM Classes are determined through careful consideration of VRI Class designations (visual values), land use and demands, and the resource allocations and/or management decisions made in the applicable land use plan for a given area. VRM Class designations set the level of visual change to the landscape that may be permitted for any surface-disturbing activity. The objective of VRM Class I is to preserve the character of the landscape, whereas VRM Class IV provides for activities that require major modification to the landscape. VRI Classes are not intended to automatically become VRM Class designations. VRM Classes may be different than the VRI Classes assigned during the inventory, as the former should reflect a balance between the protection of visual values and other resource use needs. For example, an area with a VRI Class II designation may be assigned a VRM Class IV designation based on its overriding value for mineral resource extraction or its designation as a utility corridor. The objectives of each VRM classification are as follows.
  - **VRM Class I.** The objective is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
  - **VRM Class II.** The objective is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
  - **VRM Class III.** The objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate or lower. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
  - **VRM Class IV.** The objective is to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view

and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements in the predominant natural features of the characteristic landscape.

The applicable VRI Class worksheets are presented in Appendix E-1.

- *Evaluating the Conformance:* Finally, proposed plans of development are evaluated for conformance to the VRM Class objectives through the use of the Visual Resource Contrast Rating process set forth within BLM Handbook H-8431-1. Contrast rating worksheets are presented in Appendix E-1.

### **Approach Under the CDCA Plan**

The general approach described above varies slightly for the proposed OWEF due to the proposed project's location in the CDCA. The CDCA Plan, which is the land use plan covering the area where the project is located, does not contain a visual resource element and has no established VRM Classes. When a project is proposed and there are no Resource Management Plan-approved VRM objectives, Interim VRM Classes must be established. These classes are developed using the process just described but may be restricted in geographic scope to areas affected by the proposed action. If the area is also without a VRI, then one must be conducted in order to provide a baseline of data by which to analyze impacts and to inform appropriate designation of interim VRM Classes.

### **Approach for Non-BLM Lands**

The BLM's VRM methodology was also applied to non-BLM lands including non-BLM lands in the vicinity of the community of Ocotillo and, to the west, Anza-Borrego Desert State Park (ABDSP). This required a focused VRI of the state park lands west of the project site in the vicinity of Mortero Palms and the Volcanic Hills farther to the north.

## **3.19.1.3 Project Viewshed and Key Observation Points**

### **Project Viewshed**

The proposed OWEF site is situated at the western end of the Yuha Desert at the bottom of Mountain Springs Grade along Interstate 8 (I-8). The site consists primarily of a flat desert basin with the occasional low, isolated desert hill and localized areas of considerable erosion and steeply cut drainages and washes that add some topographic variety and visual interest to the landscape. The area is bisected by several dry washes and is bordered by rugged, rocky mountains and jagged ridgelines. Vegetation is sparse, with low-growing grasses and shrubs such as creosote predominating. The existing Southwest Powerlink (SWPL) 500-kV transmission line, with its lattice towers, crosses the site and is a prominent built feature. Several travel routes pass through the project area including I-8, State Route 98, (SR98) and County Road S2 (Imperial Highway). The community of Ocotillo is located between the eastern portion of Site 1 (to the north) and Site 2 (to the south). The project study area for the purposes of visual resources (i.e., its viewshed) is defined as all land areas from which any element of the project would be visible. Views of the project site are available from the primary travel routes (I-8, SR98, and S2), the community of Ocotillo, and several BLM 4WD recreational access roads that pass through and near the project site. The site is also visible from the Coyote Mountains Wilderness to the north, Jacumba Wilderness to the south, and the southern portion of ABDSP to the west, including the Jacumba Mountains, Volcanic Hills, and

the vicinity of Mortero Palms and Dos Cabezas Primitive Camp Area. Based on BLM guidance (BLM Handbook H-8410), the outer extent of the background visibility zone is a radius 15 miles away from the outer edges of the project footprint. Beyond 15 miles is considered the “seldom seen” zone. Beyond this distance the project may be visible, although it would constitute a distant and minor element in views and would likely disappear into the horizon line, or be hidden by atmospheric conditions (e.g., haze or dust) and intervening topography. Figure 3.19-1 presents a project viewshed map.

#### **Alternative 1 (Proposed Action) Key Observation Points**

In consultation with the BLM, four representative KOPs were established to assess the various factors that are considered in the evaluation of a landscape’s existing visual resources. Based on a subsequent field reconnaissance, two additional KOPs were selected in ABDSP. KOPs were generally selected to be representative of the most critical locations from which the proposed project would be seen. KOPs were located based on their usefulness in evaluating existing landscapes and potential impacts on visual resources with various levels of sensitivity, in different terrain, and from various vantage points. KOP locations for the proposed project include: (1) along major or significant travel corridors (I-8 and S2), (2) at nearby recreation areas (ABDSP), and (3) from a nearby residential community (Ocotillo Community Park). These locations provide representative examples of the existing landscape context and viewing conditions for the proposed project and are shown on Figure 3.19-1. At each KOP, the existing landscape was characterized per the applicable methodology and photographed. Photographs are presented as 11” x 17” color images at “life-size scale” when viewed at a standard reading/viewing distance of 18 inches (i.e., when the report image is held at a distance of 18 inches from the eye, all landscape features in the images would appear to be the same scale and size as they would appear in the field at the viewpoint location). A discussion of the existing visual setting for each KOP is presented in the following paragraphs.

#### ***Key Observation Point 1 (KOP 1) – Eastbound Interstate 8 at the bottom of Mountain Springs Grade***

KOP 1 was established on eastbound I-8, where it splits from westbound I-8 at the base of Mountain Springs Grade in western Imperial County, and is representative of the various proposed project views along eastbound I-8 after descending Mountain Springs Grade (see Figure 4.18-2A). It is along this section of I-8 that travelers get their first views of the western Yuha Desert. While it is understood that viewpoints closer to turbines will experience greater visual contrast, and viewpoints that are farther away from the turbines will experience lesser visual contrast, KOP 1 was considered a reasonable compromise in viewpoint location along eastbound I-8. Viewing to the north-northeast, this view encompasses a portion of the Yuha Desert in close proximity to major infrastructure corridors including I-8 and the existing SWPL transmission line (not apparent in the view presented as Figure 4.18-2A). The flat desert landscape supports an irregular to consistent distribution of short grasses and shrubs of subdued color. Although there are distant mountain ranges and areas of localized erosion that create land variation of visual interest, the overall scenic quality of the desert basin landscape is somewhat compromised by the prominence of the freeway, the presence of the SWPL steel-lattice structures with their industrial character (when viewed from various viewpoints), and the existing development associated with the community of Ocotillo. The applicable Scenic Quality Classification is Class C, and Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds

of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997).

The applicable VRI Class Rating is III.

***Key Observation Point 2 (KOP 2) – Westbound Interstate 8 at the bottom of Mountain Springs Grade***

KOP 2 was established on westbound I-8, west of the I-8 split at the base of Mountain Springs Grade in western Imperial County, and is representative of project views along westbound I-8 in the vicinity of the proposed OWEF (see Figure 4.18-3A). While it is understood that a different viewpoint along I-8 might capture more or fewer turbines in the field of view, and thus, experience different levels of visual contrast, KOP 2 was considered a reasonable compromise in viewpoint location along westbound I-8. Viewing to the northwest, this view encompasses the far western portion of the Yuha Desert, west of the community of Ocotillo and the existing SWPL transmission line, and extending to the San Diego/Imperial County line. This area includes a foreground to middleground flat desert landscape that supports a sparse and irregular to more uniform at distance distribution of short grasses and shrubs of subdued color. Although the rugged and visually interesting landforms of the adjacent Jacumba Mountains and Volcanic Hills to the west and Coyote Mountains to the north provide backdrops of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

***Key Observation Point 3 (KOP 3) – Ocotillo Community Park***

KOP 3 was established in Ocotillo Community Park, off of S2 and northwest of the community of Ocotillo (see Figure 4.18-4A). This KOP is representative of views of the proposed OWEF from the park and from residences within the community of Ocotillo west of the park. Therefore, KOP 3 is versatile in that it is representative of two viewing populations. Viewing to the north, this view encompasses a portion of the Yuha Desert north of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color. The basin floor is crossed by faintly visible utility towers with noticeable industrial character, which are soon to be paired up with the recently approved Sunrise Powerlink 500-kV transmission line. Although the rugged landforms of the Coyote Mountains to the north provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

***Key Observation Point 4 (KOP 4) – Southbound S2, South of the Border Patrol Checkpoint***

KOP 4 was established on southbound S2, approximately 1.2 miles southeast of the San Diego/Imperial County line in western Imperial County, and is representative of project views along southbound S2 in the vicinity of the proposed OWEF (see Figure 4.18-5A). This viewpoint was selected because it captures a scenic view of the Jacumba Mountains within the primary cone of vision (45° either side of the primary

direction of travel) of travelers on southbound S2 as it enters into the western Yuha Desert. Viewing to the south-southeast, this view encompasses the far western portion of the Yuha Desert, west of the community of Ocotillo and the existing SWPL transmission line, and extending to the San Diego/Imperial County line. This area includes a foreground to middleground flat desert landscape that supports a sparse and irregular, to more uniform at distance, distribution of short grasses and shrubs of subdued color. Although the rugged and visually interesting landforms of the adjacent Jacumba Mountains and Jacumba Wilderness to the south provide a backdrop of visual interest, the desert basin landscape is relatively nondescript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, ABDSP, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

***Key Observation Point 5 (KOP 5) – ABDSP Mortero Palms Area***

KOP 5 was established on the access road to the Mortero Palms and Dos Cabezas Primitive Camping Area, which is located approximately one mile west of the proposed project boundary (see Figure 4.18-6A). This KOP is representative of views of the proposed OWEF from the vicinity of the primitive camping area, which is a popular recreation destination, and the lower elevation areas of southern ABDSP. Viewing to the east, this view encompasses the western portion of the Yuha Desert located at the foot of the Jacumba Mountains and west of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color but is punctuated by the distinctive vertical forms of ocotillo plants. The existing SWPL transmission line structures are only faintly visible and relatively indistinct to the casual observer. This far western portion of the Yuha Desert, which is backdropped by the rugged and visually interesting landforms of the adjacent Coyote Mountains to the north and Jacumba Mountains to the south, imparts a greater sense of remoteness relative to basin areas farther to the east. The applicable Scenic Quality Classification is Class B. Viewer Sensitivity is high because these lands are within ABDSP and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). Also, this area is popular with backcountry enthusiasts traveling to the Mortero Palms and Dos Cabezas Primitive Camping Area, in particular, and the southern portion of ABDSP, in general. The applicable VRI Class Rating is II.

***Key Observation Point 6 (KOP 6) – ABDSP Red Hill***

KOP 6 was established on the crest of Red Hill in the Volcanic Hills of the southern portion of ABDSP, which is located approximately 2.1 miles northwest of the northwest corner of the proposed project boundary (see Figure 4.18-7A). This KOP is representative of views of the proposed OWEF from Red Hill, the Volcanic Hills, and other elevated perspectives in the southern portion of ABDSP. The importance of this elevated viewpoint is that it is generally representative of the variety of elevated viewpoints that surround three sides of the project area (north, south, and west).

Viewing to the east-southeast, this portion of ABDSP offers panoramic views and an overlook of the Yuha Desert basin that also encompasses the surrounding and visually interesting rugged Jacumba Mountains, Volcanic Hills, and Coyote Mountains, with the Sierra Cucapa Range in Mexico in the distant

background. This area includes foreground to middleground rolling to angular hills, transitioning to a flat basin floor with sparse grass and low-growing shrubs of subdued color. The community of Ocotillo and the existing SWPL transmission line structures are only faintly visible and relatively indistinct to the casual observer. As a result, the landscape is primarily natural in appearance. This far western portion of the Yuha Desert imparts a greater sense of remoteness relative to basin areas farther to the east, and the elevated perspective over the Yuha Desert adds additional visual interest. The applicable Scenic Quality Classification is Class B. Viewer Sensitivity is high because these lands are within ABDSP and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). Also, this area is popular with backcountry enthusiasts traveling to the Volcanic Hills, Jacumba Mountains, and Carrizo Gorge area of ABDSP. The applicable VRI Class Rating is II.

#### **Alternative 2 (137 Turbines) Key Observation Point**

Alternative 2 would reduce the number of proposed turbines to 137 by eliminating the 21 Phase 2 turbines located in the northwest and northeast corners of Site 1 and a few turbines in Site 2. Due to the limited reduction in the number of turbines and the dispersed nature of the reduction, only one KOP - Proposed Project KOP 6 (ABDSP Red Hill) was selected to evaluate Alternative 2. The landscape setting discussion presented for Proposed Project KOP 6 is the same as for Alternative 2, and the reader is referred to the discussion of KOP 6 above (see Figure 4.18-7A).

#### **Alternative 3 (105 Turbines) Key Observation Points**

Alternative 3 would further reduce the number of proposed turbines to 105 by eliminating additional turbines in the northeast corner of Site 1 and all of the turbines in Site 2. Two KOPs were selected to evaluate these localized landscapes.

#### ***Key Observation Point 7 (KOP 7) – S2 in the Community of Ocotillo***

KOP 7 was established on S2 in the community of Ocotillo (see Figure 4.18-8A). This KOP is representative of views of Alternative 3 from S2 and from residences within the community of Ocotillo. This viewpoint was selected in order to provide a representative view of the project from the central portion of Ocotillo. Viewing to the north, this view encompasses a portion of the Yuha Desert north of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color. The basin floor is crossed by faintly visible utility towers with noticeable industrial character, which are soon to be paired up with the recently approved Sunrise Powerlink 500-kV transmission line. Although the rugged landforms of the Coyote Mountains to the north provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is II.

#### ***Key Observation Point 8 (KOP 8) – SR 98 Southeast of Ocotillo***

KOP 8 was established on SR 98 at Mesquite Road in the vicinity of Nomirage, southeast of the community of Ocotillo (see Figure 4.18-9A). This KOP is representative of views of Alternative 3 from

SR 98 and nearby residences. This is the only KOP that captures a foreground view of the southeastern portion of the development area. Viewing to the southwest, this view encompasses a portion of the Yuha Desert south of the community of Ocotillo. This area includes a foreground to middleground, flat desert landscape that supports a grass- and shrub-covered desert basin landform of subdued color, punctuated by the linear, vertical forms of a wood pole utility line in close proximity to SR98. Also visible are several rural residences that are scattered throughout the landscape north and south of SR98. Although the rugged and visually interesting landforms of the Jacumba Mountains to the south and west provide a backdrop of visual interest, the desert basin landscape is relatively non-descript and common to much of the Yuha Desert. The applicable Scenic Quality Classification is Class C. Viewer Sensitivity is high because these lands are within the CDCA and are within the foreground to middleground viewsheds of I-8, the community of Ocotillo, S2, SR98, and two wilderness areas including Jacumba Wilderness and Coyote Mountains Wilderness (BLM, 1997). The applicable VRI Class Rating is III.

### 3.19.2 Application Regulations, Plans, and Standards

Public agencies and planning policy establish visual resource management objectives in order to protect and enhance public scenic resources. Goals, objectives, policies, and implementation strategies and guidance are typically contained in resource management plans, comprehensive plans and elements, and local specific plans. As described elsewhere in this document and in Table 3.19-2 below, federal guidance comes from the BLM’s VRM Classifications, CDCA Plan, and Yuha Basin Area of Critical Environmental Concern Management Plan. State guidance is found in the Anza-Borrego Desert State Park Goals and Policies. Local guidance is found in plans and policy documents for Imperial County including the Imperial County General Plan Conservation and Open Space Element. Table 3.19-1 lists the relevant regulations, plans, and standards and notes project consistency with each. As discussed in Section 4.18.2, consistency with applicable regulations, plans, and standards is also a potential indicator of the occurrence of an adverse impact. The significance of any policy inconsistencies is addressed in section 4.18.3.2.

Table 3.19-1. Consistency with Regulations, Plans, and Standards		
Applicable Policies	Consistency Determination	Consistent
<b>Federal</b>		
<b>CDCA Plan</b>		
<b>VISUAL RESOURCES</b>		
<b>6.0 Electrical Generation Facilities, VRM Classifications, Table 1: Multiple Use Class Guidelines, Page 15</b>		
The 2008 Yuha Desert/West Mesa Visual Resource Inventory assigned a VRI Class III to the land area that encompasses the presently proposed OWEF project area. This inventory classification was reiterated in the more recent regional inventory prepared by Otak. At the time of the 2008 inventory, it was determined that the VRI classifications would be carried forward as Interim VRM classifications. Therefore, the land area encompassing the OWEF project area is to be managed in accordance with Interim VRM Class III objectives. The VRM Class III Management Objective requires that a project or action partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Activities may attract attention but should not dominate the view of the casual observer. Changes should repeat	The proposed project would occupy BLM lands in the western portion of the Yuha Desert with an interim VRM Class IV designation. The moderate to high levels of visual change that would be caused by the proposed project in this area would meet the interim VRM Class IV objective. The wind turbines with their vertical, linear, structural forms and lines would not repeat the basic elements of the existing natural features in the landscape (simple, flat, horizontal landform). Also, the structures would be prominent to dominant features in the landscape, accentuated by the skylining that would occur. This would be particularly noticeable where the structures are located in close proximity to existing roads and highways, recreational facilities and areas, and rural	YES

<b>Table 3.19-1. Consistency with Regulations, Plans, and Standards</b>		
<b>Applicable Policies</b>	<b>Consistency Determination</b>	<b>Consistent</b>
the basic elements found in the predominant natural features of the characteristic landscape.	residential areas. See Figures 4.18-2A through 4.18-7B. Although the area is managed as an interim VRM Class IV, measures should be considered to minimize project impacts.	
<b>State</b>		
<b>Anza-Borrego Desert State Park (California State Parks 2005)</b>		
<b>Real Property Additions and Management, pages 3-48 to 4-49</b>		
<b>Goal 2:</b> Monitor and reduce impacts to park resources and visitor experience due to adjacent land uses.	The proposed project would introduce structurally prominent, industrial-appearing features into an otherwise predominantly natural-appearing landscape. The resulting visual impacts within the park would be significant and unmitigable and would not be consistent with the goal of reducing impacts to park resources and visitor experiences. See Figures 4.18-6A through 4.18-7B for views within the park.	NO
<b>Guideline 2a:</b> Work to minimize or contain negative effects from lands adjacent to the park, such as: encroaching developments, the planting and invasion of exotic species, feral or domestic animals, watershed pollution, water pumping, etc.	The proposed project would introduce structurally prominent, industrial-appearing features into predominantly natural-appearing landscapes adjacent to the park and within the park viewshed. The resulting visual impacts would adversely affect park resources and visitor experiences.	NO
<b>Goal 4:</b> The department shall work with local agencies, Caltrans, and utility companies to minimize the adverse impacts associated with developments.	The proposed project would introduce structurally prominent, industrial-appearing features into predominantly natural-appearing landscapes adjacent to the park and within the park viewshed. The resulting visual impacts would be significant and would adversely affect park resources and visitor experiences.	NO
<b>Local</b>		
<b>Imperial County General Plan (County of Imperial 1993)</b>		
<b>CONSERVATION AND OPEN SPACE ELEMENT</b>		
<b>Goals and Objectives, Implementation Programs and Policies, Pages 47-63</b>		
<b>Preservation of Visual Resources</b> <b>Goal 7:</b> The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity. Objective 7.1 Encourage the preservation and enhancement of the natural beauty of the desert and mountain landscape.	Within Imperial County, the proposed project would result in significant visual impacts. The proposed project would not be perceived as enhancing the aesthetic character of the region or the natural beauty of the desert and mountain landscape. See Figures 4.18-2A through 4.18-7B for views within the county.	NO
<b>Preservation of Open Space</b> <b>Goal 10:</b> Open space shall be maintained to protect the aesthetic character of the region, protect natural resources, provide recreational opportunities, and minimize hazards to human activity. <b>Objective 10.9.</b> Conserve desert lands within the county's jurisdiction for wildlife protection, recreation, and aesthetic purposes.	Within Imperial County, the proposed project would result in significant visual impacts. The proposed project would not be perceived as protecting the aesthetic character of the region or the natural beauty of the desert and mountain landscape. See Figures 4.18-2A through 4.18-7B for views within the county.	NO

## 3.20 Water Resources

This section describes the existing hydrology and water quality conditions that could be affected by implementation of the OWEF. The Study Area for the proposed OWEF encompasses all surface and groundwater resources that could be affected by construction and operation. Because pollutants can be transported downstream or down-gradient to sensitive receiving waters, downstream receiving waters were also considered in the Study Area. The current condition and quality of these water resources was used as the baseline against which to compare potential impacts of the Proposed Action, as discussed in Section 4.19. In addition, existing laws and regulations applicable to water resources in the Study Area are described (see Section 3.20.2). In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Proposed Action.

### 3.20.1 Environmental Setting

In preparing this environmental setting, data collection was conducted through review of the following resources: aerial photographs; U.S. Geological Survey (USGS) topographic maps; National Hydrography Dataset (NHD) and CalWater GIS data; Water Quality Control Plan (Basin Plan) for the Colorado River Basin Regional Water Quality Control Board (RWQCB); the 2006 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments from the State Water Resources Control Board (SWRCB); groundwater basin data from Bulletin 118 – Update 2003 published by the California Department of Water Resources (DWR); flood hazard data from the Federal Emergency Management Agency (FEMA); relevant studies prepared for the U.S. Gypsum Expansion and Modernization Project; and materials provided by the project Applicant, Ocotillo Express LLC.

The proposed OWEF is located primarily on lands administered by the BLM in the southwestern portion of Imperial Valley. The Proposed Action site covers an area approximately one to five miles west of the community of Ocotillo and approximately 25 miles west of El Centro. This area is located within the Colorado River Basin Hydrologic Region (HR), one of ten hydrologic regions in California that correspond with major watersheds and drainage areas, as established by the California DWR for management purposes. Being located within the Colorado River Basin HR, the Proposed Action is subject to management direction of the Water Quality Control Plan (Basin Plan) for the Imperial Valley Planning Area, under jurisdiction of the Colorado River Basin RWQCB.

Climate in the environmental setting area is generally subtropical, with hot summers and typically mild winters. The average annual air temperature is 72 degrees Fahrenheit and average annual rainfall is less than three inches per year, with most rainfall occurring during the winter months or in association with summer storms, which tend to be of shorter duration and higher intensity than winter storms (IID, 2009b). Table 3.2-1 (El Centro Monthly Average Temperature and Precipitation), as presented in Section 3.2 (Air Resources), describes average temperature and precipitation measured in El Centro east of the Proposed Action site. Table 3.20-1, below, provides an additional summary of climate characteristics for the Imperial Valley.

**Table 3.20-1. Imperial Valley Climate Characteristics**

Climate Characteristic	Annual Value
Average Precipitation (93-year record)	2.86 inches
Minimum Temperature, Jan 1937	16.0 degrees Fahrenheit
Average Minimum Temperature, 1914 – 2006	29.0 degrees Fahrenheit
Maximum Temperature, July 1995	121.0 degrees Fahrenheit
Average Maximum Temperature, 1914 – 2006	115.2 degrees Fahrenheit

Source: IID, 2009b.

Surface water and groundwater resources in the proposed OWEF area are discussed in Sections 3.20.1.1 and 3.20.1.2, respectively. As discussed in Section 3.20.1.2, local groundwater resources within the Ocotillo-Coyote Wells Sole Source Aquifer (SSA) would not be pumped by the Applicant for use in construction, operation, or decommissioning of the proposed OWEF. However, as stated below in Section 2.20.1.2 (see section titled “Dixeland Mine Groundwater”), groundwater resources along the eastern edge of the Ocotillo-Coyote Wells SSA may be used for this project. The water supply required for construction, operation, and decommissioning of the proposed OWEF is proposed to be obtained from a private groundwater well in the Pine Valley area of eastern San Diego County. In addition to the Pine Valley groundwater source, other sources of water that may be used to meet the project’s water supply requirements include the following: City of Brawley treated municipal water, Vulcan Materials Dixieland Mine groundwater supply well, Seeley County Water District (SCWD) treated municipal water, and Imperial Irrigation District (IID) West-Side Canal water. Each of these water sources are summarized below and further discussed throughout this section and in Section 4.19, as applicable.

- Pine Valley – private groundwater supply well.** Water may be purchased from a private well owner near Pine Valley, approximately 50 miles west of the Proposed Action site, and trucked to the project site. Pine Valley groundwater resources are discussed in detail below, in Section 3.20.1.2 (see “Campo-Cottonwood Sole Source Aquifer”), and in the discussions under “Water Supply Reliability” subheadings throughout Section 4.19. Pine Valley groundwater resources are also discussed in a report provided by the Applicant and included as Appendix P to this EIS/EIR. The discussions of water supply reliability presented throughout this section and Section 4.19 focus primarily on Pine Valley groundwater because the other potential water sources identified for the project are either regulated under existing management plans and/or have been assessed under other studies or plans which demonstrate their supply reliability and are incorporated by reference throughout this EIS/EIR; the Pine Valley area is non-adjudicated (discussed further in Section 3.20.1.2) and this groundwater source is the only potential water source for the project which is not regulated or managed under an existing law, plan, or permit with respect to supply reliability.

The County of San Diego, Department of Planning and Land Use, has determined that the selling (or giving) of groundwater pumped from this Pine Valley well can be considered legal nonconforming and therefore subject to Nonconformity Regulations of the San Diego County Zoning Ordinance §6852, and that existing groundwater extraction operations as described in San Diego County Zoning Ordinance §6864 may occur (County of San Diego, 2003). Accordingly, the same quantity of water which has historically been exported from this well (understood to be 28 acre-feet per year [afy]) may continue to be exported as a permissible activity, and would not require a modification permit from San Diego County. Increasing the quantity of water exported

from this well would require a Major Use Permit from the County. The private well owner and the project Applicant are actively coordinating with the County to ensure compliance with all Zoning Ordinances and associated permitting requirements; for instance, if it is determined that the project's use of this Pine Valley well would cause the groundwater export rate to exceed 28 afy and require a modification permit from San Diego County. The County's ordinances are discussed below in Section 3.20.2.3, under "San Diego County."

- **City of Brawley - treated municipal wastewater.** The City of Brawley, located approximately 45 miles northeast of the community of Ocotillo, has provided written confirmation to the project Applicant that the City is able to provide up to 250,000 gallons of water per day, or approximately 0.76 acre-feet per day, for the period commencing December 2011 through December 2012 (City of Brawley, 2011); this is a peak pumpage rate and it is anticipated that the actual daily quantity of water provided by the City of Brawley for the project would fluctuate, and would total a quantity agreed upon between the Applicant and the City of Brawley in a written contract that would be finalized prior to the onset of project construction, if this source is used to meet the project's water supply requirements. City of Brawley water would be provided as treated municipal wastewater from the city's water treatment plant, which has existing capacity to treat 16,800 afy of water and an anticipated capability of expanding to 33,600 afy (City of Brawley, 2010). The City of Brawley completed an Urban Water Management Plan (UWMP) in 2010; in accordance with California Water Code §10612(b), the UWMP includes assessment of current demands and supplies over a 20-year planning horizon and considers various drought scenarios. The Brawley water source is east of the project site, with a travel distance for water trucks of approximately 39 miles one way.
- **SCWD – treated municipal wastewater.** The Seeley County Water District owns and operates the water treatment and distribution system infrastructure in the unincorporated community of Seeley, located approximately eight miles west of El Centro and ten miles north of the U.S.-Mexico border (BECC, 2011). Due to the size of the SCWD water distribution system, an UWMP is not required per California Water Code Sections 10610 through 10656 (IID, 2009d). However, the SCWD enacts demand management measures (DDMs) published by the California Urban Water Conservation Council (CUWCC) and supported by DWR, which are typically included as part of an UWMP (IID, 2009d). SCWD could provide a source water for the proposed OWEF, in the form of treated municipal water from the Seeley County Wastewater Treatment Plant (WWTP). The Seeley County WWTP houses a series of five treatment ponds, including two 0.12-acre "reactor" ponds and three 0.14-acre sedimentation ponds (CEC, 2010). The treatment facility discharges effluent treated to secondary standards via an unlined channel to the New River, and operates under a New River discharge permit from the RWQCB (CEC, 2010). The Seeley County WWTP has an average demand of 0.245 million gallons per day (gpd), although the current capacity of the WWTP is 1.08 million gpd (IID, 2009d). As such, the WWTP has sufficient capacity to meet the water supply requirements of the proposed OWEF.
- **Vulcan Materials - Dixieland Mine groundwater supply well.** Water pumped from an existing supply well at the Dixieland Mine, east of the project site, may be purchased from the Vulcan Materials Company, which operates the well under a Conditional Use Permit (CUP) issued by Imperial County. The existing CUP allows for brackish water from the Dixieland Mine well to be

used on-site for dust control and mining operations (Imperial County, 2005). The CUP limits annual groundwater pumping from this well to 200 afy, and specifies that the groundwater may only be used on the Dixieland Mine property (Imperial County, 2005). The County of Imperial has indicated that an amendment to the CUP may be sought to allow for off-site use of this water (Pattern, 2011). A groundwater investigation was conducted at the Dixieland Mine site in 2005, prior to installation of the well (EMKO, 2005). This investigation is discussed in Section 3.20.1.2 (see “Dixieland Mine Groundwater”). The Dixieland water source would require a travel distance for water trucks of approximately 15 miles one way.

- **IID - West-Side Canal water.** Water may be purchased from the IID and transported by truck from canals near Dixieland, approximately 20 miles to the east of the OWEF site. Only lands within the All-American Canal (AAC) Service Area Boundary can receive water from the IID, unless IID agrees to sell or lease conserved water pursuant to a water conservation and transfer agreement. The Applicant has contacted the IID about obtaining raw canal water from the West-Side Canal for the project, and IID indicated that approximately 25 afy of canal water may be obtained through the Interim Water Supply Policy (IWSP) for Non-Agricultural Projects (Pattern, 2011). The IWSP for Non-Agricultural Projects currently designates up to 25,000 afy of water for potential Non-Agricultural Projects within IID’s water service area, to be available for other users until such Non-Agricultural Projects are implemented and require the reserved water supply (IID, 2009c). Use of IID canal water outside of the IID service area, but within Imperial County, would require approval from the San Diego County Water Authority (SDCWA) due to contractual water conservation and transfer agreements between Imperial County and the SDCWA; negotiations between IID and SDCEA are near completion to allow the use of IID canal water for construction purposes throughout Imperial County (Pattern, 2011).

The following sections characterize the existing environmental setting for the proposed OWEF Study Area, including information relevant to surface water drainage, flooding, water quality, and groundwater resources.

### 3.20.1.1 Surface Water

Surface waters on the proposed OWEF site are portrayed on Figure 3.20-1 (Surface Waters and Wetlands), which identifies streams and wetlands on the site (wetland resources are further discussed in Appendix D, Biological Technical Report). As mentioned above, the proposed OWEF is located within the Imperial Valley Planning Area of the Colorado River Basin Hydrologic Region. Major surface water features in the region include the Colorado River (east of the OWEF site), the Salton Sea (north of the OWEF site), the New River (east of the OWEF site), the Alamo River (east of the OWEF site), and several major canals, including West Side Main Canal, Central Main Canal, East Highline Canal, All American Canal, and Coachella Canal (IID, 2009a). With the exception of some of the man-made canals, surface waters in the area generally drain towards the Salton Sea (IID, 2009b). The New and Alamo Rivers convey agricultural irrigation runoff from farmlands in the Imperial Valley, surface stormwater runoff, and smaller amounts of treated municipal and industrial wastewaters. The New River also conveys agricultural drainage, treated and untreated sewage, and industrial waste from Mexicali, Mexico. Colorado River water is imported to the area via the All American Canal and provides the dominant water

supply used for irrigation, industrial purposes, and domestic supply. (Colorado River Basin RWQCB, 2006)

In addition to the major hydrologic features described above, a number of ephemeral washes that typically only convey water in response to precipitation events originate in the mountains north, west, and south of the proposed OWEF site. Myer Creek, which flows in the north-easterly direction, has a drainage area of 21.8 square miles and flows through the community of Ocotillo; there is both commercial and residential development in the Myer Creek floodplain near Ocotillo (Imperial County, 2007).

Palm Canyon Wash (southwest to northeast flow) and Lava Flow Wash (northwest to southeast flow), as well as various smaller washes, run through the proposed OWEF site. Signs of previous flooding events indicate that the potential for flash flooding exists during major storm events. It is anticipated that surface water flow hazards such as scouring at the wind turbine bases would be addressed during the project design phase (NAA, 2010). This design will ensure that anticipated scour or stormflow diversion during a 100-year flood will not compromise the structural integrity of turbines nor pose a hazard to adjacent roadways or rail lines that is a direct result of project facilities.

### **Water Quality**

Surface waters in Imperial County are generally categorized into three different types: freshwater, brackish water, and saline water. The water quality categories are summarized below, as described in the Water Element of the Imperial County General Plan (Imperial County, 1993).

- Freshwaters are generally defined as having Total Dissolved Solid (TDS) concentrations of less than 1,000 parts per million (ppm). The All-American Canal and other delivery channels which convey irrigation water to the agricultural fields are considered freshwater.
- Brackish waters are generally defined as having TDS concentrations in the range of 2,000 to 4,000 ppm. The Alamo River, New River, and agricultural drains that flow into these rivers or directly into the Salton Sea are considered brackish.
- Saline water in the area is represented by the Salton Sea, which has TDS concentrations of approximately 44,000 ppm, roughly 25 percent higher than ocean water.

Surface waters in Imperial County pass through a salinity gradient between the water quality categories summarized above; this gradient exists from the Colorado River to the Salton Sea, and results from the combined effects of high evaporation rates, high temperatures, low annual rainfall, and leaching of salts from agricultural fields (Imperial County, 1993). Salinity also increases via wastewater discharge into the New River.

Water quality objectives and total maximum daily load (TMDL) requirements for the Imperial Valley Planning Area are described in the Basin Plan for the Colorado River Basin HR, including the New River, Alamo River, and Imperial Valley drains in the eastern portion of the Proposed Action Study Area. The purpose of water quality objectives and requirements described in the Basin Plan is to protect designated beneficial uses, which are either consumptive (municipal, industrial, and irrigation) or non-consumptive (recreation and habitat). Designated beneficial uses relevant to surface waters in the Proposed Action Study Area are identified below, in Table 3.20-2.

**Table 3.20-2. Designated Beneficial Uses for Surface Waters in the OWEF Vicinity**

Waterway	Beneficial Use*												
	MUN	AGR	AQUA	FRSH	IND	GWR	RECI	RECI	WARM	COLD	WILD	POW	RARE
All American Canal System	X	X	X	X <sup>1</sup>	X	X	X <sup>2</sup>	X <sup>2</sup>	X		X	X	X <sup>3</sup>
Alamo River (Drain)				X			X <sup>5</sup>	X	X		X	P	X <sup>3</sup>
Imperial Valley Drains				X			X <sup>2, 5</sup>	X <sup>2</sup>	X		X		X <sup>3</sup>
New River (Drain)				X	P		X <sup>5</sup>	X	X		X		X <sup>3</sup>
Salton Sea			X		P		X	X	X		X		X
Coyote Creek	P					X	X	X	X		X		X
Washes (Ephemeral)				I <sup>4</sup>		I		I	<sup>6</sup>		I		

X: Existing Beneficial Use

P: Potential Beneficial Use

I: Intermittent Beneficial Use

- MUN: Municipal and Domestic Supply. Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- AGR: Agriculture Supply. Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- AQUA: Aquaculture. Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.
- IND: Industrial Service Supply. Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- GWR: Groundwater Recharge. Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting salt water intrusion into fresh water aquifers.
- REC I: Water Contact Recreation. Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
- REC II: Non-Contact Water Recreation. Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- WARM: Warm Freshwater Habitat. Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- COLD: Cold Freshwater Habitats. Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- WILD: Wildlife Habitat. Uses of water that support terrestrial ecosystems including, but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- FRSH: Freshwater Replenishment. Uses of water for natural or artificial maintenance of surface water quantity or quality.
- POW: Hydropower Generation. Uses of water for hydropower generation.
- RARE: Preservation of Rare, Threatened, or Endangered Species. Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

1. Some very limited spillage of canal water occurs providing freshwater replenishment to Salton Sea.

2. Unauthorized use.

3. Rare, endangered, or threatened wildlife exists in or utilizes some of these waterway(s). If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the California Department of Fish and Game on its own initiative and/or at the request of the Regional Board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.

4. Applies only to tributaries of the Salton Sea.

5. The only REC I usage that is known to occur is from infrequent fishing activity.

6. Use, if any, to be determined on a case-by-case basis.

Source: Colorado River Basin RWQCB, 2006.

### Flood Hazard Areas

Imperial County has developed a Flood Management Plan (FMP) to identify areas prone to flooding and flood-related impacts, to develop and implement programs to reduce flooding hazards, and to see that natural and beneficial functions of floodplains within the County are protected (Imperial County, 2007). The FMP describes that the community of Ocotillo is at risk of flooding due to its location at the base of an alluvial fan. This fan was formed by Myer Creek, which flows in a northeasterly direction through Ocotillo, draining over 21.8 square miles. Myer Creek is a tributary of Coyote Creek in western Imperial

County. During heavy rainstorms, Myer Creek carries major runoff from the Jacumba Mountains. (Imperial County, 2007)

Under the National Flood Insurance Program (described below, in Section 3.20.2.1), the Federal Emergency Management Agency (FEMA) has estimated the boundaries of 100-year floodplains, or Flood Hazard Areas, as provided on Flood Insurance Rate Maps (FIRMs). These maps define the predicted boundaries of 100-year floods, or the area of land anticipated to be inundated during a 100-year storm event, or storms with a one percent chance of occurring each year. Not all streams have floodplain mapping by FEMA or any other agency; this does not mean the floodplain is not there, only that the floodplain has not been mapped. Any housing or residential development that is constructed in a Flood Hazard Area must comply with floodplain management ordinances. In the Proposed Action area, FIRM #06025C1976C, Panel 1976 of 2300 (FEMA, 2008), indicates a Flood Hazard Area surrounding Myer Creek and Coyote Wash, also as described in the County's FMP. Figure 3.20-2 (FEMA-Designated Flood Hazard Areas) shows that several Flood Hazard Areas run in an east-west direction through Site 1, and a small portion of Flood Hazard Area runs in a north-south direction through part of Site 2.

### **Jurisdictional Drainages**

Jurisdictional drainages are discussed in Section 3.18.1.4 (Federal and State Jurisdictional Aread) of this EIS/EIR, as based on detailed data from the Biological Technical Report (BTR) provided as Appendix D to this EIS/EIR. As described in Section 3.2.4 (Jurisdictional Waters of the United States/State) of the BTR, a formal jurisdictional delineation that was conducted within the study area identified areas under the jurisdiction of both the U.S. Army Corps of Engineers (ACOE) and the California Department of Fish and Game (CDFG) throughout the study area. ACOE jurisdictional non-wetland Waters of the U.S. within the study area total 239.46 acres. No ACOE jurisdictional wetlands occur within the study area. CDFG jurisdictional areas within the study area total 723.74 acres and consist of 519.44 acres of wetlands and 204.30 acres of streambed. These federal and State jurisdictional areas are described in Section 3.18.1.4 of this EIS/EIR and identified on Figures 14A through 14D and Figures 15A through 15D, respectively, of the BTR (Appendix D).

Surface water features in the proposed OWEF area are ephemeral drainages characterized by an observable Ordinary High Water Mark (OHWM), a defining element in identifying the limits of federal jurisdiction for non-wetland waters, administered by the ACOE. Federal jurisdiction over non-wetland Waters of the United States extends to the OHWM, which is defined in 33 CFR Part 328.3(e) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris or other appropriate means that consider the characteristics of the surrounding areas" (ACOE, 2008). In the Arid West Region of the Western U.S., including the proposed OWEF area, most surface water is ephemeral and identification of the OHWM is made using stream geomorphology and vegetation response to the dominant stream discharge (ACOE, 2008).

As mentioned above and detailed in Appendix D, drainages identified as Waters of the U.S. have been identified throughout the proposed OWEF site, particularly in the northern and eastern areas, and these drainages generally flow from the southwest to the northeast. Areas identified as subject to jurisdiction of the CDFG (jurisdictional vegetation) have also been identified on the proposed OWEF site. See Figures

3.20-1 and 3.20-2. As described below in Section 3.20.2.1, Section 404 of the federal Clean Water Act (CWA) authorizes the ACOE to regulate the discharge of dredged or fill material to the Waters of the U.S., including wetlands. Discharges to waters of the state are regulated by the Regional Water Quality Control Boards as part of CWA Section 401 certification and California's Porter-Cologne Water Quality Control Act program. The proposed OWEF is located within the jurisdiction of the Colorado River Basin RWQCB.

### 3.20.1.2 Groundwater

Figure 3.20-3 (Groundwater Resources) shows that the proposed OWEF is underlain by the Coyote Wells Valley Groundwater Basin, which is described in further detail below, in the discussion of the Ocotillo-Coyote Wells Sole Source Aquifer.

As described in the introduction to this Environmental Setting discussion, the OWEF site is located within the Colorado River Hydrologic Region (HR) and is subject to management direction of the Basin Plan for the Imperial Valley Planning Area, under jurisdiction of the Colorado River Basin RWQCB. The Pine Valley area is located in the South Coast HR, and is subject to management direction of the Basin Plan for the San Diego Basin, under jurisdiction of the San Diego Basin RWQCB.

The environmental setting for groundwater resources is defined by groundwater which underlies the Proposed Action site, as well as off-site groundwater which may be pumped to meet project water supply requirements. The proposed OWEF is located within the surface recharge area of the Ocotillo-Coyote Wells Sole Source Aquifer (SSA), and the construction water source identified near Pine Valley is located within the surface recharge area of the Campo-Cottonwood SSA (see Figures 3.20-4 and 3.20-5). A sole source aquifer is an area of groundwater resources defined by the U.S. Environmental Protection Agency (EPA) as an aquifer which supplies more than 50 percent of a community's drinking water. Any project which receives a federal grant or loan guarantee and which has the potential to contaminate a sole source aquifer, as determined by the EPA, should be modified to reduce or eliminate the risk. As described below in Section 3.20.2.1, Section 1424(e) of the U.S. Safe Drinking Water Act (SDWA) authorizes the EPA to evaluate projects located within a designated SSA, if the project is financially assisted by federal grants or federal loan guarantees. The proposed OWEF is subject to EPA review to determine whether the project should be modified to reduce or eliminate potential risk of contamination to a designated SSA. Since publication of the Draft EIS/EIR for the proposed OWEF, the EPA has determined that the project will not adversely affect the Ocotillo-Coyote Wells sole source aquifer (EPA, 2011b).

Groundwater resources in the project area are not adjudicated, which means that overlying land owners may use the groundwater on an "equal and correlative" basis, such that all property owners above a common aquifer possess a shared right to reasonable use of the aquifer, and a user cannot take unlimited quantities without regard to the needs of other users (BLM, 2001). Surplus groundwater may be appropriated for use on non-overlying lands, provided such use will not create overdraft conditions; permits are not required for the use of underlying groundwater, but the appropriation of surplus groundwater is subordinate to the correlative rights of overlying users (BLM, 2001).

Groundwater overdraft may be long-term, where substantial permanent new groundwater demands are introduced, or this effect may be short-term and seasonal, where new groundwater demand(s) are introduced but are temporary, such that the existing balance of groundwater removal and recharge is restored once the new demand(s) ceases. As defined by the California DWR in *California's Groundwater*

*Bulletin 118, Update 2003*, groundwater overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin, and overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years (DWR, 2003b). The DWR has also identified 11 groundwater basins in California as being in a state of “critical overdraft,” with critical overdraft defined as follows: A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts (DWR, 2003b). The DWR has not identified the groundwater basins located within the proposed OWEF study area (described below) as being in overdraft or critical overdraft conditions; however, in the State of California groundwater management is a local responsibility, and the decision of whether a groundwater basin is in a condition of overdraft is the responsibility of the local groundwater or water management agency (DWR, 2003b). Overdraft conditions have not been analyzed for most groundwater basins in California due to a lack of quantitative long-term data and prohibitive costs associated with the collection of such data. However, in the absence of quantitative long-term data, the presence of environmental effects that result from the presence of long-term groundwater overdraft conditions may be used to make reasonable assumptions about the conditions of a particular groundwater basin. These effects include the following: consistently declining water levels measured in the affected basin; water quality degradation such as increasing Total Dissolved Solids (TDS) concentrations; and/or land subsidence (sinking) in the affected basin.

All groundwater resources with the potential to be affected by the proposed OWEF are discussed below.

#### **Ocotillo-Coyote Wells Sole Source Aquifer**

The Proposed Action is underlain by the Coyote Wells Valley Groundwater Basin (DWR #7-29), and is located within the surface recharge area of the Ocotillo-Coyote Wells SSA. Figure 3.20-4 (Ocotillo-Coyote Wells SSA Surface Recharge Area) shows the surface recharge area of this SSA. Portions of other groundwater basins are also within the Ocotillo-Coyote Wells SSA, including the following: Jacumba Valley (DWR #7-47), Davies Valley (DWR #7-61), Imperial Valley (DWR #7-30), Vallecito-Carrizo Valley (DWR #7-28), and Canebrake Valley (DWR #7-46). As noted above, groundwater from the Ocotillo-Coyote Wells SSA would not be pumped by the Applicant for use in construction, operation, or decommissioning of the proposed OWEF. Therefore, the only potential the Proposed Action would have to affect local groundwater would be through earth-disturbing activities that could encounter underlying resources, and/or through alterations to groundwater recharge patterns resulting from the introduction of permanent infrastructure. These effects (discussed in Section 4.19) would be site-specific; the Coyote Wells Valley Groundwater Basin is the only groundwater basin in the Ocotillo-Coyote Wells SSA with the potential to be affected by construction activities and/or alterations to recharge patterns. This groundwater basin is described below.

- **Coyote Wells Valley Groundwater Basin.** This groundwater basin has a surface area of 64,000 acres (approximately 100 square miles), and underlies portions of both San Diego and Imperial Counties. To the north, the basin is bounded by impermeable metasedimentary rocks of the Coyote Mountains and by the Elsinore fault zone. To the west and southwest, the basin is bounded by impermeable rocks of the Jacumba Mountains. To the southeast, the basin is truncated by the United States-Mexico border. To the east, the basin is bounded by a roughly north-south barrier from Superstition Mountain through the Yuha Buttes to the United States-Mexico border. To the northeast,

part of the basin's border is comprised by a surface drainage divide connecting the Coyote Mountains with Superstition Mountain. (DWR, 2004a)

Depth to groundwater in the vicinity of the proposed OWEF site ranges from as much as 300 feet below ground surface (bgs) in the northwestern portion of the site to as little as 45 feet bgs in the southeast portion (NAA, 2011).

Water Bearing Units. Primary water bearing units in the Coyote Wells Valley Groundwater Basin include Holocene and Pleistocene alluvial deposits. Unconsolidated sediments reach up to 650 feet thick, with water-bearing zones most productive in the Holocene alluvium located between 100 and 300 feet bgs. Unconfined shallow groundwater is present in parts of the basin, and historical well logs (1970s) indicate confined groundwater conditions for several wells near Ocotillo and Coyote Wells, in the Proposed Action area. Primary recharge to the basin occurs through percolation of precipitation and ephemeral runoff from the surrounding mountains. The main surface water drainages in the area are Palm Canyon Wash and Coyote Wash. (DWR, 2004a)

The Coyote Wells Valley Groundwater Basin is currently understood to be a two-layer aquifer system; wherein the upper layer (Layer 1) consists of the alluvial deposits and the lower layer (Layer 2) is composed of the Palm Springs and Imperial formations, which have been uplifted in the area east of Ocotillo and are relatively near the ground surface (B-E, 2004). The United States Geological Survey (USGS) monitors 20 wells in the area, which indicate that groundwater levels in both Layer 1 and Layer 2 have generally been declining since the 1970s (B-E, 2004). The water levels in Layer 1, which are mainly controlled by pumping, indicate average rates of decline ranging from 0.4 to 0.13 feet per year (B-E, 2004). Groundwater level trends do not appear to fluctuate in direct response to changes in the rate of precipitation, indicating a lag-time associated with distance between washes and monitored wells, and/or significant thickness of the unsaturated zone (B-E, 2004).

Overdraft Conditions. The recent groundwater monitoring and analyses described above indicate that the Coyote Wells Valley Groundwater Basin is in a state of overdraft (B-E, 2004; Todd, 2007). As defined by the DWR's Bulletin 118 (2004), groundwater overdraft occurs when the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions; overdraft can be characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. Withdrawing groundwater from an overdrafted basin and/or altering the surface permeability such that rates of recharge are reduced would exacerbate overdraft conditions.

Groundwater Quality. The California DWR (2004) describes that groundwater quality in the productive parts of the Coyote Wells Valley Groundwater Basin is characterized by sodium bicarbonate-chloride, while the concentration of total dissolved solids (TDS) ranges from 750 to 1,240 mg/L in shallow wells to 300 to 450 mg/L in deeper wells. The DWR also indicates that fluoride levels in some wells are as high as 3.5 mg/L and may be related to pre-Quaternary sedimentary deposits or from thermal water (85 to 90 degrees Fahrenheit) associated with an extension of the Elsinore Fault zone. (DWR, 2004a) The EPA has set a maximum contaminant level of 4.0 mg/L for fluoride in drinking water (EPA, 2011a).

The USGS monitors wells in the Ocotillo-Coyote Wells Groundwater Basin for the following: physical properties including pH, specific conductance, and temperature; general minerals including

chloride, sodium, sulfate, iron, and manganese. In general, wells located east of Ocotillo have higher concentrations of boron, chloride, sodium, and sulfate than wells near Ocotillo, a difference which could be due to varying geologic formations. High concentrations of chloride, sodium, and boron are indicative of low permeability in the Layer 2 formations. (B-E, 2004; Todd, 2007)

### **Campo-Cottonwood Sole Source Aquifer**

Pine Valley is located in eastern San Diego County, approximately 50 miles west of the proposed OWEF site, within the designated surface recharge area of the Campo-Cottonwood SSA, and within the jurisdiction of the San Diego Basin RWQCB (in addition to coordination with the Colorado River Basin RWQCB for construction at the proposed OWEF site). Figure 3.20-5 (Campo-Cottonwood SSA Surface Recharge Area) shows the surface recharge area of this SSA. The surface recharge area of the Campo-Cottonwood SSA encompasses the following underlying groundwater basins, as defined by the DWR: Cottonwood Valley Groundwater Basin (DWR #9-27), Campo Valley Groundwater Basin (DWR #9-28), and Potrero Valley Groundwater Basin (DWR #9-29). As described above, these groundwater basins are not adjudicated, which means that overlying land owners may use the groundwater with no permit required, and that surplus groundwater may be used on non-overlying lands, such as would occur under the proposed OWEF, only where such use would not create overdraft conditions in the source aquifer, including with consideration to other uses of the source aquifer. Each of the defined groundwater basins encompassed within the surface recharge area of the Campo-Cottonwood SSA is described below.

- **Cottonwood Valley Groundwater Basin.** The Cottonwood Valley Groundwater Basin encompasses 3,850 acres (6.0 square miles), underlies portions of the Cottonwood, Cameron, and La Posta Valleys, and is bounded by crystalline rocks of the Peninsular Ranges except to the west where it is bounded by Moreno Reservoir, and to the south where it has been truncated at the U.S.-Mexico border. Cottonwood and La Posta Creeks drain westward, to Moreno Reservoir. Average annual precipitation is approximately 15 to 21 inches. (DWR, 2004b)

Water Bearing Units. Primary water bearing units in the Cottonwood Valley Groundwater Basin include Quaternary alluvium and residuum. Alluvium is composed of gravel, sand, silt, and clay in deposits with maximum thickness of approximately 100 feet, while residuum is bedrock that has weathered in place. Groundwater storage capacity is unknown. (DWR, 2004b)

Overdraft Conditions. Water levels monitored at one groundwater well in this basin between 1953 and 1974 ranged approximately four feet (DWR, 2004b). DWR does not specify whether this four-foot change is positive or negative; however, over a period of 21 years, a change of four feet is not substantial, whether the change is positive or negative. Overdraft conditions are not known.

Groundwater Quality. Local groundwater in Cottonwood Valley is dominantly calcium bicarbonate in character, with TDS concentration ranging from approximately 130 to 645 mg/L (DWR, 2004b).

- **Campo Valley Groundwater Basin.** The Campo Valley Groundwater Basin encompasses 3,550 acres (5.5 square miles), underlies Campo Valley, and is bounded by non-permeable crystalline rocks of the Peninsular Ranges. This groundwater basin is located approximately 40 miles east of San Diego, is truncated to the south by the Mexican border, and is drained by Campo Creek. Average annual precipitation ranges from approximately 7 to 15 inches. Well yields are typically less than 40

gallons per minute (gpm). Recharge to this groundwater basin occurs through direct precipitation and septic effluent. (DWR, 2004c)

Water Bearing Units. The principal water-bearing unit of the Campo Valley Groundwater Basin is quaternary alluvium, with potential water-bearing capacity in the residuum derived from weathering of Cretaceous granitic rocks (although the residuum is not regionally significant). The Quaternary alluvium consists of gravel, sand, silt, and clay, and ranges in thickness from several feet to approximately 100 feet, with average thickness estimated to be approximately 55 feet. Storage capacity of the Campo Valley Groundwater Basin is estimated to be 63,450 acre-feet, with approximately 7,614 acre-feet estimated to be in storage in 1983. (DWR, 2004c)

Overdraft Conditions. Sufficient information is not available to construct a groundwater budget (DWR, 2004c). Therefore, overdraft conditions for the Campo Valley Groundwater Basin are not known.

Groundwater Quality. Water contained in the alluvium of the Campo Valley Groundwater Basin is characterized by calcium bicarbonate. Electrical conductivity readings are approximately 800  $\mu\text{mho}$ . In the 1960s, TDS concentrations ranged from 219 to 480 mg/L, increasing to less than 800 mg/L in the 1970s. Groundwater in this basin is typically considered suitable for domestic and irrigation uses. (DWR, 2004c)

- **Potrero Valley Groundwater Basin.** The Potrero Valley Groundwater Basin encompasses 2,020 acres (3.2 square miles), bounded by impermeable crystalline rocks of the Peninsular Ranges. This groundwater basin, located approximately 30 miles east of San Diego and two miles north of the Mexican border, drains westward via Potrero and Big Potrero Creeks. Average annual precipitation ranges from 7 to 11 inches. (DWR, 2004d)

Water Bearing Units. Principal water bearing deposits in the Potrero Valley Groundwater Basin are Quaternary age alluvium and residuum. Recharge to this basin is assumed to be from ephemeral stream flow and percolation. (DWR, 2004d)

Overdraft Conditions. Groundwater level trends and storage capacity of the Potrero Valley Groundwater Basin are unknown (DWR, 2004d). Overdraft conditions relevant to this groundwater basin are unknown.

Groundwater Quality. Groundwater quality of the Potrero Valley Groundwater Basin is variable with calcium and sodium representing the dominant cations and bicarbonate and chloride as the dominant anions. TDS concentrations range from 283 to 305 mg/L. Groundwater is suitable for domestic and irrigation use.

The Pine Valley Mutual Water Company (PVMWC), which provides water service to the small rural area of Pine Valley, describes that local wells produce water from the fractured rock system of the Descanso hydrologic sub-area in the Sweetwater Hydrologic Unit (PVMWC, 2010). The PVMWC has eight active groundwater wells, with production rates that vary seasonally and annually, ranging between approximately 600 gallons per minute (gpm) and 1,000 gpm (PVMWC, 2010). The fact that production rates vary seasonally and annually indicates a direct response in groundwater level trends from changes in the rate of precipitation. Per the County of San Diego's *Groundwater Limitations Map*, the Pine Valley

area receives some of the highest annual precipitation rates in the County, with an average of approximately 30 inches per year (County of San Diego, 2004).

The groundwater well in Pine Valley identified for use in construction and operation of the proposed OWEF is a privately owned well in a non-adjudicated area; although this well is located within the surface recharge area of the Campo-Cottonwood SSA, it is not located within one of the three defined groundwater basins that are encompassed by the Campo-Cottonwood SSA. Per San Diego County's *Guidelines for Determining Significance for Groundwater Resources*, fractured rock aquifers that have limited groundwater recharge and large groundwater users such as agricultural or other large operations may experience groundwater shortages (County of San Diego, 2007). However, the Pine Valley area is not considered to have "limited groundwater recharge" because, as mentioned above, groundwater resources in Pine Valley respond directly to precipitation rates, and Pine Valley is characterized by some of the highest annual precipitation rates in San Diego County. In addition, groundwater use in Pine Valley is characterized by rural residential users and distribution of water by the PVMWC primarily for residential purposes, and these uses are not characterized by "large groundwater uses such as agricultural or other large operations." Additionally, no fractured rock basins [in San Diego County] have been officially documented and mapped by the County as being in an overdraft condition (County of San Diego, 2007).

Monitoring and/or modeling data sufficient to indicate whether this area is affected by groundwater overdraft is not currently available. As described above, in the absence of quantitative long-term data, the presence of environmental effects of overdraft including consistently declining water levels, water quality degradation, and/or land subsidence may be used to make reasonable assumptions about overdraft conditions. In the Pine Valley area, there is no record of declining groundwater levels, declining groundwater quality, and/or land subsidence. In addition, the groundwater well proposed for use under the proposed OWEF is currently used as a water supply for other projects on non-overlying lands, which would be prohibited if the groundwater were in overdraft conditions. Due to all of these factors, it is reasonably assumed that the Pine Valley area is not affected by long-term overdraft conditions. Based on anecdotal information from the private well owner, groundwater supply availability is unaffected by normal year, dry year, and multiple dry years conditions; based on the well owner's experience, the well has historically not experienced variation in supply during drought years (NAA, 2011b). This issue is discussed further in Section 4.19.

In May of 2003, the County of San Diego Board of Supervisors directed the Chief Administrative Officer to conduct a comprehensive groundwater study for the Pine Valley area. The area assessed in this study included 29.3 square miles and two basins identified as "Pine North" and "Pine South." This groundwater study included a groundwater availability analysis, which determined that the sustainable yield for Pine South is not sufficient to meet water demand associated with the County's General Plan theoretical build-out, while the sustainable yield for Pine North is sufficient to meet water demands associated with all build-out scenarios. The County's groundwater study concluded that groundwater resources are adequate in both Pine South and Pine North basins to meet the demands under existing conditions and with the addition of residences if all discretionary permits currently in process were approved. (San Diego County, 2010)

The private Pine Valley groundwater well proposed for use under the project is screened approximately 200 feet below ground surface, cored and cased in upper alluvium near the surface and then fractured

rock farther below. The static water level in this well is approximately 30 feet below ground surface. Water from this well is often used for construction demand for other projects and is not typically sold for human consumption; water quality information is not available for this well. Although specific numbers for water supply for this well are unavailable, based on anecdotal evidence and historical use, the potential water supply available from this well is estimated to be approximately 121 afy. Existing demand from other users of this water supply may vary widely depending on the time of year and active construction projects; however, based on anecdotal evidence of historical water sales from this well owner, the estimated existing demand associated with other users of this well is approximately 28 afy. For purposes of this analysis, this demand is estimated to grow at a steady rate for the next 20 years. (NAA, 2011b)

An assessment of water supply has been prepared for the Pine Valley water source under the proposed OWEF (see discussion in Section 3.20.2.2) and is incorporated by reference throughout Section 4.19 of this EIS/EIR, and included as Appendix P. Table 3.20-3, below, identifies estimated water availability for the Pine Valley water source described above.

Water Supply / Demand	Year				
	2012	2017	2022	2026	2032
<b>Projected Availability</b>					
FDB Licensed Bottled Water Distributor	0.01	0.01	0.01	0.01	0.01
Private Pine Valley Groundwater Well	121	121	121	121	121
<i>Total Projected Availability</i>	<i>121.01</i>	<i>121.01</i>	<i>121.01</i>	<i>121.01</i>	<i>121.01</i>
<b>Projected Demands</b>					
Other Users of the Well	28	33	38	43	48
OWEF Construction	50	0	0	0	0
OWEF Fire Suppression	0.03	0	0	0	0
OWEF Toilet Flushing	0.18	0.18	0.18	0.18	0.18
OWEF Drinking Water	0.01	0.01	0.01	0.01	0.01
<i>Total Projected Demand</i>	<i>78.22</i>	<i>33.19</i>	<i>33.19</i>	<i>43.19</i>	<i>48.19</i>
<b>Difference (Availability minus Demand)</b>	<b>42.79</b>	<b>87.82</b>	<b>82.82</b>	<b>77.82</b>	<b>72.82</b>

Source: NAA, 2011b.

Table 3.20-3 does not identify water supply availability for the overall Campo-Cottonwood SSA or the Pine Valley as a whole, but rather presents estimates of production capabilities for the private groundwater well that would be used to meet the project's water supply requirements. In addition, due to the well's location within the surface recharge area of a designated SSA, it is subject to review by the EPA, per Section 1424(e) of the U.S. Safe Drinking Water Act (SDWA). As previously mentioned, the EPA has determined that the proposed OWEF would not adversely affect the Ocotillo-Coyote Wells SSA; a determination has not yet been made regarding the Campo-Cottonwood SSA.

### Dixieland Mine Groundwater

As described above, one potential water source for the project is an existing groundwater supply well located at the Dixieland Mine site and operated by Vulcan Materials Company under a CUP issued by Imperial County (Imperial County, 2005). A groundwater investigation was conducted at the Dixieland Mine site in 2005, prior to installation of the well (EMKO, 2005). This investigation is summarized below and referenced as applicable in Section 4.19.

The Dixieland Mine groundwater well is located more than 12 miles east of the community of Ocotillo, along the eastern border of the Coyote Wells Valley Groundwater Basin (this aquifer is discussed above;

see “Ocotillo-Coyote Wells Sole Source Aquifer”). The eastern portion of the Coyote Wells Valley Groundwater Basin consists primarily of Tertiary marine sediments which typically contain saline water with TDS levels of 1,000 mg/L or greater. Groundwater modeling studies indicate that flow in this basin generally occurs from the northwest to the southeast. The high-TDS saline water within the Tertiary marine sediments (which underlie Quaternary Alluvium) flows both southward and eastward from the Ocotillo area. However, groundwater modeling studies have shown that the fresh water in the Quaternary Alluvium in the western part of the Coyote Wells Valley Groundwater Basin (where the proposed OWEF is located) does not flow into the eastern portion of the basin (where the Dixieland Mine well is located), but remains within the Ocotillo-Coyote Wells SSA. (EMKO, 2005)

The investigation conducted prior to construction of the Dixieland Mine well indicated that geologic units at the site are characterized by sand from zero to three feet bgs, red clay from three to 120 feet bgs, clean gravel from 120 to 200 feet bgs, and red clay from 200 to the total depth of the borehole at 240 feet bgs. A test well at the site measured depth to water at 60 ft bgs; the well was pumped for two hours at a rate of 225 to 235 gpm, after which the water level was again measured at 60 feet bgs. The test well was then pumped at approximately 230 gpm for 24 hours, after which the static water level was measured at 47 feet bgs. Additional pumping indicated that the water level did not decline more than about one foot during pumping. (EMKO, 2005)

The nearest groundwater wells to the Dixieland Mine site are located eight to twelve miles to the west and upgradient from the Dixieland Mine site. The pumping of 200 afy of water from the Dixieland Mine supply well is understood to have little to no effect on these or other upgradient wells. There are no naturally-occurring surface waters in the vicinity of the Dixieland Mine supply well, and man-made surface waters comprised of the Imperial Lakes development and IID’s West Side Canal have no measurable interaction with local groundwater due to the presence of more than 100 feet of clay between the ground surface and the gravel aquifer at 120 feet bgs which supplies the Dixieland Mine well. (EMKO, 2005)

The Dixieland Mine supply well produces high-saline groundwater which is not suitable for potable or agricultural uses, without treatment to reduce TDS concentrations.

The existing Dixieland Mine groundwater supply well is capable of producing at least 325 to 350 gpm, with very little drawdown in the surrounding aquifer (EMKO, 2005). This production rate is more than adequate to meet the 200 afy of withdrawal authorized by the CUP (EMKO, 2005 ). If the Dixieland Mine well is used to provide water for the project, the existing CUP would be amended by Imperial County to allow for use of the water at the proposed OWEF site (Pattern, 2011).

## 3.20.2 Applicable Regulations, Plans, and Standards

### 3.20.2.1 Federal

**Clean Water Act.** The CWA (33 U.S.C. Section 1251 et seq.) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and has given the EPA the authority to implement pollution control programs. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant

Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The Proposed Action is within the jurisdiction of the Colorado River Basin RWQCB (Region 7).

**Section 402** of the Clean Water Act authorizes the California State Water Resources Control Board (SWRCB) to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the “General Construction Permit.” Construction activities can comply with and be covered under the General Construction Permit provided that they meet the following requirements.

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm-water and with the intent of keeping all products of erosion from moving offsite into receiving waters.
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

Projects that disturb one or more acres, including the Proposed Action, are required to obtain NPDES coverage under the Construction General Permits. The USEPA’s NPDES Phase II Final Rule and the SWRCB NPDES General Permit No. CAS000004, “Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) General Permit (referred to as the “MS4 General Permit”) require that the County, as the MS4 operator, implement a Stormwater Management Program (SWMP) that reduces the discharge of pollutants to the “maximum extent practicable”, that protects water quality, and that satisfies the requirements of the CWA according to California’s MS4 General Permit (SWRCB, 2004). As such, the administration of NPDES regulations for the Proposed Action is the duty of Imperial County. MS4 General Permit coverage for the County must be renewed every five years, per jurisdiction of the Colorado River Basin RWQCB.

**Section 401** of the CWA requires that any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into a State waterbody, must be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. The limits of non-tidal waters extend to the Ordinary High Water Mark (OHWM), defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris.

**Section 404** of the CWA requires a permit for construction activities involving placement of any kind of fill material into waters of the U.S. or wetlands. The ACOE may issue either individual, site-specific permits or general, nationwide permits for discharge into U.S. waters. A Water Quality Certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request for Water Quality Certification (or waiver thereof) from the Colorado River Basin RWQCB. When an application for a Section 404 permit is made the Applicant must show it has:

- Taken steps to avoid impacts to wetlands or waters of the U.S. where practicable;
- Minimized unavoidable impacts on waters of the U.S. and wetlands; and
- Provided mitigation for unavoidable impacts.

**Section 303(d)** of the CWA (CWA, 33 USC 1250, et seq., at 1313(d)) requires states to identify “impaired” waterbodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of Total Maximum Daily Load (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements.

**National Flood Insurance Program (NFIP).** The NFIP, implemented by the Congress of the United States in 1968, enables participating communities to purchase flood insurance. Flood insurance rates are set according to flood-prone status of property as indicated by Flood Insurance Rate Maps (FIRM) developed by the Federal Emergency Management Agency. FIRMs identify the estimated limits of the 100-year floodplain for mapped watercourses, among other flood hazards. As a condition of participation in the NFIP, communities must adopt regulations for floodplain development intended to reduce flood damage for new development through such measures as flood proofing, elevation on fill, or floodplain avoidance. Imperial County participates in the NFIP. FIRM #06025C1976C, Panel 1976 of 2300 for the unincorporated areas of Imperial County, effective September 26, 2008, covers the project area (FEMA, 2008).

**U.S. Safe Drinking Water Act (SDWA), Section 1424(e).** Section 1424(e) of the SDWA established the U.S. Environmental Protection Agency’s (EPA) SSA Program. A SSA is an aquifer which supplies more than 50 percent of a community’s drinking water. The boundaries of designated SSAs include the entire surface recharge area for the aquifer, and can extend beyond the underlying aquifer. Since 1977, the SSA Program has led to the designation of 64 SSAs across the United States. Under the SSA Program, the EPA conducts environmental review of any project which is located within the surface recharge area of a designated SSA and which is financially assisted by federal grants or federal loan guarantees. These projects are evaluated to determine if they have the potential to contaminate a designated SSA; if the EPA determines that such potential exists, the project should be modified to reduce or eliminate the risk. This does not mean that the SSA Program can delay or stop development of projects or impact any direct federal environmental regulatory or remedial programs such as permit decisions. (EPA, 2000)

### 3.20.2.2 State

**Senate Bill (SB) 610, Water Supply Assessment.** SB 610 was passed on January 1, 2002, amending California law to require detailed analysis of water supply availability for certain types of large development projects. The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies, and ensuring that land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to meet project demands. SB 610 requires the preparation of a Water Supply Assessment (WSA) for a project that is subject to CEQA and meets certain requirements, as described below with regards to the proposed OWEF.

1. Is the proposed project subject to CEQA?

Yes. As presented in this EIR, the Proposed Action requires issuance of permits by a public agency and is, therefore, subject to CEQA.

2. Is the proposed project a “Project” under SB 610?

A proposed project would meet the definition of “Project” per Water Code Section 10912 if it is:

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one or more of the projects specified in this subdivision; or
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project (DWR, 2003a).

Based on the definition of “project” as presented above, the proposed OWEF does not meet the intent of the definition. While the Proposed Action would be an industrial facility, it would not be an “industrial plant” with more than 1,000 persons or an “industrial park” planned to house more than 1,000 persons. Imperial County, as the CEQA Lead Agency for the Proposed Action, has determined that the Proposed Action does not meet the definition of “Project” per SB 610. This decision is not an authoritative interpretation of the types of projects that should be required per SB 610; other Lead Agencies may choose to make different decisions on similar projects, with regards to the applicability of SB 610. Regardless, the project Applicant has prepared an analysis of water supply for the proposed OWEF; this analysis, which is included as Appendix P to the Final EIS/EIR, was prepared in an effort to thoroughly assess the viability of the proposed Pine Valley water source to meet project water requirements.

3. Is there a public water system that will service the proposed project?

Water supply source(s) for the proposed OWEF are described above, in the introduction to Section 3.20.10 and in Section 3.20.1.2. As discussed above, water supply for construction and operation of the Proposed Action would be purchased from one of the following sources: a private groundwater well in Pine Valley, San Diego County; the City of Brawley (treated municipal wastewater); Vulcan Materials (Dixieland Mine groundwater); and/or the IID West Side Canal. United States Code Title 42 Section 300f(4) describes that the term “public water system” refers to a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty five individuals (42 U.S.C. Sec. 300f(4)). None of these potential sources is a public water system.

- The Pine Valley water source is an existing private groundwater supply well.
- The City of Brawley maintains a public water system, but water that would be purchased from the city for the proposed OWEF would be treated municipal wastewater (not for human

consumption) and would not be delivered to the project site using public water system infrastructure.

- The Vulcan Materials water source is an existing private groundwater supply well.
- The IID describes that its facilities constitute neither a system for the provision of “piped water” nor a system for the provision of water “for human consumption”, and that the IID is not a public water system (IID, 1993; IID, 2008). Even though IID is not a public water system, as the regional wholesale water supplier it requests to be involved in a consultation role during the preparation of any SB 610-required WSA (IID, 2008).

For the purposes of SB 610, the requirement to prepare a WSA would be the responsibility of either the treated water supplier or Imperial County. As described above, the project Applicant has prepared an assessment of water supplies for the proposed OWEF in order to fully assess the viability of the proposed Pine Valley water source to meet project requirements.

4. Is there a current UWMP that accounts for the project demand?

There is no Urban Water Management Plan (UWMP) for the unincorporated portion of Imperial County where the Proposed Action is located. There is also no UWMP for the Pine Valley area of San Diego County, the Vulcan Materials source at Dixieland Mine, or the IID West-Side Canal source. The City of Brawley has a current UWMP in place, as discussed above in Section 3.20.1.

5. Is groundwater a component of the supplies for the project?

Yes, water supply requirements for the Proposed Action or an alternative would be met using water pumped from a private groundwater well near Pine Valley in eastern San Diego County and trucked to the Proposed Action site in eastern Imperial County. During the construction period, approximately 50 acre-feet of water would be required for concrete manufacturing, dust suppression, and road maintenance. In addition, the Operations and Maintenance (O&M) building would require approximately 126 gallons per day, or 0.14 afy for human consumption during operations. The expected operational lifetime of the Proposed Action is approximately 20 to 40 years, depending on possible improvements to wind turbine designs. Therefore, total demand for the O&M building would be between approximately 20.14 and 40.28 acre-feet over the operational lifetime of the Proposed Action. Groundwater may also be a source for the proposed OWEF if the Vulcan Materials Dixieland Mine supply well is used for the project; as described above, use of the Dixieland Mine well would occur in accordance with a revised CUP issued by Imperial County.

As described above, the proposed OWEF is not considered a “project” as defined under SB 610, and a WSA is not required. The project Applicant has nevertheless prepared an assessment of water supplies for the project, which is incorporated by reference throughout this EIS/EIR and included as Appendix P. The assessment prepared by the Applicant is specific to the Pine Valley groundwater source; as described in Section 4.19.3.1, for the other potential water sources (the City of Brawley source, the Dixieland Mine source, and the IID source), existing studies and/or plans have demonstrated the availability of water supply to meet water requirements of the proposed OWEF. Potential impacts to water supply are addressed under the “Groundwater Supply and Recharge” sub-headings presented under each alternative in Section 4.19 of this EIS/EIR.

**Senate Bill 267.** Senate Bill 267 (SB 267) was signed into law by California’s Governor Brown on October 8, 2011, amending California’s Water Law to revise the definition of “project” specified in SB 610, as discussed above. Under SB 267, wind and photovoltaic projects which consume less than 75 afy of water are not considered to be a “project” under SB 610; subsequently, a WSA would not be required for this type of project. SB 267 does not state that renewable energy projects which use more than 75 afy are subject to SB 610 and must prepare a WSA; rather, it clarifies that those renewable projects which use less than 75 afy are not subject to such requirements. As noted above, the proposed OWEF would require 50 acre-feet of water for construction, which is less than the 75 afy specified by SB 267. Therefore, the proposed OWEF is not considered a “project” as defined under SB 267, and a WSA is not required. Also as noted above, the project Applicant has prepared an assessment of water supplies for the project, which is incorporated by reference throughout the EIS/EIR and included as Appendix P.

**Porter-Cologne Water Quality Control Act.** The State Water Resources Control Board (SWRCB) regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. On the regional level, the Proposed Action falls under the jurisdiction of the Colorado River Basin RWQCB, which is responsible for the implementation of State and federal water quality protection statutes, regulations and guidelines. The Colorado River Basin Region has developed a Water Quality Control Plan (Basin Plan) to show how the quality of the surface and groundwaters should be managed to provide the highest water quality reasonably possible. The Basin Plan lists the various beneficial uses of water within the region, describes the water quality which must be maintained to allow those uses, describes the programs, projects, and other actions which are necessary to achieve the standards established in this plan, and summarizes plans and policies to protect water quality. In addition, as described above in Section 3.20.1.1 (Groundwater), if the OWEF includes use of groundwater from the Pine Valley area of San Diego County, coordination with the San Diego Basin RWQCB would be required to ensure compliance with the Basin Plan for the San Diego Basin. The Proposed Action would be expected to not disrupt current or designated beneficial uses of surface waters.

**California Fish and Game Code.** Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the CDFG in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State, and requires any person, State, or local governmental agency, or public utility to notify the CDFG before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

Activities that result in the diversion or obstruction of the natural flow of a stream, or which substantially change its bed, channel, or bank, or which use any materials (including vegetation) from the streambed, may require that the Applicant enter into a Streambed Alteration Agreement (SAA) with the CDFG. The Proposed Action is anticipated to result in temporary and permanent impacts to CDFG-jurisdictional streambeds and to a number of CDFG vegetation types, as described in the impact analysis provided in

Section 4.17 (Vegetation Resources) of this EIS/EIR (see Figure 4.17-4 and Table 4.17-3). The drainage crossings that would result from the Project were mapped through coordination and site reconnaissance undertaken with the ACOE, Colorado River Basin RWQCB, and the CDFG. As a result of this interagency coordination, 232 drainage crossings are being evaluated pursuant to Section 1600 of the State Fish and Game Code and pursuant to Section 401 of the Clean Water Act.

As described in the impact analyses provided in this EIS/EIR, the Proposed Action would result in temporary and permanent impacts to a total of 23.20 acres of CDFG-jurisdictional areas, primarily associated with access road and underground collection system construction in the northern and northeastern portions of Site 1. Due to these anticipated impacts to CDFG jurisdictional areas, the Applicant is expected to obtain a SAA from the CDFG in accordance with Section 1602 of the California Fish and Game code. The CDFG determines whether a SAA is necessary for a given water course after submission of a notification package by the Applicant. The Applicant submitted an application to CDFG in May of 2011.

**California Water Code §13260.** California Water Code §13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. Any actions related to the Proposed Action that would be applicable to California Water Code §13260 would be reported to the Colorado River Basin RWQCB.

**California Water Code §13751.** California Water Code §13751 requires a Report of Well Completion to be filed with the Department of Water Resources within 60 days of well completion. New wells must comply with California Department of Water Resources Well Standards as described in Water Resources Bulletins 74-81 and 74-90.

### 3.20.2.3 Local

#### Imperial County

Imperial County's General Plan includes a Water Element, which identifies and analyzes the sources and availability of water within the County and establishes policies and programs to maintain its availability, conserve its use, and preserve its quality (Imperial County, 1993). The following policies are described in the Water Element as statements of purpose and/or direction to help guide decision makers on issues concerning water resources in Imperial County, including the Proposed Action area.

- **Policy 1: Adequate Domestic Water Supply.** The efficient regulation of land uses that economizes on water consumption, enhances equivalent dwelling unit demand for domestic water resources, and that makes available affordable resources for continued urban growth and development.
- **Policy 2: Protection of Surface Waters.** Preservation of riparian and ruderal habitats as important biological filters, and as breeding and foraging for native and migratory birds and animals.
- **Policy 3: Adequate Agricultural Irrigation Water Supply.** The efficient and cost-effective utilization of local and imported water resources through the development and implementation of appropriate and separate agricultural and urban use areas.
- **Policy 4: Protection of Water Resources from Hazardous Materials.** Adoption and implementation of ordinances, policies, and guidelines which assure the safety of County ground and surface waters from toxic or hazardous materials and/or wastes.

- **Policy 5: Coordinated Water Management.** Encourage and provide inter-agency and inter-jurisdictional coordination and cooperation for the management and wise use of water resources for contact and noncontact recreation, groundwater recharge, hydroelectric energy production, and wildlife habitat as well as for domestic and irrigation use.

### San Diego County

As discussed in Section 3.20.1, the County of San Diego has determined that groundwater pumped from the private Pine Valley well identified as a source for the project can be considered legal nonconforming and therefore subject to Nonconformity Regulations of the San Diego County Zoning Ordinance §6852, and that Existing Groundwater Extraction Operations as described in San Diego County Zoning Ordinance §6864 may occur. These sections of the Zoning Ordinance are presented below.

- **Zoning Ordinance §6852: Right to Continue a Nonconformity.** A nonconformity which is in existence prior to the effective date of the Zoning Ordinance or of any subsequent rezoning or other amendment thereto which creates such use or structure nonconformity, may be continued and maintained, except as otherwise specified in these Nonconformity Regulations. No expansion, extension, substitution or other change in activities and no alteration or other change in facilities is permitted except as expressly required by law or as expressly provided herein. (Renumbered and amended by Ord. No. 5508 (N.S.) adopted 5-16-79. Formerly 6952) (Amended by Ord. No. 10095 (N.S.) adopted 12-8-10)
- **Zoning Ordinance §6864: Existing Groundwater Extraction Operations.** Any existing activity meeting the definition of a “Groundwater Extraction Operation,” as determined by the Director, shall be considered a nonconforming use and may continue said operations after May 8, 1992. However, the Nonconformity Regulations commencing at Section 6850 shall apply to such operation. (Added by Ord. No. 8050 (N.S.) adopted 4-8-92)
- **Zoning Ordinance §6870: Modification of Nonconforming Use or Buildings when Nonconformity is Due to Lack of Major Use Permit.** Subparagraph (e), Groundwater Extraction Operation, states that a nonconforming Groundwater Extraction Operation, established as nonconforming pursuant to Section 6864, may be modified, in addition to other modifications that would be allowed by this section, to allow an increase in the amount of water exported or to change the location or method of off-site distribution, provided the findings required by subparagraph (b) can be made, where subparagraph (b) states that modifications may be authorized only after finding that: (1) The use was legally established prior to the requirement for a Major Use Permit; and (2) The requested modification does not constitute a substantial change to the use; and (3) The requested modification will not adversely affect adjacent property or property owners. (4) There is no increase in the size of the parcel. (5) The buildings are located in substantially the same location as shown on the plot plan.

Other relevant Zoning Ordinances include the following:

- **Zoning Ordinance §1810, §6552, and §6654.** The sale of groundwater from a private well owner is a “Groundwater Extraction Operation,” requiring a Major Use Permit from the County of San Diego.

In addition to the Zoning Ordinance, San Diego County’s General Plan includes an Open Space and Conservation Element, which identifies goals and policies to help guide decision makers on issues concerning water resources in San Diego County, including the Pine Valley area, a potential groundwater source.

- **COS-4.4 Groundwater Contamination.** Requires land uses with a high potential to contaminate groundwater to take appropriate measures to protect water supply sources. Potential sources of groundwater contamination include, but are not limited to, landfills, fertilizer, pesticide, manure

storage and sales, petroleum product storage tanks, manufacturing plants, and on-site wastewater treatment systems.

### **3.21 Wild Horses and Burros**

The BLM administers wild horses and burros as guided by the Wild Free-Roaming Horse and Burro Act of 1971. This includes the management of Herd Areas (HA) and Herd Management Areas (HMAs). HAs are those geographic areas where wild horses and/or burros were found at the passage of the Wild Free-Roaming Horse and Burro Act in 1971. HMAs are those areas within HAs where the decision has been made, through Land Use Plans, to manage for populations of wild horses and/or burros. California contains 33 HAs and 22 HMAs (BLM, 2010a).

According to the 2010 Geocommunicator on the BLM website and the 2006 BLM map for HAs and HMAs, California (south), there are no HAs or HMAs located within or adjacent to the proposed OWEF site or ROW application area (BLM, 2006 and 2010b). The Chocolate-Mule Mountains HMA and the Picacho HA are located approximately 59 miles east and 44 miles northeast of the proposed OWEF site, respectively, in Imperial County near the California-Arizona border (BLM, 2006 and 2010b). As such, the proposed OWEF site would not contain or traverse any established HMAs or HAs.

## 3.22 Wildland Fire Ecology

### 3.22.1 Environmental Setting

The behavior and characteristics of wildfires are dependent on a number of biophysical and anthropogenic (human-caused) factors. The biophysical variables are fuels (including composition, cover, and moisture content), weather conditions (particularly wind velocity and humidity), topography (slope and aspect), and ignition sources (e.g., lightning). The anthropogenic variables are ignitions (e.g., arson, smoking, equipment failure or misuse, and power lines) and management (wildfire prevention and suppression efforts).

Vegetation with low moisture content is more susceptible to ignitions and burns more readily than vegetation with higher moisture content. Grasses and low herbaceous vegetation fires account for high levels of firefighter injuries. However, when attacked safely this fuel type offers less resistance to fire control efforts. Grasses tend to ignite more easily and burn faster, but tend to burn for a shorter duration than woody vegetation such as shrubs and trees. Continuity of fuels helps sustain wildland fires. Dense vegetation tends to carry a fire farther than patchy vegetation. The presence of invasive annual grasses, however, can provide fuel connectivity in patchy desert shrublands that would otherwise provide inconsistent fuel to sustain a wildland fire. Similarly, strong winds provide oxygen to wildfires and can also blow glowing embers off burning vegetation to areas far ahead of the front of a fire, allowing fires to jump fuelbreaks in some cases. Conditions of low relative humidity will dry out fuels, increasing the likelihood of ignition. Finally, steep slopes and slopes with exposure to solar preheating and wind will carry fires rapidly uphill, and fires that are extinguished in mountainous areas are often contained along ridgelines.

Vegetation at the OWEF project site consists of a mix of desert scrub communities, desert wash woodland with a smoke tree density of approximately 100 trees per acre, and badlands, the latter of which is either without significant vegetation or very sparsely vegetated with herbaceous plants and an occasional shrub. Topography at the project site is nearly level to gently sloping, except at the southwestern-most corner of the project site, where the project site includes steeper slopes at the foothills of the Jacumba Mountains. There is no record of any fire greater than 300 acres having occurred at the project site or within 1 mile of the project site (CAL FIRE, 2008), indicating available older age fuels. Several fires have been recorded within approximately 5 miles south and west of the project site on the slopes of the Jacumba Mountains.

Strong winds provide oxygen to wildfires and can also blow glowing embers off burning vegetation to areas far ahead of the front of a fire. The OWEF project site is within an area of sustained strong winds according to the National Renewable Energy Laboratory, and this factor contributes to the ranking of the project site as a moderate and high fire hazard severity zone.

Fire Hazard Severity Zones (FHSZs) are areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors that have been mapped by the California Department of Forestry and Fire Protection (CAL FIRE) under the direction of Public Resources Code (PRC) 4201-4204 and Government Code 51175-89. FHSZs are ranked from moderate to very high and are categorized for fire protection as within a federal responsibility area (FRA) under the jurisdiction of a federal agency, within a State responsibility area (SRA) under the jurisdiction of CAL FIRE, or within a local responsibility area (LRA)

under the jurisdiction of a local agency. The OWEF site is located in FRA under the jurisdiction of BLM, and the site is within a moderate FHSZ except for a small portion of the site at the project's southwestern boundary, which is within a high FHSZ (CAL FIRE, 2007). Although the site boundary contains areas that are within a high FHSZ, neither wind turbines nor any other facility or structure associated with the project would be located within a high FHSZ. All construction and operational activities would occur within a moderate FHSZ. The area adjacent to the project's southern boundary is within a high FHSZ, and the areas approximately 3 miles west and 3 miles south of the project boundary is within very high FHSZs. The first responding engine from BLM would be the Pinyon Fire Station (Station #30 located at 70080 California 74, Mountain Center, CA) of the Riverside County Fire Department located approximately 59 miles north of the project site. However, the first responder to a structural fire would be the Imperial County Fire Department (2514 La Brucherie Road, Imperial, CA). Seeley, CA Fire Station and Ocotillo, CA Fire Station. Other potential closest responders include the San Diego County Fire Authority, Boulevard, CA Fire Station, San Diego Rural Fire Protection District, Jacumba, CA Fire Station and/or CAL FIRE from White Star and Campo Fire Stations.

In summary, fire risk at the project site is moderate, and the potential for a major fire to occur in the area surrounding the project site is moderate.

The study area for wildfires is defined as the area within one mile of the project boundary to the north and east, and within 3 miles of the project boundary to the west and south. Based on the type of vegetation and topography in the area, this study area represents a reasonable maximum extent of a wildfire ignited at the project site. Sensitive receptors nearby the site include residences in the community of Ocotillo, which is located between the northern and southern portions of the proposed OWEF site.

## **3.22.2 Applicable Regulations, Plans, and Standards**

### **3.22.2.1 Federal**

#### **Federal Energy Regulatory Commission**

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, however, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) Standards as the electric safety standard for the State. Since the state regulations meet or exceed the FERC standards, the FERC requirements are not discussed further in this section, as compliance with the state requirements will ensure that the federal requirements are met.

#### **Federal Wildland Fire Management Policy**

The Federal Wildland Fire Management Policy was developed in 1995 and updated in 2001 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgement of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founded on the following guiding principles:

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

### **International Fire Code**

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property including fire, explosions, and hazardous materials handling or usage. The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated in order to protect life and property (often times these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

### **National Electric Safety Code 1977, 2006**

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

### **North American Electric Reliability Corporation Standards**

The NERC is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC, 2011). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. The plan, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any

overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway (NERC, 2006). The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (NERC, 2006).

### **Institute of Electrical and Electronics Engineers Standard 516-2003**

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2003, *Guide for Maintenance Methods on Energized Power Lines*, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

### **3.22.2.2 State**

#### **California Fire Code**

The California Fire Code is contained within Chapter 9 of Title 24 of the California Code of Regulations (CCR). Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

#### **California Health and Safety Code**

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, high-rise building and childcare facility standards, interagency support protocols, and emergency procedures. Also, Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to, standard requirements.

#### **California Fire Plan**

The California Fire Plan is the statewide plan for reducing the risk of wildfire. The basic principles of the Fire Plan are as follows:

- Involve the community in the fire management planning process
- Assess public and private resources that could be damaged by wildfires
- Develop pre-fire management solutions and implement cooperative programs to reduce community's potential wildfire losses.

One of the more important objectives of the plan regards pre-fire management solutions. Included within the realm of pre-management solutions are fuels breaks, the establishment of Wildfire Protection Zones, and prescribed fires to reduce the availability of fire fuels. In addition, the Fire Plan recommends that clearance laws, zoning, and related fire safety requirements implemented by state and local authorities address fire-resistant construction standards, hazard reduction near structures, and infrastructure

(California Board of Forestry, 2010). The Fire Plan does not contain any specific requirements or regulations. It acts as more of an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place.

### **CPUC General Order 95: Rules for Overhead Electric Line Construction**

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, and standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements.

Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

### **Public Resources Code 4291**

Public Resources Code 4291 provides that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line.

## **3.22.2.3 Imperial County**

### **General Plan, Seismic and Public Safety Element**

**Goal 1, Objective 1.8:** Reduce fire hazards by the design of new developments.

**Goal 2, Objective 2.8:** Prevent and reduce death, injuries, property damage, and economic and social dislocation resulting from natural hazards including flooding, land subsidence, earthquakes, other geologic phenomena, levee or dam failure, urban and wildland fires and building collapse by appropriate planning and emergency measures.

### **Uniform Building Code (UBC) and Uniform Fire Code (UFC)**

The County implements the UBC and the UFC. These uniform codes are intended to serve as minimum standards for fire-resistant building construction and provision of emergency access.

### **Fire Prevention and Explosives Ordinance, Section 53101-53300**

The Fire Prevention and Explosives Ordinance contain provisions for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion. Such measures in this Ordinance include the following:

- Storage of flammable materials
- Storage of Radioactive materials
- Permit required for sale and use of fireworks
- Abatement of weeds and other vegetation

These measures reduce the risk of fire as a result of the storage of flammable materials and the introduction of exotic weeds to unincorporated areas of the County.

**BLM Fire Management: California Desert District; Palm Springs-South Coast-El Centro Zone**

In brief, the California Desert District (CDD) Fire Management program operates a decentralized fire program based on the “Fire Management Zone” concept. The Palm Springs-South Coast Field Office and El Centro Field Offices and the Santa Rosa and San Jacinto Mountains National Monument are the political sub-divisions served by this Zone. The Palm Springs and El Centro areas are provided fire protection by BLM Fire on Federal Responsibility Areas, which include all federal lands. The South Coast Area is provided fire suppression services by CAL FIRE in San Diego, Riverside, and San Bernardino Counties south of the San Bernardino National Forest. The Los Angeles County Fire Department serves unincorporated Los Angeles County. These South Coast Area fire agencies provide their services to BLM under a Direct Protection Agreement. The South Coast Area is divided along a north-south axis at the southern Riverside county line with San Diego and Imperial Counties. One Fire Mitigation Education Specialist is based in each of these respective geographical areas and provide the BLM Fire Agency Representative roles in those areas. The Division Chief, Fire Management Officer and Fuels Management Officer are located in Palm Springs, CA. Suppression resources include two of the CCD’s ten BLM/Park Service Engines. Additional resources available to BLM are local, State and federal engines, crews, bulldozers, and firefighting aircraft that are appropriate to the task.

**A. Fire Management: Wildfire Prevention (43 C.F.R. 9212.0 et seq.)**

These regulations outline procedures to be used to prevent wildfires on BLM lands. BLM policy requires the agency to take all necessary actions to protect human life, the public lands, and the resources and improvements on the public lands through the prevention of wildfires. Whenever possible, BLM actions should complement and support local wildfire prevention actions. *Authority: 43 U.S.C. 1701 et seq.*

The BLM Fire in cooperation with local, state and federal laws require the following

**Roles and Responsibilities:**

BLM Fire is responsible for Fire Suppression, Fire Mitigation, Fire Prevention, Fire Education and receptive fuels of wildland fires on BLM Lands. BLM Fire will operate in collaboration with local fire agencies in design, prevention and suppression operations.

**Delegation of Authority:**

The BLM shall designate the appropriate Fire Department, by jurisdiction, on a project by project basis, to work with BLM Fire in assistance with wildland fires, structural, vehicle, chemical and energized electrical firefighting. Emergency Medical Services, Technical Rescue, and Hazardous Materials.

BLM Fire will support this delegation of Authority in Unified Command or through Fire Management Agency Representatives to facilitate the call and management of appropriate BLM specialists to assist in emergency incidents on BLM Lands. (Example: Hazardous Materials Incident).

**Lack of Fire Services:**

If the local jurisdiction is unable to accept this project, BLM Fire and the local agency will determine and specify the requirements of an Industrial Fire Brigade as stipulated for 24 hour service.

**Water Supply:** Sufficient fire flow to support unstaffed or automatic fire suppression systems. Firefighting systems through automatic firefighting systems. This flow must be achieved through service through a municipal or other water district. If such entity is not available 10,000 gallon water tanks shall be installed, maintained and filled.

**Firefighting Water Tanks:**

The amount of tanks shall be determined by required fire flow requirements of the local fire agency in collaboration with BLM Fire. The location of the Tanks shall be determined by BLM Fire and the local agency to best serve the project and wildland firefighting requirements. The plumbing shall be such that the Hydrant or wharf head hydrant is of Bronze metals to reduce corrosion. It shall be protected from vandalism by a concrete box that has a steel locking top and access ports for the fire supply hose. The tanks shall be stenciled and maintained to say "Firefighting Water 10,000 gallons". The plumbing connection must be such that the tank can be opened or closed, the plumbing must be permanent, of metal material, and no less than 4 inches. The firefighting connection must be of metal construction and have a 4" National Hose Thread. Attached to this must be a separate coupling, that shall be removable, and of metal construction that goes from 4 inch National Hose thread to 2 ½ inch National Hose Thread. A protective cap must be in place to protect the hose threads.

**Nacelle Fire Protection:** Shall be installed and in service prior to start up.

**Fire Roads/ Fire Truck Trails:** Shall be maintained to permit access to two wheel drive fire equipment. Said roads, routes or trails shall be named or designated with road signs maintained by the project to facilitate emergency response.

**Fences:** As necessary, shall not limit access to fire roads, fire hydrants, or fire protection systems, such limitations shall be mitigated with gates to allow immediate access. (For example a fence blocking access to a water tank or hydrant).

**Gates:** Shall be no less width than 12 feet, to facilitate the use of firefighting bulldozers.

**House Keeping:** No combustible materials, patio furniture, wood picnic tables, sun shades, patio roof shall be stored placed or constructed around buildings. Such items must be fire resistant.

**Campfires, Barbeques, stoves:** Must be placed in cleared areas.

**Locks:** Provide a Knox Box or similar to allow fire and law enforcement, including US Border Patrol access.

**Fire Plan/Notification List:** Shall be updated as changes occur, and available on scene at the Knox Box location.

**Addresses:** Shall be at least 6 inches in height and of color contrast to its background.

**Below surface pipelines, electrical and communications lines:** Shall be signed at an interval appropriate to alert firefighting bulldozer and off road fire engine operations to advise firefighters of depth and location.

**Towers Marking:** Sufficient to FAA and CAL FIRE firefighting aircraft standards.

**Tower Pads:** Shall be of gravel to facilitate all weather parking by firefighting vehicles.

**Fuels Management:** a 100' defensible space zone shall be maintained annually or more often to reduce the availability of receptive fuels. Up to thirty feet from the shoulder of the roads shall be maintained to reduce grasses and herbaceous plants. Specimen or rare plants, succulents are allowed to soften the treatment, concentrating on dead and down woody vegetation.

**Fire Mitigation funds:** As necessary to mitigate employee costs and lead to acquisition of 2 additional Fire Prevention technicians and Patrol trucks over the service life of the projects to reduce wildfire risks and educate communities to FireSafe/FireWise concepts.

## 3.23 Wildlife Resources

This section describes the environmental setting and wildlife resources present or with potential to occur within the approximately 12,435-acre proposed OWEF project site (proposed OWEF site) that includes Sites 1 and 2.

### 3.23.1 Environmental Setting

The proposed OWEF site is located in the Yuha Desert, which is in the Colorado Desert region of the larger Sonoran Desert. The seven million-acre Colorado Desert region extends from the border of the higher-elevation Mojave Desert in the north to the Mexican border in the south, and from the Laguna Mountains of the Peninsular Ranges in the west to the Colorado River in the east. The Yuha portion extends from the Jacumba Mountains in the west to the historic West Side Main Canal near El Centro, and from Plaster City in the north to south of Mount Signal in Mexico.

The Colorado Desert is a desert of much lower elevation than the Mojave Desert to the north, and much of the land lies below 1,000 feet AMSL. Mountain peaks rarely exceed 3,000 feet AMSL. Common habitat includes sandy desert, scrub, palm oasis, and desert wash. Summers are hot and dry, and winters are cool and moist. Anza-Borrego Desert State Park (ABDSP), located mostly in eastern San Diego County, but jutting into Imperial County, is the bioregion's largest recreation area, covering 600,000 acres. It offers more than 225 bird species and dozens of species of mammals, amphibians, and reptiles. Peninsular bighorn sheep (*Ovis canadensis nelsoni*); can be seen there, as well as species of thrashers and owls. Other species in the Colorado Desert are antelope squirrel (*Ammospermophilus* sp.), white-winged dove (*Zenaida asiatica*), southern mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and raccoon (*Procyon lotor*). Rare animals include desert pupfish (*Cyprinodon macularius*), flat-tailed horned lizard (FTHL; *Phrynosoma mcallii*), prairie falcon (*Falco mexicanus*), Andrew's dune scarab beetle (*Pseudocolpa andrewsi*), Colorado desert fringe-toed lizard (*Uma notata*), Le Conte's thrasher (*Toxostoma lecontei*), and black-tailed gnatcatcher (*Polioptila melanura*; [CERES] 2011).

Most of the OWEF proposed OWEF site is a designated (BLM) Limited Use Area in which all motorized vehicles are restricted to the use of marked, designated routes only. BLM dirt roads exist throughout the proposed OWEF site, and a dirt road occurs along the existing 500-kV transmission line which traverses the middle of the proposed OWEF site running southwest to northeast. Illegal off-highway vehicle (OHV) trails criss-cross portions of the proposed OWEF site, and some areas are regularly used for camping, firearm activities, and legal OHV use. This area is also regularly patrolled by the U.S. Border Patrol. Despite the above-mentioned usage, the majority of the proposed OWEF site is relatively undisturbed.

Surrounding land uses include ABDSP to the west and BLM land to the north, east, and west. The Coyote Mountains Wilderness Area is located to the north (and adjacent to the proposed OWEF site), the Jacumba Wilderness Area is located to the south (and adjacent to the proposed OWEF site), and the Yuha Basin Area of Critical Environmental Concern (ACEC) occurs to the southeast. The town of Ocotillo and several scattered residences outside of the town are located between Sites 1 and 2.

Elevations in the proposed OWEF site range from approximately 1,490 feet AMSL in the southwest portion of the proposed OWEF site to 300 feet AMSL in the northeast portion of the proposed OWEF site. Elevation generally decreases from the west to the east, with the Coyote Mountains to the north

(located within the Coyote Mountains Wilderness Area), and the Jacumba Mountains to the west and south (located within the Jacumba Mountains Wilderness Area). To the west, the flanks of the Jacumba Mountains create rugged, rocky topographical features, low hills, and eroded badlands.

The majority of the proposed OWEF site is comprised of desert scrub communities such as brittle bush scrub, creosote bush scrub, teddy bear cholla scrub, white bursage scrub, and Wolf's cholla scrub. Smoke tree woodland is also present on the site; it typically occurs in dry desert washes. On-site unvegetated areas include sand dunes, un-vegetated streambeds, and badlands.

Several named, dry desert washes cut through the proposed OWEF site and run generally from west to east: Palm Canyon Wash cuts through the center of Site 1; Myer Creek Wash cuts through the southern portion of Site 1; a portion of Coyote Wash cuts through the northwest portion of Site 2; and several additional unnamed washes cut through the proposed OWEF site.

### 3.23.1.1 Special Status Animal Species

Special status animal species are those that are:

- Threatened, endangered, proposed, or candidates for listing under the federal ESA (ESA) or state equivalents;
- Considered to be of other special status by the USFWS and/or CDFG (2011).
- BLM-designated sensitive species (CDFG, 2011).

Table 3.23-1 lists special status animal species known to occur in the proposed OWEF site based on sightings by HELIX biologists (HELIX, 2011c) or whose potential to occur in the proposed OWEF site was considered based on CDFG's California Natural Diversity Data Base (CNDDDB, 2010) search and BLM species lists (CDFG, 2011).

Focused surveys for the following special status animal species were conducted in the proposed OWEF site as listed below. The methods for each survey (or surveys) from 2009 through spring 2010 are described in the biological technical report (Appendix D; HELIX 2011c). The methods for each survey (or surveys) from fall 2010 through 2011 are described in the survey reports that are appendices to the biological technical report (HELIX, 2011c).

- Flat-tailed horned lizard
- Barefoot banded gecko
- Raptors (i.e., raptor migration)
- Avian species (i.e., avian point counts)
- Golden eagle (nest survey)
- Burrowing owl
- Bats
- Peninsular bighorn sheep

Additionally, DeTect, Inc. was contracted by the project proponent to conduct an Avian Radar Survey at the proposed OWEF site. The methods (and results) for this survey are summarized below (following Avian Point Counts).

**Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site**

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
<b>Invertebrates</b>				
<i>Euphydryas editha quino</i> Quino checkerspot butterfly	Federal – FE State – None BLM – None	Found in association with but not restricted to vernal pools, sage scrub, chaparral, native and non-native grassland, and open oak and juniper woodland communities. The key component seems to be open-canopied habitats with larval host plants ( <i>Plantago erecta</i> and possibly <i>Antirrhinum coulterianum</i> , <i>Collinsia concolor</i> , and <i>Castilleja exserta</i> ) and adult nectar resources.	None	Species' habitat does not occur in the proposed OWEF site, and proposed OWEF site is outside of (i.e., east of) the USFWS recommended survey area for the species.
<b>Vertebrates</b>				
<b>Fish</b>				
<i>Cyprinodon macularius</i> Desert pupfish	Federal – FE State – SE BLM – None	Shallow waters with clear water and soft substrates.	None	Species' habitat does not occur in the proposed OWEF site.
<b>Amphibians</b>				
<i>Lithobates yavapaiensis</i> (=Yavapai, San Sebastian & San Felipe) Lowland leopard frog	Federal – None State – SSC BLM – Sensitive	A detailed understanding of the habitat requirements is lacking, but this species apparently inhabits slackwater aquatic habitats dominated by bulrushes, cattails, and riparian grasses near or under an overstory of Fremont's cottonwoods and willows (CDFG, 1994).	None	Species' habitat does not occur in the proposed OWEF site.
<i>Scaphiopus couchii</i> Couch's spadefoot	Federal – None State – SSC BLM – Sensitive	Requires temporary desert rainpools with water temperatures >15°C in which to breed that last at least seven days in order to metamorphose successfully. Subterranean refuge sites (with a loose-enough substrate to permit burial) must occur in the vicinity of rainpool depressions where reproduction takes place (CDFG, 1994).	None	Species' known range does not occur in the proposed OWEF site.
<b>Reptiles</b>				
<i>Charina trivirgata</i> Rosy boa	Federal – None State – None BLM – Sensitive	Desert, arid scrub, brushland, rocky chaparral-covered foothills - particularly where moisture is available.	Present	Observed in rocky habitat in the southwest portion of the proposed OWEF site during surveys for the barefoot banded gecko.
<i>Coleonyx switaki</i> Barefoot banded gecko	Federal – None State – ST BLM – None	Rocky, boulder-strewn desert foothills, where it spends most of its life deep in rock crevices and subterranean chambers.	High	Species not detected or recorded within the area surveyed in 2010 despite exhaustive searches which totaled 50 survey hours (Dugan, 2011a). Barefoot banded geckos have been previously documented within the I-8 Island during surveys for other projects; however, this area was excluded from the surveys for the proposed project given no project-related impacts would occur within the I-8 Island. Portions of the redesigned project that occur within suitable barefoot banded gecko habitat and outside of the areas surveyed in 2010 were surveyed in 2011, and the species was not found (Dugan, 2011b).
<i>Crotalus ruber</i> Red-diamond	Federal – None State – SSC	Arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, cultivated areas. On desert slopes of mountains, it	Present	Approximately 20 individuals were observed throughout the 2010 nocturnal barefoot banded gecko surveys.

<b>Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site</b>				
Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
rattlesnake	BLM - None	ranges into rocky desert flats.		
<i>Gopherus agassizii</i> Desert tortoise	Federal – FT State – ST BLM – None	Flats and bajadas with soils ranging from sand to sandy gravel with scattered shrubs. Requires sufficient suitable plants for forage and cover and suitable substrates for burrows and nest sites.	None	Outside range of the species. ABDSP has reported past presence well north of the proposed OWEF site. Most tortoises west of the Salton Sea are probable releases (CSP, 2007).
<i>Phrynosoma mcallii</i> Flat-tailed horned lizard	Federal – None State – SSC BLM – Sensitive	Occurs in desert washes and desert flats with cobbly, gravelly, or sandy soils; require native ant populations, particularly harvester ants ( <i>Pogonomyrmex sp.</i> ).	Present	A total of 18 FTHL were found within the proposed OWEF site during the FTHL survey as well as during other surveys conducted by HELIX. All of the FTHL were found east of Shell Canyon Road in the northeastern portion of the proposed OWEF site.
<i>Uma notata</i> Colorado Desert fringe-toed lizard	Federal – None State – SSC BLM – Sensitive	Sparsely-vegetated arid areas with fine wind-blown sand including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into extreme northeastern Baja California, Mexico (California Herps.com, 2011).	Low	Fine, wind-blown sands limited in the proposed OWEF site.
<b>Birds</b>				
<i>Accipiter cooperii</i> Cooper's hawk	Federal – None State – WL BLM – None	Fall migrant and winter resident in the desert regions of southern California.	Present	Six observations were made during the migration count surveys: 2 observations in fall 2009, 1 observation in spring 2010, and 3 observations in fall 2010 and spring 2011. One additional observation was made during an avian point count (APC) survey in April 2010.
<i>Accipiter striatus</i> Sharp-shinned hawk	Federal – None State – WL BLM – None	This species is a fall migrant and winter resident in the desert regions of southern California. Usually observed in areas with tall trees or other vegetative cover but can be observed in a variety of habitats.	Present	Four observations of sharp-shinned hawk were made in the proposed OWEF site, including 1 observation during the fall 2009 migration survey, 3 observations during the fall 2010 migration survey, and 1 observation during the spring 2011 migration study. Species not observed during the spring 2010 migration survey.
<i>Aquila chrysaetos</i> Golden eagle	Federal – Bald and Golden Eagle Protection Act covered, SC, BCC State – FP, WL BLM – Sensitive	This species will nest in desert regions if cliff ledges or trees are present on very steep slopes. Foraging occurs over open scrub and grassland habitats. Species is uncommon permanent resident and migrant throughout California, except center of Central Valley (Zeiner et al., 1988).	Present	Golden eagles were observed on 5 survey dates during fall 2009 migration counts, 0 survey dates during the spring 2010 migration counts, and 10 survey dates during the fall 2010 migration counts. One (1) individual was observed in spring 2010 during burrowing owl surveys. Observations were typically a single golden eagle, but on several occasions a group of 2 or 3 eagles were observed. In spring 2011, 1 golden eagle was observed on 3 survey dates, and 4 golden eagles were observed on 2 survey dates. One (1) juvenile and 2 adult golden eagles were observed during an APC survey. WRI's spring 2010 helicopter surveys within the 5

**Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site**

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
				known golden eagle territories indicated that there are 20 nest sites within 10 miles of the proposed OWEF site. Two (2) of the nest sites were considered active, having shown signs of nesting activity early in the 2010 breeding season, but none were occupied (i.e., no adults, eggs, or young were observed at nest sites during helicopter surveys).
<i>Asio otus</i> Long-eared owl	Federal – None State – SSC BLM – None	Oak woodlands and riparian forests in proximity to open foraging habitat. Occurs in southern California as an uncommon winter resident.	Present	One (1) individual was observed in the west central portion of the proposed OWEF site.
<i>Athene cunicularia</i> Burrowing owl	Federal – SC, BCC State – SSC BLM – Sensitive	Grassland and open scrub habitats and agricultural lands. Uses burrows of squirrels ( <i>Ammospermophilus</i> and <i>Spermophilus</i> spp.) and debris piles for nest sites. Migratory and resident breeding owls within the proposed OWEF site.	Present	Three burrowing owls were observed during the Phase I habitat assessment (January 2010), 2 burrowing owl pairs were documented during the 2010 Phase III breeding season surveys (June/July 2010), and 20 burrowing owls were documented during the fall/winter 2010 plant surveys. Twenty-one burrowing owl locations were observed during the fall 2010 focused burrow search, and 4 burrowing owls (likely a family group) were observed at a single burrow in June 2011 during the breeding season survey.
<i>Branta bernicla</i> Brant	Federal – None State – SSC BLM – None	Does not breed in California. Occurs in the state primarily as a spring and fall migrant and winter visitor; passes mainly far offshore in fall and close inshore in spring when staging birds are numerous in isolated coastal estuaries. During the non-breeding season, brant require well-protected, shallow marine waters with intertidal eel-grass beds, primarily within bays and estuaries. Their extensive use of natural habitats contrasts with that of most other geese of the Northern Hemisphere, which now primarily use agricultural land throughout winter (Shuford and Gardali, 2008a).	Present	A dead individual was found underneath the existing 500-kV transmission lines, in the northern portion of the proposed OWEF site. It is assumed the individual was migrating through the area.
<i>Buteo regalis</i> Ferruginous hawk	Federal – BCC State – WL BLM – Sensitive	Does not breed in southern California. Occurs in southern California as an uncommon winter resident and is associated with open grasslands. The species rarely occurs in desert valleys (Unitt, 2004).	Present	Species observed on 3 dates in October 2009 during the fall 2009 migration survey. Species also observed during an APC survey in December 2009. Two individuals were observed during spring 2010 rare plants surveys. Species not observed during the spring 2010 or fall 2010 migration surveys.

**Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site**

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
<i>Buteo swainsoni</i> Swainson's hawk	Federal – BCC State – ST BLM – None	Species migrates through Imperial County during its southward migration in the fall and during its northward migration in spring. Large groups known to roost in the town of Borrego Springs (approximately 40 miles to the northwest) during spring and fall migration, but the species is not known to breed in Imperial County (Unitt, 2004).	Present	A total of 20 individuals were observed during migration count surveys: 1 in fall 2009, 2 in spring 2010, and 17 in fall 2010. Three additional observations were made during APC surveys in spring 2010. Fifty-one individuals were observed during the spring 2011 migration survey.
<i>Chaetura vauxi</i> Vaux's swift	Federal – SC State – SSC BLM – None	Occurs rarely and irregularly in winter in southern California (Garrett and Dunn, 1981, as cited in Shuford and Gardali, 2008b). May roost in chimneys or other man-made structures and prefers to breed in old growth forests in western North America to central California (Shuford and Gardali, 2008b).	Present	Species observed migrating through the proposed OWEF site during the spring and fall migration periods.
<i>Charadrius montanus</i> Mountain plover	Federal – PT, BCC State – SSC BLM – Sensitive	Does not breed, but winters, in California. Found on extremely dry shrublands, shortgrass prairie, barren agricultural fields, and other sparsely vegetated areas. Grazed alfalfa fields and burned Bermuda grass fields were heavily utilized by mountain plover (USFWS, 2010a). The importance of the Imperial Valley to mountain plover, where the authors suggested half of the continental population of mountain plovers may winter, is linked to losses of wintering habitat in coastal and Central Valley, California (Wunder and Knopf, 2003; pp. 77-78, as cited in USFWS, 2010a).	Low	Preferred habitats very limited to absent in the proposed OWEF site.
<i>Circus cyaneus</i> Northern harrier	Federal – SC State – SSC BLM – None	Sloughs, wet meadows, marshlands, swamps, prairies, plains, grasslands, and shrublands. They nest on the ground, usually near water, or in tall grass, open fields, clearings, or on the water (Snyder, 1993). Resident of southern California.	Present	A total of 12 individuals were observed during migration count surveys: 8 in fall 2009, 2 in spring 2010, and 2 in fall 2010. One additional observation was made during APC surveys in fall 2009.
<i>Cypseloides niger</i> Black swift	Federal – SC, BCC State – SSC BLM – None	Nests around waterfalls and sea cliffs. Specific wintering grounds of the California populations are not known (Lowther and Collins, 2002, as cited in Shuford and Gardali, 2008c). The entire California population appears to be composed of perhaps 200 pairs (Shuford and Gardali, 2008c).	Low	Potential to migrate through the proposed OWEF site. No suitable breeding habitat exists within the proposed OWEF site.
<i>Dendroica petechia brewsteri</i> Yellow warbler	Federal – SC, BCC State – SSC BLM – None	Occurs principally as a migrant and summer resident in California. Breeds April through July and generally occupies riparian vegetation in close proximity to water along streams and in wet meadows (Lowther et al., 1999, as cited in Shuford and Gardali, 2008d).	Present	A total of 3 individuals were observed flying through the western portion of the proposed OWEF site during APC surveys in May 2010.
<i>Elanus leucurus</i> White-tailed kite	Federal – None State – FP BLM – None	Prefers riparian woodlands and oak or sycamore groves adjacent to grassland.	Low	Species' habitats not present in the proposed OWEF site.

**Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site**

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
<i>Empidonax traillii</i> willow flycatcher	Federal – FE (ssp. extimus)/None (ssp. brewsteri) State – SE BLM – None	Neotropical migratory species and two subspecies are known to migrate through southern California during spring and fall. Breeding habitat is restricted to extensive riparian areas with substantial riparian understory and flowing water. During migration, birds may be found in riparian areas and desert habitats, such as mesquite thickets.	Present	One (1) individual observed migrating through the proposed OWEF site in May 2011. No suitable breeding habitat exists within the proposed OWEF site. Individual observed was not identified to subspecies.
<i>Falco columbarius</i> Merlin	Federal – SC State – WL BLM – None	Usually observed in grasslands but can occur in any habitat except dense woodlands. Migratory species.	Present	A total of 3 individuals were observed during migration count surveys: 1 in fall 2009 and 2 in fall 2010. Species not observed during the spring 2010 migration survey or during APC surveys.
<i>Falco mexicanus</i> Prairie falcon	Federal – SC, BCC State – WL BLM – None	Nesting occurs on cliff or bluff ledges or occasionally in old hawk or raven nests; foraging occurs in grassland or desert habitats. Resident species.	Present	A total of 44 observations were made during migration count surveys: 15 in fall 2009, 20 in spring 2010, and 9 in fall 2010. Thirty-seven individuals were observed during the spring 2011 migration survey. Nine (9) additional observations were made during APC surveys.
<i>Falco peregrinus anatum</i> American peregrine falcon	Federal – Delisted, BCC State – Delisted, FP BLM – None	Generally, areas with cliffs near water where prey (shorebirds and ducks) is concentrated. Preferred hunting areas are agricultural fields, meadows, marshes, and lakes. Nesting usually occurs on cliff ledges or in a scrape in debris and occasionally in the old nests of other birds.	Present	Two individuals were observed perched on the existing 500-kV transmission tower in the central portion of the proposed OWEF site (near Sugarloaf Mountain) in fall 2009. Suitable nesting habitat not present within proposed OWEF site.
<i>Lanius ludovicianus</i> Loggerhead shrike	Federal – SC, BCC State – SSC BLM – None	Resident species found in grassland, open sage scrub, chaparral, and desert scrub.	Present	Species was observed regularly throughout the proposed OWEF site during migration counts, the APC study, and the other surveys.
<i>Laterallus jamaicensis coturniculus</i> California black rail	Federal – SC, BCC State – ST, FP BLM – None	In California, a yearlong resident of saline, brackish, and fresh emergent wetlands in the San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay and a few other locations, the Salton Sea, and lower Colorado River area (CDFG, 1999).	None	Species' habitats not present in the proposed OWEF site.
<i>Melanerpes uropygialis</i> Gila woodpecker	Federal – SC, BCC State – SE BLM – None	Permanent resident where found. Nevada and California populations generally constrained to the last riparian remnants of the Colorado River, though small numbers—perhaps up to 100 pair (G. McCaskie, pers. comm., as cited in McCreedy, 2008)—may be still found in the Imperial Valley (Alcorn, 1988; Hunter, 1986, as cited in McCreedy, 2008). Researchers recently discovered a small population in Cercidium-Olneya woodland near the Palo Verde Mountains, raising the possibility that more Gila Woodpeckers may be found in large, old-growth, xeric, riparian woodlands in Imperial County (McCreedy in prep., as cited in McCreedy, 2008).	None	Species' habitats not present in the proposed OWEF site.

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
<i>Pandion haliaetus</i> Osprey	Federal – SC State – WL BLM – None	Coasts and inland lakes. This species is migratory.	Present	A total of 10 observations were made during migration count surveys: 1 in fall 2009, 5 in spring 2010, 1 in fall 2010, and 3 in spring 2011. Species not observed during APC surveys.
<i>Rallus longirostris yumanensis</i> Yuma clapper rail	Federal – FE State – ST, FP BLM – None	Lives in freshwater marshes dominated by cattail ( <i>Typha sp.</i> ) and bulrush ( <i>Scirpus ssp.</i> ) with a mix of riparian tree and shrub species ( <i>Salix exigua</i> , <i>S. gooddingii</i> , <i>Tamarix sp.</i> , <i>Tessaria serica</i> , and <i>Baccharis sp.</i> ) along the shoreline of the marsh (Gould, 1975; Smith, 1975; Anderson and Ohmart, 1985; Todd, 1986; and Eddleman, 1989, as cited in USFWS, 2009a). Recent research, suggests that most individuals of this species do not migrate, although the young disperse after the breeding season (CDPR, undated).	None	Species' habitats not present in the proposed OWEF site.
<i>Spizella breweri</i> Brewer's sparrow	Federal – BCC State – None BLM – None	In California, this migratory species winters in the central and southern interior part of the state; favors low, dry vegetation (Audubon WatchList, 2011).	Present	Observed throughout the year during APC study and also observed during migration counts. Species abundant within proposed OWEF site in the spring.
<i>Toxostoma lecontei</i> Le Conte's thrasher	Federal – SC, BCC State – SSC BLM – Sensitive	Year-round resident in Mojave and Sonoran desert shrublands, mesquite bosque, and small-stature Joshua tree woodlands (Weigand and Fitton, 2008).	Present	A total of 22 LeConte's thrashers were observed in the northwest and west-central portions of the proposed OWEF site during the APC study, usually as a solitary individual or occasionally as a group of 2 or 3 individuals. This species observed regularly throughout the site during other surveys, and nesting locations were found.
<i>Vireo bellii pusillus</i> Least Bell's vireo	Federal – FE, BCC State – SE BLM – None	This migratory species prefers riparian habitat of low, dense, shrubby vegetation in valleys, foothills, and deserts.	Low	Potential to migrate through the proposed OWEF site. No suitable breeding habitat exists within the proposed OWEF site.
<i>Vireo vicinior</i> Gray vireo	Federal – SC, BCC State – SSC BLM – Sensitive	Occurs in chaparral, pinyon-juniper woodland, and Sonoran desert scrub. The total population size in California is probably in the low hundreds, with the majority occurring in San Diego County. In California, the primary breeding range includes the mountains of southern California. Gray vireos are migratory, overwintering primarily in the Sonoran Desert of Mexico or in the extreme southwestern U.S. The San Diego County Bird Atlas resulted in the detection of Gray vireos overwintering in the Sonoran desert of ABDSP in association with a large grove of elephant trees ( <i>Bursera microphylla</i> ) in December 1999 (Unitt, 2000, 2004, as cited in Winter and Hargrove, 2004). This is the first known record of gray vireos overwintering in California. Follow-up surveys have revealed only a single individual at most per survey of the area through 2003 (Hargrove and Rotenberry, 2003, as cited in Winter and Hargrove, 2004). Elephant tree habitat also occurs in Imperial County, but it is unknown whether any focused winter surveys have been conducted there (Winter and Hargrove, 2004).	Low	Potential to migrate through the proposed OWEF site. Elephant trees are not present in the proposed OWEF site.

**Table 3.23-1. Special Status Animal Species Present or With Potential to Occur in the Proposed OWEF site**

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
<b>Mammals</b>				
<i>Antrozous pallidus</i> Pallid bat	Federal – None State – SSC BLM – Sensitive	Wide variety of habitats in all but highest elevations. Most common in open, dry habitats with rocky areas for roosting.	High	Not detected during bat surveys.
<i>Corynorhinus townsendii</i> Townsend's western big-eared bat	Federal – None State – SSC BLM – Sensitive	All but alpine and subalpine habitats. Roosts in caves or abandoned mines, occasionally in buildings.	Moderate	Not detected during bat surveys.
<i>Eumops perotis californicus</i> Western mastiff-bat	Federal – None State – SSC BLM – Sensitive	Open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas.	Present	Detected in the western portion of the proposed OWEF site.
<i>Macrotus californicus</i> California leaf-nosed bat	Federal – None State – SSC BLM – Sensitive	Desert scrub areas; roosts by day in caves, abandoned mines, and tunnels. Occurs in small numbers; rarely seen. Doesn't hibernate so is restricted to warmer climates (Bats of San Diego County, 2006).	Moderate	Not detected during bat surveys.
<i>Myotis ciliolabrum</i> Small-footed myotis	Federal – None State – None BLM – Sensitive	Wide variety of habitats, primarily arid wooded and brushy uplands near water (CDFG, 1990).	High	Not detected during bat surveys.
<i>Myotis evotis</i> Long-eared myotis	Federal – None State – None BLM – Sensitive	Lives in coniferous forests in mountain areas, roosts in small colonies in caves, buildings and under tree bark (Bats of San Diego County, 2006).	Low	Not detected during bat surveys.
<i>Myotis thysanodes</i> Fringed myotis	Federal – None State – None BLM – Sensitive	Lives in oak and juniper forests, desert scrub. Roosts in caves, abandoned mines, or buildings (Bats of San Diego County, 2006).	Moderate	Not detected during bat surveys.
<i>Myotis velifer</i> Cave myotis	Federal – None State – SSC BLM – Sensitive	This species is found primarily at lower elevations (the Sonoran and Transition life zones) of the arid southwest, in areas dominated by creosote bush, palo verde, brittlebush, and cactus. In California, it occurs only along the Colorado River (Western Bat Working Group, 2005).	None	Proposed OWEF site is not along the Colorado River.
<i>Myotis yumanensis</i> Yuma myotis	Federal – None State – None BLM – Sensitive	Optimal habitat is open forests and woodlands with open water.	Moderate	Not detected during bat surveys.
<i>Ovis canadensis nelsoni</i> (Distinct Population Segment) Peninsular bighorn sheep (PBS)	Federal – FE State – ST, FP BLM – None	Semi-open, precipitous terrain with rocky slopes, ridges, and cliffs or canyons; from alpine meadow to hot desert between 300 and 4,000 feet AMSL. Species use a wide variety of plant types as food sources including shrubs, forbs, cacti, and grasses (USFWS, 2001). Although steep, escape-route terrain is closely associated with PBS, low rolling and flat terrain including foothills and washes provide an alternative source of	Present	PBS were observed in the proposed OWEF site in 2010 and 2011. All of these observations were in the I-8 Island in the southwest portion of Site 1. PBS lambing sites have also been documented by CDFG in the I-8 Island. PBS have also been observed along Devil's Canyon to the south of Site 1. Suitable habitat (i.e., steep, escape-route terrain) occurs to the west and

Species	Status	Habitat	Potential to Occur	Observations in the Proposed OWEF site
		high-quality browse forage during times when resources become limited (USFWS, 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans are also used for breeding, feeding, and movement (USFWS, 2001).		south of Site 1. Suitable habitat also occurs to the west of Site 2, although it is considered marginal because it does not contain an abundance of steep, escape-route terrain. The 2011 HELIX/Western Tracking Institute PBS study indicates that, with the exception of the portion of the I-8 Island in the southwest portion of Site 1, the proposed OWEF site is not currently occupied.
<i>Taxidea taxus</i> American badger	Federal – None State – SSC BLM – None	American badgers occur primarily in grasslands, parklands, farms, and other treeless areas with friable soil and a supply of rodent prey. They are also found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows (Sullivan, 1996).	Present	Tracks and 3 badger dens were observed in the northern portion of the proposed OWEF site.

Source: HELIX, 2011c

\*Species in bold-face type were observed.

**Status Codes:**

**Federal**

**U.S. Fish and Wildlife Service (USFWS, 2011)**

FE = federally listed endangered

FT = federally listed threatened

PT = federally proposed threatened

Delisted = no longer federally listed due to recovery

SC = Species of Concern is an informal term that refers to those species which might be in need of concentrated conservation actions.

BCC = Bird of Conservation Concern (USFWS, 2008)

**BLM (CDFG, 2011)**

BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Federal Endangered Species Act.

**State**

**California Department of Fish and Game (CDFG, 2011)**

SE = state listed endangered

ST = state listed threatened

FP = fully protected

WL = taxa to watch (the birds on this watch list are 1) not on the current species of special concern list but were on previous lists and they have not been state listed under California Endangered Species Act; 2) were previously state or federally listed and now are on neither list; or 3) are on the list of FP species.

SSC = species of special concern

## Flat-tailed Horned Lizard

### ***Natural History***

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al., 1980, as cited in FTHL ICC, 2003). The FTHL Rangewide Management Strategy (2003) established Management Areas for the conservation and recovery of the FTHL. The proposed OWEF site provides connectivity and an important habitat linkage between the adjacent Yuha and West Mesa Management Areas.

Human activities have resulted in the conversion of approximately 49 percent of the historic habitat of the FTHL (FTHL ICC, 2003). The decline in the FTHL population is primarily due to effects from utility lines, roads, geothermal development, sand and gravel mining, ORV recreation, waste disposal sites, military activities, pesticide use, and U.S. Border Patrol activities (FTHL ICC, 2003). The Argentine ant (*Linepithema humile*), an invasive species, was considered as a possible threat, but dismissed as such, since the climate of the Action Area is too dry for Argentine ants (FTHL ICC, 2003).

### ***Survey Results***

Historical data indicates that the FTHL was once present in eastern San Diego County as well as the Imperial Valley (Turner et al., 1980; and Hodges, 1997, as cited in FTHL ICC, 2003). HELIX conducted a database search of the CDFG's CNDDDB (accessed September 27, 2010) and determined that four FTHLs have been reported in or near the proposed OWEF site. The one outside the proposed OWEF site was reported in 1932. Three FTHL were reported in 1982; the first location is near the northwest corner of the proposed OWEF site along Imperial Highway; the second is near Imperial Highway and the existing 500 kV transmission line; while the third reported location is near Imperial Highway and Shell Canyon Road (see Figure 3.23-1). It is not possible to determine if these detections were within the proposed OWEF site because the CNDDDB includes an approximately 3,000-foot buffer around each of these points, which is due to the low accuracy of the locations of the reported sightings. The CNDDDB search did not return reports of FTHL found within or near the proposed OWEF site after 1982. HELIX also conducted a database search using the BLM's reported data for FTHL. The BLM reported data includes one reported FTHL sighting within the proposed OWEF site east of Shell Canyon Road in the northeast portion of Site 1 (date of the reported sighting was July 20, 2005).

A total of 18 FTHL were found within the study area during the FTHL survey as well as during surveys conducted for other species by HELIX. All of the FTHL were found east of Shell Canyon Road in the northeastern portion of the study area. No FTHL were found west of Shell Canyon Road during surveys of the FTHL plots or during any of the other surveys conducted in the proposed OWEF site (e.g., special status plants, burrowing owl [*Athene cunicularia*], and bird surveys). Based on the exhaustive field surveys completed, the current FTHL distribution within the study area appears to be from Shell Canyon Road to the east; although, in accordance with the FTHL Rangewide Management Strategy, all contiguous habitat within two miles of a FTHL sighting is assumed to be occupied by FTHL.

The desert horned lizard (*Phrynosoma platyrhinos*; DHL), which is not a special status species, was found throughout the majority of the proposed OWEF site, with the exception of an area in the western portion

of Site 1. The ranges of FTHL and DHL overlap in the northeast portion of the proposed OWEF site. Each of the nine survey plots where FTHL were documented during surveys also contained DHL.

FTHLs were found in open desert scrub vegetation communities such as allscale scrub, creosote bush scrub, creosote bush-white bursage scrub, creosote bush-allscale scrub, and creosote bush-fourwing saltbush scrub. Dominant plant species recorded at FTHL sightings were creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Sahara mustard (*Brassica tournefortii*), desert plantain (*Plantago ovata*), *Cryptantha* sp., Emory's indigo bush (*Psoralea emoryi*), ocotillo (*Fouquieria splendens*), desert sand verbena (*Abronia villosa* var. *villosa*), saltbush (*Atriplex* sp.), and Mojave spine flower (*Chorizanthe spinosa*).

The majority of the proposed OWEF site is composed of gravel and gravelly sands of varying degrees of coarseness. Finer, windblown sandy areas occur in discrete patches in several areas of the proposed OWEF site; some of the larger areas include two areas in the extreme southwestern portion of the proposed OWEF site north of westbound I-8; an area just east of Sugarloaf Mountain and north of eastbound I-8 containing sand dunes; and another small area north of the Imperial Freeway and west of Shell Canyon Road. The majority of the lower elevation area east of Shell Canyon Road is comprised of fine, windblown sand containing hummocks.

### **Barefoot Banded Gecko**

#### ***Natural History***

The barefoot banded gecko has a limited distribution ranging from eastern San Diego County, western Imperial County, to as far south as central Baja California, Mexico, along eastern Peninsular Ranges (CDFG, 2004; Grismer, 2002). The proposed OWEF site is located at the eastern edge of the known species range.

The barefoot banded gecko is strictly nocturnal and active above ground when daytime temperatures are above 100 degrees Fahrenheit and when nighttime temperatures are in the high 80s. They are most active above ground from May through July and can be found as early as February and as late as September (CDFG, 2010). The barefoot banded gecko has soft skin with fine granular scales which causes it to seek humid conditions. The barefoot banded gecko becomes active above ground when humidity is about 25 percent.

The barefoot banded gecko inhabits arid desert slopes with habitat consisting of large boulders and rock outcrops at the heads of canyons and are found at elevations ranging from sea level to 2,300 feet AMSL (Grismer, 2002; Dugan, 2011a). The barefoot banded gecko spends most of its life deep in rock crevices and subterranean chambers where the humidity is relatively higher than above ground (CDFG, 2004). Their diet consists of various insects.

#### ***Survey Results***

The barefoot banded gecko was not detected despite exhaustive searches which totaled fifty survey hours (Dugan, 2011a). The CDFG survey protocol (CDFG, 2010) was prepared to maximize detection and states that, "if no lizards are detected within four surveys according to this protocol, it will be assumed the species is not present in the surveyed area." Therefore, even though surveys can be inconclusive, barefoot banded gecko is assumed to be absent within the survey area (see Figure 3.23-2).

Subsequent changes have been made to the preliminary project design since the 2010 surveys were conducted. Turbines in the southwest corner of Site 1, which were located in suitable barefoot banded gecko habitat, were eliminated from the project design. The redesign of the access roads and underground collection system in Site 2 includes several areas that fall outside of the 2010 barefoot banded gecko survey area and within potential habitat for the species. The portions of the redesigned project that occur within suitable barefoot banded gecko habitat and outside of the areas surveyed in 2010 were surveyed in 2011, and the species was not found (Dugan, 2011b)

### **Raptor Migration**

The purpose of the raptor migration study was to document the diurnal raptor activity within the proposed OWEF area in order to provide a risk assessment for these species. Two years of raptor migration counts were conducted for the OWEF project area, including counts in fall 2009, spring and fall 2010, and spring 2011 (HELIX, 2011c; see also Appendix L7). The methods of each study were developed in coordination with the BLM and were based on the recommendations provided in the California Energy Commission's (CEC's) Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development (CEC and CDFG, 2007).

### **Results—Raptor Use and Relative Abundance**

Overall, more raptors were observed in spring 2011 compared to previous seasons (HELIX, 2011d). A total of 935 raptors/large birds were observed on the proposed OWEF site during spring 2011 compared to totals of 165, 522, and 451 during fall 2009, spring 2010, and fall 2010, respectively. Raptor use of the site has varied across the seasons with average observations per hour at 0.216, 0.548, 0.781, and 1.910 for the fall 2009, spring 2010, fall 2010, and spring 2011 seasons, respectively.

In terms of raw numbers of observations, no patterns or seasonal differences were noted with the exception of the red-tailed hawk and turkey vulture. Red-tailed hawk observations increased in abundance through the 4 seasons of counts, and were highest during spring 2011. Prior to spring 2011, however, no red-tailed hawk nests were observed within the project site. This season, an active red-railed hawk nest was discovered. A second active red-tailed hawk nest was discovered off-site but just east of the town of Ocotillo and north of Evan Hewes Highway. The presence of these 2 active nests may account for the increase in observations of this species during the spring 2011 survey. Turkey vultures were more abundant during both spring seasons (spring 2010, 316 observations; spring 2011, 456 observations) compared to the fall seasons (fall 2009, 15 observations; fall 2010, 83 observations).

In terms of raptor use of the site (number of observations per hour), prairie falcon and turkey vulture use of the site was approximately 3 times greater in spring 2011 compared to previous seasons, and Swainson's hawk use of the site was 5 times greater in spring 2011 compared to previous seasons. Unidentified raptors were 5 times greater in spring 2011 compared to last spring and 3 times greater than fall 2010.

During the fall 2009 migration counts, the species with the highest use of the proposed OWEF site were the red-tailed hawk (*Buteo jamaicensis*; 0.089 observation/hr), American kestrel (*Falco sparverius*; 0.022 observation/hr), prairie falcon (0.020 observation/hr), and turkey vulture (0.020 observation/hr). During the spring 2010 migration counts, the species with the highest use of the proposed OWEF site were the turkey vulture (0.332 observation/hr), red-tailed hawk (0.127 observation/hr), and prairie falcon (0.021

observation/hr). During the fall 2010 migration counts, the species with the highest use of the proposed OWEF site were the red-tailed hawk (0.431 observation/hr), turkey vulture (0.144 observation/hr), and American kestrel (0.074 observation/hr). During spring 2011, the species with the highest use of the proposed OWEF site were the turkey vulture (0.932 observation/hr), red-tailed hawk (0.56 observation/hr), and Swainson’s hawk (0.104 observation/hr).

Golden eagle (*Aquila chrysaetos*) use of the proposed OWEF site has remained low over the nearly 3 years of raptor migration counts: 0.01 observation/hr during fall 2009 migration counts, none during spring 2010 migration counts, and 0.02 observation/hr during fall 2010 and spring 2011 migration counts. This species was observed in fall 2010 during APCs as further described below. The species was also observed during a burrowing owl survey on June 17, 2010 (see Figure 3.23-3). Note that the raptor migration counts and APC surveys are different studies. Although a raptor migration count and APC may have occurred on the same day, these surveys were never done concurrently. These golden eagle use estimates suggest relatively low use of the proposed OWEF site during the study period, especially when compared to other projects in California such as the High Winds Wind Resource Area (0.3 eagle/30-minute survey during pre-construction surveys and 0.1 eagle/30-minute survey during the post-construction period; Kerlinger et al. 2005, 2006, as cited in HELIX, 2010c) and the Diablo Winds Wind Resource Area (0.3 eagle/30-minute survey during the post-construction period; WEST, 2008, as cited in HELIX, 2010c). Golden eagle count information for other projects in the vicinity was not available between 2009 and 2011 for comparison to the data collected for the OWEF project site.

The turkey vulture accounted for 42 percent of the total observations during the study period (Table 3.23-2 [Relative Abundance column]). The red-tailed hawk constituted 34 percent of the total observations. Prairie falcon and American kestrel accounted for four percent each of total observations. There were 169 raptor sightings that could not be definitively identified, which accounted for approximately eight percent of observations.

Species	Fall 2009		Spring 2010		Fall 2010		Spring 2011		Total		Relative Abundance
	No.	No./hr	No.	No./hr	No.	No./hr	No.	No./hr	No.	No./hr	
American kestrel	17	0.022	16	0.017	43	0.074	18	0.037	94	0.034	0.045
Cooper's hawk	2	0.003	1	0.001	3	0.005	3	0.006	9	0.003	0.004
Ferruginous hawk	4	0.005	0	0	0	0	0	0	4	0.001	<0.01
Golden eagle	9	0.012	0	0	11	0.019	11	0.022	31	0.011	0.015
Merlin	1	0.001	0	0	2	0.003	0	0	3	0.001	<0.01
Northern harrier	8	0.010	2	0.002	2	0.003	0	0	12	0.004	<0.01
Osprey	1	0.001	5	0.005	1	0.002	3	0.006	10	0.004	<0.01
Prairie falcon	15	0.020	22	0.023	9	0.016	37	0.076	83	0.030	0.04
Red-tailed hawk	68	0.089	121	0.127	249	0.431	274	0.560	712	0.256	0.344
Sharp-shinned hawk	1	0.001	0	0	3	0.005	1	0.002	5	0.002	<0.01
Swainson's hawk	1	0.001	2	0.002	17	0.029	51	0.104	71	0.026	0.034
Turkey vulture	15	0.020	316	0.332	83	0.144	456	0.932	870	0.313	0.420
Unidentified raptor	23	0.030	37	0.039	28	0.048	81	0.165	169	0.061	0.082
<b>Total Observations</b>	<b>165</b>	<b>0.216</b>	<b>522</b>	<b>0.548</b>	<b>451</b>	<b>0.781</b>	<b>935</b>	<b>1.910</b>	<b>2,073</b>	<b>0.745</b>	
<b>Total Identified Species</b>	<b>12</b>		<b>8</b>		<b>11</b>		<b>9</b>		<b>12</b>		
<b>Observation Hours</b>	<b>763</b>		<b>952</b>		<b>577.5</b>		<b>489.5</b>		<b>2,782</b>		

While evaluating the data from all 2009 through 2011 avian species surveys, it was important to take the recent drought and its likely effects on raptor use of the site into account. The California Department of Water Resources advises that California is entering its fourth year of serious drought as a result of below average precipitation and run-off since the autumn of 2006 (State of California, 2010, as cited in WRI 2011). Raptor use of the OWEF site may be higher in years with above average rainfall if the rainfall results in a greater abundance of prey and if the raptor species spend more time foraging or hunting for the prey items.

It should be noted that no California condors (*Gymnogyps californianus*) were observed during the raptor migration counts or any other survey conducted for the proposed project. Historically, California condors occurred throughout the southwestern U.S. into Mexico (as well as in pockets of New York and Florida; Audubon California, 2011). However, by the early 1900s California condors were largely confined to the rugged mountains and foothills of central and southern California. California condors have been released in California and Arizona in the 1990s and in Baja California, Mexico in 2003. The proposed OWEF site is not within the current range of this species (Audubon California, 2011).

### **Avian Point Counts**

Avian point counts were conducted in accordance with the survey protocols approved by BLM (HELIX, 2010a) and in accordance with the bird use count methods described in the CEC's Guidelines for Reducing Bird Impacts from Wind Development (CEC and CDFG, 2007). Avian point counts were conducted to record bird species, abundance, behavior, and flight characteristics to assess if the proposed OWEF site is part of a major migratory movement corridor and to assess the overall collision risk for active avian species with the WTGs.

### **Survey Results**

The proposed OWEF site does not support large populations of resident avian species, and many of the resident species observations, including raptor observations, were likely repeat observations of the same individual. The proposed OWEF site does not appear to be part of a major migration corridor for either common or special-status species.

Twelve (12) special-status avian species were observed during APC including one state listed as threatened species (Swainson's hawk), which was seen infrequently and only during the spring migration period. Golden eagles were seen only once during the APCs (September 2, 2009) and were observed flying at a height above the rotor swept area (RSA). In addition, 11 sensitive (non-listed) species were detected during the weekly point counts including golden eagle, burrowing owl, loggerhead shrike (*Lanius ludovicianus*), Vaux's swift (*Chaetura vauxi*), LeConte's thrasher (*Toxostoma lecontei*), yellow warbler (*Dendroica petechia*), brant (*Branta bernicla*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), and prairie falcon as further discussed below.

Burrowing owls occur in the proposed OWEF site in low densities and use the site during the breeding season and wintering season (see burrowing owl discussion below). The other observations of special-status raptor species included a single observation each of northern harrier and ferruginous hawk, which were both observed flying above the RSA. The most abundant sensitive species was loggerhead shrike, which accounted for approximately three percent of the total bird observations, which likely was the result of several resident individuals being documented on multiple occasions throughout the year. The other

sensitive bird species (yellow warbler, Vaux's swift, brant, and LeConte's thrasher) were seen in very low numbers primarily in the spring. Cooper's hawk and prairie falcon also were observed during surveys.

A total of 77 species and 6,387 total observations were documented during the weekly point counts over the year-long study. Species abundance was variable throughout the year with the biggest fluctuations occurring between seasons (i.e., species abundance was comparatively greater in the winter and spring compared to the fall). The weekly surveys began in fall, which had one of the lower seasonal detection rates (5.4 individuals per 30-minute period). The lower detection rate corresponded with very high daytime temperatures in September and early October. Detection rates would have been lower during fall, but substantial numbers of house finches (*Carpodacus mexicanus*) were documented flying through the proposed OWEF site. Winter averaged 7.2 individuals detected per 30-minute period, and spring averaged 8.3 individuals detected per 30-minute period. Species abundance varied little in winter months, with fluctuations in house finch numbers typically responsible for variations. Migratory species were responsible for major fluctuations in spring. At the peak of spring migration (first week of April) there were 306 individuals detected, most of which were migratory. This yielded the highest weekly detection rate for the year of 14.4 individuals per 30-minute period. Hot temperatures and the absence of migratory species accounted for low abundance in summer (average of 3.0 individuals per 30-minute period).

Raptor observations accounted for 3.6 percent of birds recorded during the year. Peak observations occurred in the spring, with the higher numbers likely correlated with an increase in prey availability. The majority of these sightings were common desert species, including the red-tailed hawk, turkey vulture, American kestrel, and prairie falcon. The other raptor observations included a single individual of each of these three species (ferruginous hawk, Cooper's hawk, and northern harrier) and Swainson's hawk was seen on three separate occasions in spring 2010.

Migratory species account for 19 percent of total bird observations over the year-long study. Approximately 68 percent of individuals that were considered migrants occurred during the peak of spring migration (March-April 2010), and the average detection rate was 4.38 migratory individuals per 30-minute period between March and April. It is also notable that migratory species abundance surpassed that of resident species twice within this period. This is in contrast to fall migration where resident species outweighed migratory species 10:1. The amount of food resources available to migrants in spring is much greater than in winter, which is likely the primary factor responsible for the disproportionate numbers associated with migratory species richness and abundance for these two migratory periods. Even with the greater migration abundance in spring, site use by migratory species is considered low given the size of the proposed OWEF site. Many of the migratory species were detected in relatively low numbers, which indicates this is not a major migratory corridor for passerines. Exceptions to this are Bullock's oriole (*Icterus bullockii*), western kingbird (*Tyrannus verticalis*), and swallows (Family Hirundinidae).

Results of the year-long survey averaged a detection rate of 5.96 individuals per 30-minute period, with peak detection rates occurring in March and April. This average is above the range of two other studies conducted in arid regions. A study conducted in Blythe during the spring of 2009 (EDAW, AECOM, and Bloom Biological, 2009, as cited in HELIX, 2010d) resulted in an average detection rate of 1.05 individuals per 30-minute period. Another study conducted in Barstow in the spring and fall of 2006 averaged 2.62 individuals per 30-minute period (Jones and Bloom, 2007, as cited in HELIX, 2010d). A study conducted in 2009 in Clark County resulted in an average detection rate (somewhat higher than the

study area) of 16 individuals per 30-minute period. The comparatively low overall detection rates in arid regions are likely associated with lower amounts of resources (food, water, shelter, etc.) as compared to coastal and mountainous areas. The proposed OWEF site does not contain any permanent water resources, and prey availability is low through most of the year. The exception is a few months in spring following the short rainy season. Plants during this time of year were in bloom, and there seemed to be a substantial increase in insect and small mammal abundance. Small mammal activity was dramatically lower in the summer and fall, especially when daytime temperatures were greater than 100 degrees Fahrenheit.

### **Avian Radar Survey**

DeTect, Inc. (DeTect) was contracted to conduct an Avian Radar Survey at the proposed OWEF site. A MERLIN Avian Radar System collected data on bird movements and migration using both vertical scanning and horizontal surveillance radars.

MERLIN radar systems precisely track targets within avian size ranges, and displays data in real-time (at the radar and remotely via the internet) and records all data on targets, tracks, and system parameters to internal databases. A target is an object detected by MERLIN radar and identified by MERLIN software as a biological object (e.g. bird, bat, insect) based on scanned size, speed, and other characteristics.

### **Methods**

For the proposed OWEF study, the horizontal scanning radar (HSR) settings were optimized for detecting bighorn sheep. It is important to note that the sheep-optimized horizontal radar settings would have only affected target direction information and not target counts or passage rates which are derived only from the vertical scanning radar (VSR) data.

The VSR was fully configured for detecting and tracking bird activity. The VSR data was used to determine target altitudes and is the primary dataset used to determine target passage rates through the rotor swept zones (RSZ) for mortality risk assessments.

The recorded databases were queried and used to develop statistical data from the target movements recorded at the proposed OWEF site. Radar data was analyzed for the first year of data collection (September 15, 2010–July 9, 2011; DeTect, 2011). A DeTect biologist set up the MERLIN avian radar system, after which the system ran automatically and was remotely monitored daily for the remaining data collection period.

The average altitude of each target above ground level (AGL) was generated and used to derive mean and median target heights, as well as to group targets into one of three categories: below RSZ, in RSZ, or above RSZ to a maximum height of approximately 2,800 meters (m) AGL. Some migrating birds fly even higher than this altitude, but these were not detected in the survey. The turbine dimensions used for the altitude analyses included a RSZ ranging from 29.9 m to 133.8 m AGL (DeTect, 2011).

The VSR data queries were standardized to a target passage rate of 1-kilometer (km) front per hour, generally the industry standard for most migratory and wind energy avian studies and risk analysis. This includes targets detected within 0.5 km to either side of the radar and up to approximately 2,800 m AGL, for a total frontal width of 1 km, during a one-hour period. This area occurs entirely within the radar scanned zone (DeTect, 2011).

Passage rates were standardized using the number of minutes with radar data within a given time period (minus any time with rain) and collated for each dawn (30 minutes [mins.] before sunrise to 30 mins. after sunrise), day (30 mins. after sunrise to 30 mins. before sunset), dusk (30 mins. before sunset to 30 mins. after sunset), and night (30 mins. after sunset to 30 mins. before sunrise the next day), as well as the entire season. The average target passage rates (below, within, and above the RSZ, as well as the total) and mean and median target heights were calculated for dawns, days, dusks, and nights, as well as hourly during the survey. The HSR data collected was used only to develop information on the movement of targets throughout the survey area and was not used to derive any target counts or passage rates.

Due to the difficulty of comparing target passage rates from other radar systems, target passage rates at the proposed OWEF site were compared to other wind project studies using DeTect avian radar systems on the southeast coast of Texas and in western New York. While difficult to determine the degree that region and local topography or habitat may have influenced these target passage rates, they do provide target passage rates calculated the same way using data from the same DeTect vertical radars.

### **Survey Results**

Target passage rates varied considerably throughout each season, but also by time of day. Average target passage rates were greatest during the fall 2010 season and lowest during the summer 2011 season. Daytime target passage rates averaged the greatest, and were much greater than the other three biological periods during the fall and winter seasons. During the spring and summer seasons, nighttime target passage rates were similar to daytime target passage rates, but dawn and dusk rates stayed relatively low (DeTect, 2011).

	Dawn	Day	Dusk	Night
Fall 2010	241.8	556.7	205.6	253.3
Winter 2010-2011	21.2	218.8	23.6	41.6
Spring 2011	62.5	222.4	26.4	215.6
Summer 2011	25.8	77.5	10.4	68.7

The nightly target passage rates observed at the proposed OWEF site during all seasons of year one were less than those observed at the other two wind project sites. Daytime target passage rates at the proposed OWEF were similar to those from the proposed Ripley-Westfield Wind Farm site in New York, but much lower than Gulf Wind I Wind Farm site in Texas, during similar seasons (DeTect, 2011).

When targets were combined by season at the proposed OWEF site, the majority passed above the rotor RSZ of 29.9 m to 133.8 m AGL during year one. At least 80 percent of targets passed above the RSZ during all time periods of each season except for dawns and dusks during the winter and dusks during the summer, which averaged lower percentages. Mean and median target heights were typically above the RSZ of 29.9 m to 133.8 m AGL, although means, and especially median target heights which averaged lower, occurred more frequently below 133.8 m AGL starting in November 2010 and tapering off during spring 2011 (DeTect, 2011).

Target movement patterns also varied by season and by biological period (i.e., dawn, day, dusk, and night). The fall 2010 season showed most targets moving southeast and east, likely indicative of fall nocturnal migration. Days and dusks during fall were relatively dispersed, but dawns showed an east/northeast movement trend. The winter 2010-2011 season had relatively fewer targets than the other

seasons, both in number and altitude and had variable movement patterns (east/northeast during dawns, northwest during days, west during dusks, and northwest during nights). During the spring 2011 season, a northerly target movement was expected because of spring nocturnal migration (at least during nights); however, this was not the case as all time periods showed southerly movements. The summer 2011 season had target movements that were relatively dispersed and lacked a prominent target movement pattern during any of the four time periods (DeTect, 2011).

### **Golden Eagle Nest Survey**

#### ***Natural History***

Golden eagle is an uncommon permanent resident and migrant throughout California, except in the center of the Central Valley. This species is perhaps more common in southern California than in the north. Habitat typically includes rolling foothills, mountain areas, sage-juniper flats, and desert. Golden eagles eat mostly hares, rabbits, and rodents, but will eat other mammals, birds, reptiles, and some carrion. This species needs open terrain for hunting such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al., 1988).

#### ***Survey Results***

While evaluating the data from these 2010 surveys, it was important to take the recent drought and its likely effects on golden eagle reproduction into account. The California Department of Water Resources advises that California is entering its fourth year of serious drought as a result of below average precipitation and run-off since the autumn of 2006 (State of California, 2010, as cited in WRI, 2011). Without knowing the effects of the drought on golden eagle breeding, one might come to a false conclusion about the population of golden eagles within the survey area. Because breeding in southern California begins in January, and this survey was initiated in late March when only those eagles that were successful would be incubating, no opportunity was afforded to get a complete count of golden eagle pairs that attempted to build nests and reproduce but failed. Therefore, the number of active territorial pairs of golden eagles in the survey area could be higher than those actually identified (WRI, 2011).

During the 2010 occupancy surveys, 21 golden eagle nests were observed that accounted for five golden eagle territories, 2 of which were considered active territories in 2010 (i.e., Coyote Mountains West and Table Mountain). One nest in Coyote Mountains West showed signs of early activity in 2010, but no eggs or incubating adults were observed at the nest site. Two nest sites in the Table Mountain territory showed possible signs of activity in 2010, but no eggs or incubating adults were observed.

WRI has documented successful breeding of golden eagles at both Table Mountain (most recent in 2004) and Carrizo Gorge (most recent in 2007) territories in the past few years. Coyote Mountains East has been inactive for a number of years due primarily to drought and disturbance by off-road vehicle activity. Coyote Mountains West has been active with nest activity in recent years, but no young have been seen produced. No nests were discovered in the historic Mountain Springs territory (WRI, 2011). The lack of successful golden eagle nesting in the last few years is not unusual because healthy populations of golden eagles may average as few as 62 percent of pairs breeding in any one year (Kochert et al., 2002, as cited in WRI, 2011).

Of the 5 nesting territories in the survey area, the closest nest to the proposed OWEF site is an inactive nest 2 miles north in the Coyote Mountains. The closest active nest to the proposed OWEF site is

approximately 3.2 miles to the north, also in the Coyote Mountains. Another relatively close active nest is approximately 6 miles to the southwest of the proposed OWEF site, near Table Mountain.

### **Burrowing Owl**

#### ***Natural History***

The burrowing owl is a year-long resident of open, dry grassland and desert habitats. It is also found as a resident in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats as well as agricultural lands. This small owl is found the length of the State of California in suitable habitats. The burrowing owl is migratory over much of its range, even in southern California (Unitt, 2004). Burrowing owl numbers have been markedly reduced in California for at least the past 60 years. Conversion of grasslands, other habitat destruction, and poisoning of ground squirrels, has contributed to the reduction in numbers in recent decades, which was noted in the 1940s and earlier. Burrowing owl observations on the proposed OWEF site during the non-breeding season is likely a combination of owls that use the Imperial Valley for breeding and owls that migrate through and/or overwinter in the proposed OWEF site from their breeding grounds in Canada and the northern United States.

#### ***Survey Results***

Three burrowing owls and one active burrow were observed during the January 2010 habitat assessment, 2 burrowing owl pairs were documented during the June/July 2010 breeding season surveys, and 20 burrowing owls were documented during the fall 2009/winter 2010 special status plant species surveys (17 burrowing owls in Site 1 and 3 burrowing owls in Site 2. Ten of the 20 burrowing owls were observed with a burrow (HELIX, 2010e and 2011e). The new areas that were added to the preliminary project footprint that fell outside of the 2010 breeding season survey areas were surveyed for burrowing owl burrows as part of the fall 2010 special status plant surveys, and no additional burrows were noted. These areas, along with the rest of the proposed OWEF site were surveyed again during the fall of 2010 and summer 2011 survey windows.

During the fall 2010 burrowing owl survey, 21 burrowing owl locations were found spread throughout much of the proposed OWEF site with the exception of the northwest and northeast portions of Site 1. Ten of these locations were of burrowing owls with burrows; 9 of these locations were just of burrowing owls, and 2 of these locations were just of burrows. During the following June 2011 breeding season burrowing owl survey, 4 burrowing owls (likely a family group) were observed at a single burrow in the southwest portion of Site 1 (HELIX, 2011e). This was at one of the locations where a burrowing owl with a burrow was observed in fall 2010.

### **Bats**

#### ***Natural History***

Bats use the landscape for a variety of reasons: foraging, day roosting, night or feeding roosts, water, and social activity. This “ecological neighborhood” can be rather complex, sometimes spanning vast areas. Preliminary assessments of the proposed OWEF site suggested that twenty-one bat species may potentially occur in the project area. This estimate was based on an understanding of the species’ natural history and habitat preferences.

### Survey Results

Five bat species were ultimately identified on the proposed OWEF site: California myotis (*Myotis californicus*), big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*), western pipistrelle (*Pipistrellus hesperus*), and western mastiff bat (*Eumops perotis californicus*). The western mastiff bat is the only special status species (BLM Sensitive). In 2010, the majority of the bats (approximately 77 percent) were recorded during the spring (103 calls; May-June) and summer (56 calls; August-September). No significant bat activity was recorded or observed during the winter or fall survey periods in 2010 (winter = 15 calls; fall = 31 calls; Rahn Conservation Consulting, 2011a). In winter/spring 2010-2011, a total of 68 calls were recorded; 58 of which could be identified to species. The reduction in the number of calls recorded between spring 2010 and winter/spring 2010-2011 could be the result of an increase in rain events during the latter survey period (Rahn Conservation Consulting, 2011b).

Bat activity was recorded at only seven distinct locations within the proposed OWEF site. The remainder of the proposed OWEF site showed no bat activity, either through the echolocation recording or use of the thermal imaging camera. Most bat activity was located along the western edge of the proposed OWEF site. Other locations identified during the surveys recorded bats only along the perimeter of the proposed OWEF site. The thermal imaging camera was used to identify the total number of bats flying when an echolocation signal was recorded. More than 95 percent of the time, the calls recorded represented only a single individual flying in the vicinity. Bats were infrequently observed in the interior of the proposed OWEF site during the survey, and only from a distance using the thermal imaging camera (Rahn Conservation Consulting, 2011a).

Overall, the bat species recorded was surprisingly low with only 57 identifiable calls recorded during the 40 nights of surveys in 2010 (only 21 calls were unable to be identified to species and typically represented fragments of calls within the same frequency range as the species identified during the surveys; Rahn Conservation Consulting, 2011a). In 2010, the most abundant species recorded were the big brown bat (30 percent), the California myotis (23.5 percent), and the western pipistrelle (21 percent). The western mastiff bat and the Mexican free-tailed bat were rarely recorded within the proposed OWEF site (six percent and four percent, respectively). Approximately 10 percent of the calls recorded were unidentifiable (Rahn Conservation Consulting, 2011a).

In 2010-2011, only 58 identifiable calls were recorded from December 2, 2010 through May 20, 2011. The most abundant species recorded were the California myotis (33 percent), big brown bat (22 percent), and western pipistrelle (21 percent). The western mastiff bat and the Mexican free-tailed bat were rarely recorded (seven percent and five percent, respectively). Approximately 15 percent of the call recorded (i.e., 58 out of 68) were unidentifiable (Rahn Conservation Consulting, 2011b).

It is not surprising that the bat use of the proposed OWEF site is remarkably low. More than 70 percent of the surveys conducted in 2010 failed to record a single bat during the night, and bat activity was generally restricted to the perimeter of the proposed OWEF site, with infrequent observations of bats. These results are most likely due to a variety of factors. First, the interior of the proposed OWEF site lacks any form of standing water. For most bat species, this is a vital feature of their habitat. The presence of water also significantly influences the presence and abundance of insect prey. Surveys conducted in similar desert environments such as the Palm Springs area, southern Nevada's Mojave desert, and the dry desert washes of the Great Basin Desert show similar patterns in bat species

distribution and associations. Bats observed during the surveys in 2010 were either, moving through the proposed OWEF site (22 percent), actively foraging (60 percent), or were both foraging and moving through (18 percent).

The second factor associated with the low numbers of bats may be due to a lack of suitable roosting sites nearby such as cave formations, suitable cliff faces, and boulders. Very little mining has been done around the proposed OWEF site that would result in the kind of abandoned mines that support bat populations. It was noted, however, that bat frequency and abundance increased outside the proposed OWEF site particularly on the west side of the valley. While bats are known to fly distances of more than 25 miles from a roost site, they typically do so in search of abundant foraging opportunities or water resources, and both of these are generally lacking within the proposed OWEF site.

The results of the long-term echolocation monitoring stations suggest that most of the bats in the proposed OWEF site were flying at lower heights. This is likely true for all species except the western mastiff bat, which is typically found flying at higher elevations than many species, particularly when moving through an area. Observations with the thermal imaging camera showed similar results. For all species of bats detected, they were typically found at elevations between 3 and 75 feet above ground level, which are out of the RSA. Again, the only exception was the western mastiff bat, which was typically observed above 75 feet. Four of the five species detected in the proposed OWEF site are considered to be at low risk and are not considered special status species. The California myotis, western pipistrelle, Mexican free-tailed bat, and big brown bat are rather ubiquitous throughout southern California. All of the species use multiple roost types, except the western pipistrelle which predominantly uses cliffs and crevices.

Similarly, the western mastiff bat is limited to only roosting in cliffs and crevices high enough to drop from and take flight. Only the western mastiff bat is considered a high risk species. This species is typically found roosting in cliff faces at higher elevations and is typically not migratory. It does not hibernate, but may (at least in southern California) make small migratory movements into the warmer areas of Mexico or desert during the winter. This species is severely limited to habitat areas based on its high demand for water (it is the largest bat in North America). The special status of this species is largely due to this water restriction. Because of its larger body size and its wing structure, the western mastiff bat is unable to drink from water sources less than 90 feet. As a result, they are no longer found in many areas that were previously occupied due to habitat loss or conversion. Because there are no water bodies within the proposed OWEF site that could support this species, and foraging potential is rather limited, this rare occurrence is probably from bats only moving through the proposed OWEF site infrequently in search of suitable habitat.

No significant pattern in the distribution or flight behavior of bats was observed. The majority of the bats detected as moving through the proposed OWEF site were following the valley bottoms and desert washes. In the rare instances where bats were detected commuting long distances, they were typically following the Imperial Highway corridor, emerging from unknown roost sites in the west (likely outside the proposed OWEF site), and heading in a southeasterly direction.

It is unlikely that significant numbers of bats occur throughout the proposed OWEF site. All survey results suggest that the majority of the bat population in the local area occurs outside of the Ocotillo valley area. No significant resources for foraging or water exist, severely limiting the bat abundance and

diversity, particularly when compared with adjacent mountain ranges to the west and the Imperial Valley to the east.

### **Peninsular Bighorn Sheep**

#### ***Agency Meetings***

A field meeting was held on February 24, 2011, to discuss the redesigned site plan and to review the Merlin Avian Radar System. Attendees included the Applicant (John Calaway, Glen Hodges, and Natalie McCue), BLM (Donna Clinton), CDFG (Magdalena Rodriguez and Randy Botta), USFWS (Pete Sorenson), DeTect, Inc. (Adam Kelly, Ron Merritt, and Jon Bortle), and HELIX (Shelby Howard). The Proponent described how the preliminary project site plan was redesigned to avoid sensitive environmental portions of the site, including the PBS habitat in the southwest portion of Site 1. DeTect, Inc. provided a demonstration of the Merlin Avian Radar System, including the sensitivity and range of the radar and how the radar links to the video camera.

A field meeting was held on March 8, 2011, to allow the wildlife agencies to evaluate the PBS Essential Habitat on site and to review the methods of the PBS study being conducted by the HELIX team. Those in attendance included Pete Sorenson (USFWS), Magdalena Rodriguez (CDFG), Shelby Howard (HELIX), and Barry Martin (Western Tracking Institute). The field meeting included a search for PBS sign along ridgelines and rocky areas in the southwest portion of Site 1. The wildlife agencies acknowledged and approved the PBS study methods being conducted by HELIX and Western Tracking Institute during the field visit.

An additional field meeting was held on April 20, 2011, to discuss the redesigned site plan and to review the Merlin Avian Radar System. Attendees included the Proponent (Natalie McCue), BLM (Kim Marsden), USFWS (Eric Kershner, Joel Pagel, and Heather Beeler), DeTect, Inc. (Adam Kelly and Ron Merritt), and HELIX (Shelby Howard). The Applicant described how the preliminary project site plan was redesigned to avoid sensitive environmental portions of the site, including the PBS habitat in the southwest portion of Site 1. DeTect, Inc. provided a demonstration of the Merlin Avian Radar System, including the sensitivity and range of the radar and how the radar links to the video camera.

In addition to the field studies, HELIX coordinated with CDFG to obtain unpublished PBS location data from a radio collar/tracking study currently being conducted as mitigation for the Department of Homeland Security/Border Patrol U.S.-Mexico border fence project. Six PBS ewes were captured and radio collared by CDFG in October 2009 in the vicinity of Mountain Spring and their locations are being monitored and documented by CDFG. Location data of the 6 radio-collared ewes were provided for the period between October 2009 and January 2011, including lambing areas used in 2010 (email from Randy Botta to Pete Sorenson dated February 19, 2011). The six collared ewes represent less than 10 percent of the estimated population in the area. The PBS location data were used in combination with the USFWS database of PBS sightings to evaluate sheep use within and adjacent to the project site.

#### ***Natural History***

PBS occur on steep, open slopes, in canyons, and in washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical because bighorn sheep primarily rely on their sense of sight to detect predators (USFWS, 2001). Most PBS live between 300 and 4,000 feet in elevation AMSL, where average annual precipitation is less than 4 inches, and daily high

temperatures average 40 degrees Celsius (104 degrees Fahrenheit) in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during the hotter months (USFWS, 2001).

PBS use a wide variety of plant types as food sources including shrubs, forbs, cacti, and grasses (USFWS, 2001). Although steep, escape-route terrain is closely associated with PBS, low rolling and flat terrain including foothills and washes provide an alternative source of high-quality browse forage during times when resources become limited (USFWS, 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans are also used for breeding, feeding, and movement (USFWS, 2001).

PBS are closely associated with mountainous habitat and often are hesitant to venture far from escape terrain (Geist, 1971, as cited in USFWS, 2000). Although they have been documented to move great distances from escape terrain on rare occasions (Schwartz et al., 1986 as cited in USFWS, 2000), it is common to observe animals moving a short distance from escape terrain in search of forage or water sources or moving between neighboring mountain masses. Researchers have documented animals ranging at a variety of distances from mountainous terrain (greater than 20 percent slope), from one-half mile to 1.6 miles (USFWS, 2000). The USFWS Essential Habitat for PBS is generally defined as the area that extends one-half mile out from 20 percent slopes (USFWS, 2000).

PBS exhibit a natural patchy distribution because of natural breaks in mountainous habitat (Schwartz et al., 1986, and Bleich et al., 1990a and 1996, as cited in USFWS 2001). While PBS have been documented in the Peninsular Ranges since early explorers such as Anza observed them in the 1700s (Bolton, 1930 as cited in USFWS, 2001), the distribution of PBS has become more fragmented in the recent past, possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS, 2001).

An important influence on bighorn sheep population trends are their behavioral responses to human activity. Bighorn sheep were classified as a wilderness species by Aldo Leopold (1933) because they usually declined when confronted with expanding human developments and activities (USFWS, 2010b). Over the past 75 years, numerous other scientists and land managers have expressed concerns regarding the impact of human activities on bighorn sheep populations (Horesji, 1976; Hicks and Elder, 1979; Graham, 1980; Leslie and Douglas, 1980; Hamilton et al., 1982; Stemp, 1983; Miller and Smith, 1985; Gionfriddo and Krausman, 1986; Krausman and Leopold, 1986; Smith and Krausman, 1988; Etchberger et al., 1989; Krausman et al., 2001; Papouchis et al., 2001, as cited in USFWS, 2010b). These concerns have been echoed in the Peninsular Ranges where PBS have altered their movement and habitat use patterns in response to human activity (Jorgensen and Turner, 1973; Hicks, 1978; Olech, 1979; Cunningham, 1982; DeForge and Scott, 1982; Gross 1987; Sanchez et al., 1988, as cited in USFWS, 2010b). The impacts of human development extend beyond the urban edge into PBS habitat. Growing human populations and their increased activities adjacent to and within PBS habitat have the potential to adversely affect PBS by directly converting habitat to human uses and fragmenting remaining use areas. Additionally, the behavioral responses of PBS to human activities may alter how they utilize resources occurring in their environment. These altered behavior patterns may be less than optimal and could eventually negatively affect population trajectories (USFWS, 2010b).

Currently, the PBS is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S./Mexico border to the San Jacinto Mountains in Riverside County (USFWS, 2001). A portion of the site falls within what the USFWS defines as Essential Habitat in the PBS Recovery Plan (USFWS, 2000) as areas within 800 m (one-half mile) of slopes equal to or greater than 20 percent. Essential Habitat is considered essential to the conservation of a species. Designated Critical Habitat for the PBS does not occur on the proposed OWEF site (Figure 4.21-1). The federal Endangered Species Act defines Critical Habitat as “the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features 1) essential to the conservation of the species and 2) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary of the Interior to be essential for the conservation of the species.” A designation does not set up a preserve or refuge and only applies to situations where federal funding, permits, or projects are involved.

### **Survey Results**

Boyce (2011) recommended the redesign of the preliminary project design to remove turbines from the southwest corner of Site 1 because of the documented sightings of Peninsular bighorn sheep in the I-8 Island (i.e., the area between the eastbound and westbound lanes of I-8, the northern portion of which is in the proposed OWEF site). Also, the area is rated high in the habitat suitability analysis by Rubin, et al. (2009) because bighorn sheep are known to use the Devil’s Canyon crossing under I-8 as a means to access the I-8 Island. The project proponent revised the project site plan to eliminate the 14 wind turbines originally proposed in the southwest corner of Site 1.

PBS were observed in the portion of the I-8 Island within Site 1 during other biological surveys for OWEF by HELIX in March and April 2010. PBS were also observed in the I-8 Island during spring 2011. With the exception of the PBS sightings in the portion of the I-8 Island on the OWEF site, PBS have not been noted on the OWEF site during other biological field studies that have been conducted between September 2009 and January 2012.

The PBS location data obtained from CDFG and USFWS and the HELIX/Western Tracking Institute preliminary PBS tracking study data indicate a high level of PBS use near the Devil’s Canyon undercrossing of I-8 (southwest of the Site 1) and within the I-8 Island, including the portion of the I-8 Island within and directly adjacent to Site 1. The CDFG tracking data also indicate that 3 three PBS lambing sites were used in 2010 within the portion of the I-8 Island within and directly adjacent to Site 1.

The 2011/2012 HELIX/Western Tracking Institute PBS study conducted to date indicates that with the exception of the portion of the I-8 Island in the southwest portion of Site 1, the project area is not currently occupied. Recent sign has been found in the PBS study areas including along Devil’s Canyon to the south of Site 1, the I-8 Island, Mortero Canyon west of Site 1, and the Coyote Mountains north of Site 1. With the exception of the I-8 Island, no PBS or recent PBS sign have been found within the OWEF project site. Historic PBS sign has been documented within each of the three PBS survey areas. The historic sign noted thus far includes tracks and numerous bedding areas documented along ridgelines in the southwest portion of Site 1 and the southwest portion of Site 2. The sign documented to date is not considered to be from recent PBS activity because evidence of recent activity (e.g., scat, fresh tracks, and/or hair) has not been documented. The recent sign documented to date (outside of the OWEF project

site) includes several sightings of groups of rams to the south, west and north of Site 1 as well as recent scat and tracks to the south, west, and north of Site 1. In addition, the motion-triggered cameras have not documented movement of PBS into the OWEF project area. These results suggest these areas have been used in the past, but have not been used recently by PBS. The results of the PBS study conducted to date reinforce that PBS may occasionally cross through the OWEF project site as part of seasonal movements between Carrizo Gorge and the Coyote Mountains (along Mortero Canyon wash), but they are not considered regular movement areas.

PBS have recently recolonized the I-8 Island. CDFG is currently conducting a tracking study of 6 radio-collared PBS ewes. The CDFG tracking data obtained thus far indicate that in 2010, ewes moved from Carrizo Gorge into the I-8 Island, used the Island area for lambing in 2010, and stayed in the Island area for several months of 2010. While the CDFG tracking study is providing some initial information on PBS use in the area, the study is following only 6 ewes, which amounts to less than 10 percent of the PBS population in the area. With the exception of the I-8 Island, there have not been other recorded sighting of PBS in project site by HELIX, the CDFG tracking study, or in the USFWS database of PBS locations.

The point locations also thus far indicate that PBS move seasonally between Carrizo Gorge and the Coyote Mountains using Sweeney Pass (R. Botta, CDFG, pers. comm., 2010, as cited in USFWS, 2010b). Sweeney Pass is located northwest of the main portion of the Coyote Mountains and approximately 6 miles northwest of Site 1. As noted above, the survey results of the PBS study indicate that PBS may occasionally cross through the proposed OWEF site along the Mortero Canyon wash, but the primary movement area between the Coyote Mountains and Carrizo Gorge is along Sweeney Pass.

The southwest portion of Site 1, the west-central portion of Site 1, and the southwest portion of Site 2 are partially within USFWS Essential Habitat. The USFWS defined Essential Habitat in the PBS Recovery Plan (USFWS, 2000) as areas within 800 m (one-half mile) of slopes equal to or greater than 20 percent. Twenty percent slopes was determined based on a number of studies from the 1980s and 1990s, which noted that most bighorn sheep sightings were associated with slopes that were 20 percent or greater. The distance of 800 m was determined based on several studies in the Peninsular Ranges that noted that bighorn sheep were frequently observed within 800 m of mountainous habitat feeding in or moving across washes and alluvial fans and that bighorn sheep do not venture far from water sources.

For the purposes of the proposed OWEF, the USFWS-defined Essential Habitat is equated to suitable PBS habitat, which is the manner in which USFWS defined suitable habitat for the Sunrise Powerlink Project (USFWS, 2010c), which will cross through Site 1. The use of Essential Habitat to define suitable PBS habitat is supported by three lines of evidence: (1) two PBS predictive habitat models were developed by Rubin, et al. (2009) and the results of those models did not predict PBS habitat outside of the Essential Habitat areas within the proposed OWEF site; (2) radio collar data obtained from CDFG and PBS location data obtained from USFWS do not include any locations outside of Essential Habitat within the proposed OWEF site ; and (3) no PBS have been documented by HELIX/Western Tracking Institute outside of Essential Habitat areas during other biological surveys conducted within the proposed OWEF site, which accounts for over 5,000 hours of survey time between 2009 and 2011.

### **3.23.2 Applicable Regulations, Plans, and Standards**

This section provides a discussion of federal, State, and regional environmental regulations, plans and standards applicable to the OWEF for wildlife resources.

### 3.23.2.1 Federal Regulations

#### NEPA

NEPA (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs “a systematic, interdisciplinary approach” to planning and decision-making and requires environmental statements for “major Federal actions significantly affecting the quality of the human environment.” Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environment and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the OWEF.

#### Federal Endangered Species Act

The ESA designates threatened and endangered animals and plants and provides measures for their protection and recovery. “Take” of listed animal species and of listed plant species in areas under federal jurisdiction is prohibited without obtaining a federal permit. Take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” (USFWS, 1973) Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not the species is currently present, is also prohibited. ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that “may affect” a listed species or its critical habitat must consult with USFWS. For example, the ACOE must issue a permit for projects impacting non-wetland Waters of the U.S. or wetlands under ACOE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., ACOE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 30 days to respond to federal agency regarding the adequacy of the analysis of effects to the species addressed in the BA. If the BA is deemed adequate, then consultation is initiated. At the end of the consultation (135 days by regulation), the USFWS issues its Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a “no jeopardy” opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest “reasonable and prudent measures” that would result in no jeopardy.

Under Section 10(a)(1)(B) of the ESA private parties or local governments planning activities with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an incidental take permit, the applicant must develop a habitat conservation plan (HCP) which specifies

effects to listed species, provides minimization and mitigation measures and funding, discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not “appreciably reduce the likelihood of the survival and recovery of the species” it will issue an incidental take permit. Issuance of incidental take permits requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on private property are protected under ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an incidental take permit.

### **BLM Sensitive Species**

BLM Sensitive Species are species designated by the State Director and includes only those species that are not already federal listed proposed, or candidate species, or State listed because of potential endangerment. BLM’s policy is to “ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered.” Various offices of the BLM maintain a list of special status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

### **California Desert Conservation Area Plan**

The California Desert Conservation Area (CDCA) covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the Plan, essentially zoning the CDCA into four major multiple use categories, as a city or county is zoned for land use classes. The Plan categories include approximately four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; approximately four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; approximately 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any damage caused by permitted uses; and approximately 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 2007).

The Plan’s goals and actions for each resource are established in its 12 elements including the Wildlife Element and the Energy Production and Utility Corridors Element, among several others (BLM, 2007). The proposed OWEF site is located within Class C and Class L lands (BLM, 1980, fold-out map). While there have been amendments to the 1980 Plan, such as the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO), none of the amendments affect the proposed OWEF site.

According to the Plan’s Multiple Use Class Guidelines, wind/solar power plants are not allowed within Class C lands but may be allowed within Class L lands after NEPA requirements are met (BLM, 1980). The Plan also states, however (in the Energy Production and Utility Corridors Element section), that

“Plan amendment procedures will adequately provide for the coordination needed for assuring rapid implementation of these important fuel-replacement alternative energy programs in an environmentally sound manner.” (BLM, 1980)

#### **Flat-tailed Horned Lizard Rangewide Management Strategy**

The Flat-tailed Horned Lizard Rangewide Management Strategy was prepared in order to provide management and conservation guidelines for FTHL habitat throughout the species’ range. Five Management Areas (MAs), four of which are in California, were designated in order to promote the maintenance of self-sustaining stable or increasing populations. For habitat outside of the MAs, a land mitigation and compensation program is in effect to balance future activities in FTHL habitat. The proposed OWEF site is adjacent to the Yuha Desert Management Area located south of I-8.

#### **Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations that protect migratory birds, (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping unless expressly authorized or permitted.

#### **Lacey Act, as amended (16 USC 3371-3378)**

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

#### **The Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (BGEPA) prohibits take, which is defined as to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or otherwise harm eagles, their nests, or their eggs.” Under the BGEPA, “disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. On September 11, 2009, (*Federal Register*, 50 CFR parts 13 and 22), the USFWS set in place rules establishing two new permit types: (1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and (2) purposeful take of eagle nests that pose a threat to human or eagle safety. Specifically, the BGEPA authorizes intentional take of eagle nests: where necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human-engineered structure; the activity, or mitigation for the activity, will provide a net benefit to eagles; and allows inactive nests to be taken only in the case of safety emergencies.

As described in the USFWS Draft Eagle Conservation Plan (ECP) Guidance dated January 2011 (USFWS, 2011b), the USFWS recommends that project proponents prepare an ECP to avoid, minimize, and mitigate project-related impacts to eagles to ensure no-net-loss to the golden eagle population. Pursuant to BLM Instructional Memorandum (IM) 2010-156, the BLM will request “concurrence” from the USFWS that the ECP meets specific requirements. Ocotillo Express LLC has prepared a draft ECP (OE, 2011).

### **3.23.2.2 State Law and Regulations**

#### **California Endangered Species Act**

The California ESA provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike ESA, State listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from CDFG under CESA Sections 2091 and 2081. Section 2091, like ESA Section 7, provides for consultation between a State lead agency under CEQA and CDFG, with issuance of take authorization if the project does not jeopardize the listed species. Section 2081 allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFG to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

#### **CEQA**

The CEQA was enacted in 1970 to provide for full disclosure of environmental impacts to the public before issuance of a permit by State and local public agencies. In addition to federal or State listed species, “sensitive” plants and animals receive consideration under CEQA. Sensitive species include, but are not limited to, wildlife Species of Special Concern listed by CDFG, and plant species on the California Native Plant Society’s List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for State listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for State listing).

#### **California Fish and Game Code**

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the “take” of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

### **3.23.2.3 Regional and Local Plans, Policies, and Regulations**

#### **Imperial County General Plan**

The Conservation and Open Space Element and Land Use Element of the General Plan (Imperial County, 1993 and 2008) direct the County to evaluate the compatibility of proposed development projects with the preservation of biological resources and open space.

The Goals and Objectives of Conservation of Environmental Resources and Preservation of Biological Resources within the Conservation and Open Space Element related to sensitive animal species include the following:

Goal 1: Environmental resources will be conserved for future generations by minimizing environmental impacts in all land use decisions.

Objective 1.1 Recognize that the degradation of one natural resource will have a concomitant negative effect upon the total resource base, including water, vegetation, air, wildlife, soil, and minerals.

Objective 1.2 Encourage only those uses and activities that are compatible with the fragile desert, aquatic, and marshland environment.

Objective 1.3 Coordinate the acquisition, designation, and management of important natural resource areas in Imperial County with other appropriate governmental agencies as necessary.

Objective 1.4 Develop standards to protect significant natural resource areas for the purpose of enhancing both the planning and decision-making process.

Objective 1.5 Provide for the most beneficial use of land based upon recognition of natural constraints.

Objective 1.6 Ensure the conservation, development and utilization of the County's natural resources.

Objective 1.7 Provide the opportunity for enjoyment of a quality natural experience to present and future generations.

Objective 1.8 Encourage the acquisition of scientific knowledge by encouraging the preservation of important ecological, archaeological, and other scientific sites.

Goal 2: The County will preserve the integrity, function, productivity, and long-term viability of environmentally sensitive habitats, and plant and animal species.

Objective 2.2 Protect significant fish, wildlife, plant species, and their habitats.

Objective 2.3 Protect unique, rare, and endangered plants and animals and their habitats.

Objective 2.4 Use the environmental impact report process to identify, conserve and enhance unique vegetation and wildlife resources.

Objective 2.5 Give wildlife conservation a high priority in County park acquisition and development programs.

Objective 2.6 Attempt to identify, reduce, and eliminate all forms of pollution which adversely impact vegetation and wildlife.

Objective 2.7 Discourage the use of wild native animals as pets.

Objective 2.8 Adopt noise standards which protect sensitive noise receptors from adverse impacts.

The Goals and Objectives of Protection of Environmental Resources within the Land Use Element related to sensitive animal species include the following:

Goal 9: Identify and preserve significant natural, cultural, and community character resources and the County's air and water quality.

Objective 9.1 Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes.

Objective 9.3 Adopt noise standards which protect sensitive noise receptors from adverse impacts.

An analysis of compatibility will be provided in Section 4.17 and 4.23, as appropriate.