BLYTHE SOLAR POWER PROJECT

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Revised Staff Assessment, Part 2

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BLYTHE SOLAR POWER PROJECT (09-AFC-6)
REVISED STAFF ASSESSMENT, PART 2

C. ENVIRONMENTAL ANALYSIS

C.3 CULTURAL RESOURCES

Testimony of Beverly E. Bastian

C.3.1. SUMMARY OF CONCLUSIONS

Energy Commission cultural resources staff has analyzed cultural resources data currently available for the proposed Palo Verde Solar 1[1] Blythe Solar Power Project and has concluded that the project would significantly directly impact 166 known archaeological and built-environment resources eligible or assumed eligible for the California Register of Historical Resources. Staff has also concluded that the Blythe Solar Power Project, in conjunction with the Genesis Solar Energy Project and the Palen Solar Power Project, would have a significant cumulatively considerable impact on two staff-identified cultural landscapes, the Prehistoric Trails Network Cultural Landscape, encompassing region-wide prehistoric trails and the resources and destinations they connected, and the DTC/C-AMA Cultural Landscape, comprehending the archaeological remains of the U.S. Army's WWII Desert Training Center.

To mitigate the significance of project's direct impacts to archaeological resources to a less-than-significant level, staff has recommended conditions of certification providing for data recovery from prehistoric archaeological sites identified as contributors to the Prehistoric Trails Network Cultural Landscape, including an archaeological district and other prehistoric archaeological sites with features (**CUL-6**) and small non-habitation prehistoric archaeological sites (**CUL-7**). Alternatively, staff has recommended that the applicant adjust the plant site's eastern boundary to avoid impacting the archaeological district by moving the boundary to the west. Staff has also recommended conditions of certification providing for data recovery from historic-period resources, including historic-period archaeological sites with features (**CUL-8**), historic-period archaeological sites with structural remains (**CUL-9**), historic-period archaeological dump sites (**CUL-10**), historic-period roads (**CUL-11**), and built-environment resources (**CUL-13** and **CUL-14**).

It is not possible to reduce the level of significance of the project's cumulative impact on region-wide cultural resources of both the prehistoric and the historic period, but to reduce those impacts, staff has recommended conditions of certification that would have the project owners of the Blythe Solar Power Project, the Genesis Solar Energy Project, and the Palen Solar Power Project fund programs to document and possibly nominate to the National Register Historic Places the Prehistoric Trails Network Cultural Landscape (**CUL-1**) and the DTC/C-AMA Cultural Landscape (**CUL-2**).

To provide for the appropriate treatment of additional cultural resource that could be encountered during construction, staff has recommended additional conditions of certification. **CUL-3** identifies the personnel and their qualifications who would implement the balance of the conditions, and **CUL-4** specifies the information the project owner would supply. **CUL-5** provides for the preparation and implementation of the Cultural Resources Monitoring and Mitigation Plan (CRMMP), which would structure

[1] Chevron Energy Solutions and Solar Millennium have a joint development agreement. Chevron Energy Solutions applied for the Right-of-Way for Blythe Solar Power Project (BSPP). To facilitate the permitting of the BSPP, the applicant is requesting that the CEC issue one license to a project-specific company. The company for BSPP is Palo Verde Solar I, LLC, a wholly owned subsidiary of Solar Millennium and the single applicant for the BSPP.

and govern the implementation and coordination of the broader treatment program. **CUL-15** would provide training of project personnel to identify, protect, and provide appropriate notice about known and new potential cultural resources in the project construction area. **CUL-16** and **CUL-17** would provide construction monitoring and cultural resources discovery protocols. **CUL-18** provides for the preparation of a final report to analyze, interpret, and document the ultimate results of the whole BSPP cultural resources management program.

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

Ideally, staff's recommended conditions of certification will not conflict with the required mitigation measures for BSPP impacts promulgated by the Bureau of Land Management in their Programmatic Agreement. This Energy Commission Revised Staff Assessment will be published in advance of the Bureau of Land Management's Final Environmental Impact Statement and Programmatic Agreement. Therefore, staff's recommended conditions may be revised, based on Bureau of Land Management's finalized Programmatic Agreement, which, it is anticipated, will coordinate the Energy Commission's and the Bureau of Land Management's cultural resources mitigation measures.

Energy Commission staff's recommended Conditions of Certification **CUL-1** through **CUL-18** reflect staff's assessment of what constitutes appropriate mitigation, under the California Environmental Quality Act, for BSPP's identified impacts to register-eligible cultural resources. Staff recognizes that the Bureau of Land Management's parallel but different process for resolving adverse project effects (consultation resulting in a PA) may result in different conclusions regarding cultural resources evaluations, the nature and severity of project impacts, and appropriate mitigation measures. Staff recommends that the Commission encourage and work with the Bureau of Land Management to incorporate staff's recommended conditions of certification into the BSPP PA and its associated plan documents.

With the adoption and implementation of Conditions of Certification **CUL-1** through **CUL-18**, the BSPP would be in conformity with all applicable laws, ordinances, regulations, and standards. **CUL-1** and **CUL-2** would reduce the significance of the project's cumulative impacts to the greatest extent possible, but those impacts would still be cumulatively considerable. **CUL-3** through **CUL-18** would reduce the significance of the project's direct impacts to less than significant.

C.3.2. INTRODUCTION

Staff's cultural resources assessment identifies the potential impacts of the Palo Verde 1 Blythe Solar Power Project (BSPP) project on cultural resources. Cultural resources are categorized as buildings, sites, structures, objects, and districts under both federal

law (for the purposes of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), § 106) and under California state law (for the purposes of the California Environmental Quality Act (CEQA). Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnographic, and historic.

Prehistoric archaeological resources are associated with the human occupation and use of California prior to sustained European contact. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American human behavior. Groupings of prehistoric resources are also recognized as archaeological districts and as cultural landscapes. In California, the prehistoric period began over 12,000 years ago and extended through the eighteenth century until 1769, when the first Europeans permanently settled in California.

Ethnographic resources represent the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures.

Historic-period resources, both archaeological and architectural, are associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, traveled ways, artifacts, or other evidence of human activity. Groupings of historic-period resources are also recognized as historic districts and as cultural landscapes.

Under federal and state historic preservation law, cultural resources must be at least 50 years old to have sufficient historical importance to merit consideration of eligibility for listing in the National Register of Historic Places (NRHP) or in the California Register of Historical Resources (CRHR). A resource less than 50 years of age must be of exceptional historical importance to be considered for listing.

For the BSPP, staff provides an overview of the environmental setting and history of the project area, an inventory of the cultural resources identified in the project vicinity, an analysis of the project's potential impacts to significant cultural resources, and recommendations of measures by which the project's adverse impacts to significant cultural resources may be resolved or mitigated.

C.3.3. CULTURAL RESOURCES LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Projects licensed by the Energy Commission are reviewed to ensure compliance with all laws that apply to projects (not to the agencies having oversight on environmental review). Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies. For this project, proposed for construction on federally managed public lands, the Energy Commission must assess the project's conformance with federal laws, ordinances, regulations, and standards as well as applicable state laws.

CULTURAL RESOURCES Table 1
Laws, Ordinances, Regulations, Standards, and Executive Orders

Applicable Law	Description
Federal	
Antiquities Act of 1906 16 United States Code (USC) 431–433	Establishes criminal penalties for unauthorized destruction or appropriation of "any historic or prehistoric ruin or monument, or any object of antiquity" on federal land; empowers the President to establish historical monuments and landmarks.
Archaeological Resources Protection Act of 1979 (ARPA) 16 USC 470aa et seq.	Protects archaeological resources from vandalism and unauthorized collecting on public and Indian lands.
State	
Public Resources Code (PRC), Section 5097.98(b) and (e)	Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to re-inter the remains elsewhere on the property in a location not subject to further disturbance.
PRC, Sections 5097.99 and 5097.991	5097.99 establishes as a felony the acquisition, possession, sale, or dissection with malice or wantonness Native American remains or funerary artifacts. 5097.991 establishes as state policy the repatriation of Native American remains and funerary artifacts.
Health and Safety Code (HSC), Section 7050.5	Makes it a misdemeanor to mutilate, disinter, wantonly disturb, or willfully remove human remains found outside a cemetery; Requires a project owner to halt construction if human remains are discovered and to contact the county coroner.
Local	
Riverside County General Plan, Multipurpose Open Space Element (Chapter 5), Open Space Policies OS 19.2–19.4	OS 19.2 requires the review of all proposed development for archaeological sensitivity; OS 19.3 Employs procedures to protect the confidentiality and prevent inappropriate public exposure of sensitive archaeological resources when soliciting the assistance of public and volunteer organizations. OS 19.4 Require a Native American Statement as part of the environmental review process on development projects with identified cultural resources.
Riverside County General Plan, Multipurpose Open Space Element (Chapter 5), Open Space Policies OS 19.5–19.7	OS 19.5 allows the History Division of the Riverside County Regional Park and Open-Space District to evaluate large project proposals for their potential preservation or destruction of historic sites; requires projects to provide feasible mitigation for impacts to historic sites prior to county approval. OS 19.6 enforces the California State Historic Building Code so that historic buildings can be preserved and used without posing a hazard to public safety. OS 19.7 endorses the allocation of resources and/or tax credits to prioritize retrofit of historic structures.

Applicable Law	Description
Riverside County General Plan, Exhibit A, CEQA Findings of Fact and Statement of Overriding Considerations, Mitigation Monitoring Program, Measures 4.7.1A, 4.7.1B, and 4.7.1C	Outlines mitigation measures for cultural resources monitoring programs.

C.3.4. SETTING

Information provided regarding the setting of the proposed project places it in its geographical and geological context and specifies the technical description of the project. Additionally, the prehistoric, ethnographic, and historical background provides the context for the evaluation of the NRHP and CRHR eligibility of any identified cultural resources within staff's area of analysis for this project.

C.3.4.1. REGIONAL SETTING

The proposed Blythe Solar Power Project (BSPP) site is located in the northeastern corner of the Colorado Desert Geomorphic Province, which includes the Salton Sea and the Imperial Valley to the south and the Coachella Valley to the north. The region consists of broad, low-elevation basins, filled with alluvium, separated by isolated mountain ranges. The sources of the alluvium in these basins are the local mountain ranges and, on the east, the Colorado River, whose flood plain forms the eastern edge of the province. The proposed BSPP site is on the Palo Verde Mesa, west of and above the Colorado River flood plain. The mesa is a large, gradually sloping abandoned alluvial terrace of the Colorado River. The BSPP site elevation ranges between 670 feet above mean sea level on the west and 420 feet above mean sea level on the east. The site slopes gently from the west to the southeast, with a gradient of less than 1 percent. The Palo Verde Mesa is bounded by the McCoy Mountains to the west, the Little Maria Mountains to the northwest, the Big Maria Mountains to the northeast, and the Palo Verde Valley to the east and southeast (Solar Millennium 2009a, pp. 2-4; 5.5-4–5.5-5;. 5.9-7–5.9-8; Westec 1982, p. 5).

The temperature range in the Colorado Desert is extreme, from 105°F in the summer to a winter average in the low 40s, and the area averages 2–4 inches of rainfall a year (Solar Millennium 2009a, p. 5.4-9). The local terrain consists of nearly flat expanses of sandy soil. Native vegetation on these flats is sparse and includes mostly creosote scrub brush, with white bursage, saltbushes, and ocotillo present in lesser quantities. Mesquite, ironwood, agave, and palo verde are present in and near the washes (Solar Millennium 2009a, p. 5.4-10). The commonest animals are reptiles, including many kinds of lizards and the endangered desert tortoise, and small mammals such as rabbits, the kit fox, and many varieties of rodents, including squirrels, rats, and mice. Ravens, roadrunners, doves, and a variety of lark, a variety of hummingbird, and a variety of sparrow are the common birds (Solar Millennium 2009a, p. 5.4-10).

C.3.4.2. PROJECT, SITE, AND VICINITY DESCRIPTION

The BSPP site is located about 8 miles west of the city of Blythe and two miles north of Interstate Highway 10 (I-10), in eastern Riverside County. The footprint of the proposed project is 5,950 acres, while the total disturbance area, including linear facilities and drainage channels, is 7,043 acres.[2] The land occupied by the plant site would be entirely public land, managed by the Bureau of Land Management, except for three private in-holdings totaling 320 acres (Solar Millennium 2009a, p. 2-3; app. A, Parcel Map). The Bureau of Land Management-managed portion of the proposed plant site has been vacant, undeveloped desert from the time of its cession by Mexico to the United States in 1848 to the present.

The proposed BSPP plant would consist of four fields of trough-type solar collectors, with a power block in each field. Each field would produce a nominal 250 megawatts (MW) of solar thermal-generated electricity, for a plant total of 1,000 MW.

Each power block would include:

- a steam turbine generator;
- a natural gas-fired auxiliary boiler;
- a generator step-up transformer;
- a 500-kV switchyard, a heat transfer fluid (HTF) system (including a HTF freeze-protection heat exchanger);
- an air-cooled condenser;
- two groundwater wells;
- water treatment facilities;
- a service/fire water storage tank;
- two 4-acre, 9-foot-deep evaporation ponds;
- a septic system and leach field; and
- an operations and maintenance building (Solar Millennium 2009a, pp. 2-5–2-6; figs. 2-4, 2-9; Galati & Blek 2010f, att. 2).

All four units would share:

- perimeter fencing (8-foot tall chain-link security fencing along the north and south sides of the plant and 30-foot tall wind fencing, comprised of A-frames and wire mesh, along the east and west sides of each solar field);
- an access road;
- an office building with parking (and a septic system with a leach field);
- a central switchyard;

[2] The current total of 7,043 acres does not reflect the acreage needed for the final transmission line route, the temporary construction power line, the redundant telecommunication line, and the paving of Black Rock Road (Galati & Blek 2010f, p. 1).

- a warehouse/maintenance facility (with two additional groundwater wells and a septic system with a leach field); and
- bioremediation units (totaling 16 acres in size) for the treatment of HTF-contaminated soil (Solar Millennium 2009a, pp. 2-5–2-6; figs. 2-4, 2-9; Galati & Blek 2010f, att. 2).

Off-site, the project would construct:

- a stormwater diversion and drainage system, to be constructed in two phases;
- a paved access road from I-10, including a new road construction and the paving of about 1 mile of the extant Black Rock Road, currently unpaved;
- a new twisted-pair telecommunications cable for voice and data communications and a redundant telecommunications line from the project to the Colorado River Substation in a route adjacent to Black Rock Road and the site access road;
- an approximately 10-mile-long, double-circuit, 230-kV, overhead gen-tie transmission line supported on monopole steel structures, connecting to Southern California Edison's (SCE) regional transmission system at its planned Colorado River Substation, with an associated 15-foot-wide, permanent maintenance road (EDAW 2009b, p. 1; AECOM 2010a, Introduction; AECOM 2010j);

  The gen-tie transmission line route has recently been proposed to jog to the west away from the access road and natural gas line routes, then drop south, and then jog back to the east to rejoin the access road and natural gas line routes, going around a private parcel known as the Ashton parcel (Solar Millennium 2010x, p. 1). The length and width of this new transmission line corridor are not known to staff at this time.
- a 9.8-mile-long , 4-inch-diameter natural gas pipeline that would connect to an existing Southern California Gas Company line south of I-10 (Solar Millennium 2009a, pp. 2-27, 2-29; Galati & Blek 2010f, att. 2).

As temporary construction facilities, the project would build:

- a movable on-site concrete batch plant to provide concrete for the solar fields and power block foundations and pads;
- an on-site fuel depot to refuel, maintain, and wash construction vehicles; and
- a 12.47-kV power line running to the site from Southern California Edison's distribution poles 1 mile east of BSPP at the corner of Sixth Avenue (or Seventh Avenue, depending on what map is consulted) and Dave Street, and an internal power distribution system and step down transformers to provide power to construction operations (Galati & Blek 2010f, att. 2).

Mitigation necessary to reduce the project's impacts to Worker Safety and Fire Protection may result in the construction of a new fire station somewhere along I-10 near the Ford Dry Lake Road interchange, but the exact location of the fire station has not yet been determined.

A one-mile-long secondary access road for emergency evacuation, possibly following the same route as the temporary power line, would run west to the plant site along Sixth Avenue (or Seventh Avenue, depending on what map is consulted), from the Dave Street intersection. The applicant does not consider this road part of the project at this time (Solar Millennium 2010ag, p. 2). An existing, abandoned natural gas pipeline running through a portion of the project site would be removed as necessary during construction (Galati & Blek 2010f, att. 1). The proposed project would not use any non-commercial borrow or disposal sites (AECOM 2010a, p. CR-5, response to staff data request no. 109).

C.3.4.3. ENVIRONMENTAL SETTING

Geology

The landforms in and around the proposed BSPP date, at the earliest, from the Miocene Epoch (23–5.2 million years ago), but all subsequent epochs, the Pliocene (5.2–1.8 million years ago), the Pleistocene (1.8 million–10,000 years ago), and the Holocene (10,000 years ago to the present) are also represented (Galati & Blek 2010m, p. 8).

The latter two epochs are the time periods in which humans reached and spread over the northern and southern American hemispheres, so landforms remaining from or created during the very late Pleistocene or throughout the Holocene are possible locations for surface or buried archaeological deposits. The surface of the BSPP plant site and environs are predominately Holocene in age (Galati & Blek 2010m, p. 16).

Geologically, the region in which the BSPP would be built consists of broad basins, filled with alluvium, and separated by isolated mountain ranges. The deposition of alluvium in the basins has been ongoing since some 25 million years ago, with the sources being the local mountain ranges and, on the east, the Colorado River. The erosion of the flanking mountains has also resulted in the creation of alluvial fans at the bases of the mountains (Solar Millennium 2009a, pp. 5.5-4–5.5-5).

During the Pleistocene, the Colorado River, now located some 15 miles east, ran through the BSPP site, depositing sands and silts. Its periodic flooding also created terraces along what is now the east side of BSPP site, composed of water-rounded cobbles, referred to by archaeologists as “pebble terraces.” As the river moved to the east, these terraces were left behind. These deposits of rocks transported by the river from all along its length, consisting of quartzite, chert, and chalcedony, were a source of material for Native American flaked stone tools throughout the Holocene (Solar Millennium 2009a, p. 5.4-9).

Geomorphology

The dominant geomorphic feature at the BSPP plant site is a broad alluvial fan bajada[3] cut by dry washes. The site slopes from the northwest to the southeast, and the sediments deposited by the parallel drainages grade from coarse to fine in the same direction. The next most prominent geomorphic feature is the raised, remnant gravel

[3] An alluvial plain formed as a result of lateral growth of adjacent alluvial fans until they finally coalesce to form a continuous inclined deposit along a mountain front, in this case along the front of the McCoy Mountains.

(pebble) terraces along the eastern and southern site boundaries (Galati & Blek 2010m, p. 8). These terraces are abandoned gravel deposits of former channels of the Colorado River, dating from the Pleistocene epoch, as noted above, in the Geology subsection.

Surface water at the BSPP site drains from the northwest to the southeast, with numerous dry washes located on the west side of the site. These washes originate in the McCoy Mountains and either coalesce into a larger wash at the southwest corner of the site or dissipate into the sandy alluvium of the northern part of the site (Solar Millennium 2009a, p. 5.5-5).

Most of the surface of the project site is Holocene in age, dating from 10,000 years ago to the present. AECOM's geoarchaeologist describes the historical geomorphology of the BSPP as follows (Galati & Blek 2010m, p. 16):

> …[T]he BSPP has undergone four episodes of deposition: initially fluvial[4] sands of the ancestral Colorado River, then lacustrine[5] clays, followed by sands and gravels of advancing alluvial fans, and finally re-worked sands and gravels originating from alluvial sands.

Paleoclimate[6]

Identifying the kinds and distribution of resources necessary to sustain human life in an environment, and the changes in that environment over time, is central to understanding whether and how an area was used during prehistory and history. During the time that humans have lived in California, the region in which the proposed project is located, the Mojave Desert, has undergone several climatic shifts. These shifts have resulted in variable availability of vital resources, and that variability has influenced the scope and scale of human use of the vicinity of the proposed project site. Consequently, it is important to consider the historical character of local climate change, or the paleoclimate, and the effects of the paleoclimate on the physical development of the area and its ecology.

The Pleistocene (1.8 million–10,000 years ago), and the Holocene (10,000 years ago to the present) environmental record from the Mojave Desert provides a model for the Colorado Desert. Summaries of the development and changes in vegetation in the Mojave Desert and surrounding region in these periods are provided by Grayson (1993, pp. 119–128; 139–143; 194–195; 199–202, 215), Spaulding (1990), Tausch et al. (2004), Thompson (1990), and Wigand and Rhode (2002, pp. 332–342). All note the vegetation history of this region has been primarily studied by analysis of plant macrofossils contained in prehistoric packrat middens. Pollen studies from this region are largely lacking.

In general, Tausch et al. (2004, (fig 2.3); see also Wigand and Rhode 2002, pp. 321–332) note the Early Holocene (8,500–5,500 BC) in the Mojave Desert was characterized by a post-glacial warming trend, accompanied by periods characterized by variable moisture. The subsequent Mid-Holocene (5,500–3,000 BC) was the warmest, driest part

[4] River flooding.

[5] Associated with a lake environment.

[6] This subsection written by Dwight Simons of Tremaine and Associates.

of the entire Holocene. During the post-Mid-Holocene transition (3,000–1,500 BC), relatively warm, dry conditions prevailed.

In the approximate period from 1,500 to 600 BC, a cool, wet interval has been termed the Neoglacial by climate scientists. It was followed by a much drier, and possibly relatively cooler, period, the Post-Neoglacial Drought (600 BC–400 AD). The next interval, the Medieval Climatic Anomaly (400–1350 AD) was characterized by intensified drought and relatively warm conditions (Meko et al. 2001; Stine 1994, 1996, 1998, 2000). A period called the Little Ice Age followed (1350–1850 AD) that was cold and somewhat dry (Fagan 2000; Grove 1988; Meko et al. 2001; Scuderi 1987a, 1987b, 1990, 1993). Our present climate conditions then commenced.

During the wetter periods (the Late Pleistocene, the Neoglacial, and the Little Ice Age), some of the basins in the Mojave Desert Region (and in the Colorado Desert region, as well) became shallow lakes, with extensive marshy shorelines. Being sources of food and materials, these lakes would have drawn Native Americans to them and perhaps would have encouraged settlement (Gallegos et al. 1980, p. 93). The elevation of the Palo Verde Mesa prevented a lake from forming where the BSPP is to be located, but within a few miles to the west, two lakes, Ford Dry Lake and Palen Dry Lake, are known to have formerly existed.

Prehistoric Background[7]

The paucity of data prior to the Late Prehistoric period (discussed below) in the Colorado Desert has hindered development of a comprehensive scheme detailing the cultural chronology for the region. The following chronology is extrapolated from Sutton et al.'s (2007, p. 236, table 15.4) concordance of terms for temporal periods and complexes in the Mojave Desert. Other pertinent chronological schemes for the Colorado Desert occur in Love and Dahdul (2002, p. 69, fig. 2), Warren (1984, pp. 409–430, fig. 8.27), and Weide (1976, p. 82, table 3).

Late Pleistocene, Paleoindian

The Late Pleistocene Paleoindian Period (about 10,000–8000 BC) is better represented in the Mojave Desert than in the Colorado Desert (Beck and Jones 1997). Isolated fluted projectile points, assignable to the Western Clovis Tradition have been recovered from the Pinto Basin, Ocotillo Wells, Cuyamaca Pass, and the Yuha Desert (Dillon 2002, p. 113; Moratto 1984, pp. 77, fig. 3.1, 87; Rondeau et al. 2007, pp. 64–65, fig. 5.1, table 5.1). All are surface finds, and have no associations with extinct fauna.

Early Holocene, Lake Mojave Complex

The Lake Mojave complex, about 8000–6000 BC, is also known as the Western Pluvial Lakes/Western Stemmed Tradition (see Beck and Jones 1997; Erlandson et al. 2007; papers in Graf and Schmitt 2007; Schaefer 1994, pp. 63–64; Sutton et al. 2007; papers in Willig et al. 1988). As with the preceding Paleo-Indian Period, the Lake Mojave Period is better represented in the Mojave Desert than in the Colorado Desert. It is characterized by Great Basin Stemmed Series projectile points (Lake Mojave and Silver Lake), abundant bifaces, steep-edged unifaces, crescents, and occasional cobble tools

[7] This subsection written by Dwight Simons of Tremaine and Associates.

and ground stone tools. These artifacts often occur in undated surface contexts. Assemblage composition and site structure suggest highly mobile foragers, often traveling considerable distances. Little reliance upon vegetal resources is evidenced. The value of wetland habitats remains unclear. Lake Mojave lifeways may result from relatively rapidly changing climate and habitats during the Early Holocene. This would have produced unpredictability in resource distribution and abundance, producing a high degree of residential mobility.

Middle Holocene

Pinto Complex

The Pinto complex, dated at about 8000–3000 BC, appears to overlap the Lake Mojave complex. During the Lake Mojave and Pinto complexes, stone tools were made from materials other than obsidian and cryptocrystalline silicate (CCS). Pinto Series points are stemmed with indented bases, and display high levels of reworking. Bifacial and unifacial cores/tools are common. Ground stone tools are moderately to very abundant, indicating greatly increased use of plant resources. Pinto complex sites occur in a broad range of topographic and environmental settings, especially within remnant pluvial lake basins. Large apparent residential bases occur. They probably were occupied for prolonged periods by moderate to large numbers of people, practicing a collector subsistence strategy. Logistical forays into surrounding resource patches probably were made from these sites.

Deadman Lake Complex

Currently, the Deadman Lake complex, dating about 7500–5200 BC, appears confined to the Twentynine Palms area. Sites usually are surficial and located on old alluvial pediments. Artifacts include small-to-medium-size contracting stemmed or lozenge-shaped points, large concentrations of battered cobbles and core tools, and abundant bifaces, simple flake tools, and ground stone tools. The abundance of cobble tools suggests an emphasis upon plant processing. The Deadman Lake and Pinto complexes may represent two different human populations practicing different seasonal/annual rounds, or Deadman Lake may represent a component of the overall Pinto complex adaptation.

Late Holocene

In the approximate period of 3000–2000 BC, environmental conditions in the Mojave Desert were warmer and drier. Few archaeological sites date to this period. This suggests population densities were very low. It is possible some areas were largely abandoned.

Gypsum Complex

Dating between about 2000 BC and 200 AD, the Gypsum complex is characterized by the presence of corner-notched Elko Series points, concave-base Humboldt Series points, and well-shouldered contracting-stemmed Gypsum Series points. Numerous bifaces also occur. Manos and metates are relatively common. During the early portion of the Gypsum complex, settlement-subsistence appears focused near streams. At this time, increased trade and social complexity apparently occurred. Gypsum complex

components are smaller, more abundant, and occur over a more diverse suite of settings than those dating previously. Evidence for ritual activities include quartz crystals, paint, split-twig animal figurines, and rock art. Gypsum complex sites are uncommon in the southern and eastern Mojave Desert.

Rose Spring Complex

Around 200–500 AD, cultural systems profoundly changed in the southern California deserts. Introduction of the bow and arrow, represented by Rosegate Series points, occurred. Previously, at about the beginning of the first millennium AD, moister conditions may have increased wetlands. During Rose Spring complex times, a major population increase, significant changes in artifact assemblages took place. Well-developed middens yielded artifact assemblages containing knives, drills, pipes, bone awls, various ground stone tools, marine shell ornaments, and large amounts of obsidian. Obsidian procurement and processing apparently significantly structured settlement-subsistence.

Rose Spring sites often are located near springs, along washes, and sometimes along lakeshores. Intensive occupation is indicated by the presence of pit houses and other types of structures. Human populations appear to have peaked, possibly resulting from a more productive environment and a more efficient hunting technology. During the middle of Rose Spring times, climatic conditions became warmer and dryer. Increased populations, the warmer, drier climate, and increased hunting efficiency may have produced resource depletion. This may have resulted in changes ending the Rose Spring complex around 1100 AD.

Late Prehistoric

Starting at approximately 1000–1100 AD, the Late Prehistoric period began. During this time, new technologies were introduced; populations appear to have declined, and historic Native American cultures became established. Lake Cahuilla was a focal point of settlement-subsistence. A complex cultural landscape composed of rock art, trails, and geoglyphs[8] developed. Trade and exchange were elaborated, with an emphasis on links between coastal southern California and the Southwest. In addition to pottery, artifact assemblages include Desert Series projectile points, shell and steatite beads, and a variety of milling tools. Obsidian use declines significantly, with CCS becoming the dominant type of stone used for stone tools.

In the Late Prehistoric period, too, agriculture and pottery were introduced to the native peoples of the Colorado Desert. Agriculture probably began around 700 AD in the Colorado Desert. It most likely was introduced from the Hohokam area in southern Arizona or from northern Mexico and had its greatest impact along the Lower Colorado River (McGuire and Schiffer 1982; Schaefer 1994, pp. 65–74; Schaefer and Laylander 2007, pp. 253–254). At approximately the start of the first millennium AD, ceramic artifacts began to appear in the Colorado Desert. They included pottery types assigned to the Lowland Patayan (Lower Colorado Buff Ware) and Tizon Brown Ware traditions (Lyneis 1988; Waters 1982). At the time of the advent of sustained Euroamerican

[8] Geoglyphs, also known as intaglios, were created on desert pavements by rearranging and/or clearing pebbles and rocks to form alignments, clearings, and/or figures. Rock alignments are present throughout this region, while representational figures only occur close to the Lower Colorado River. It is assumed that they played some role in sacred or ritual activities.

contact in 1769 AD, a number of Native American groups inhabited the Colorado Desert, using a complex cultural landscape, which appears to have been largely developed during the preceding millennium.

Prehistoric Settlement in the Chuckwalla Valley

Singer (1984) presents a lithic quarry-oriented prehistoric settlement model for the Chuckwalla Valley and environs. Over 200 prehistoric sites occur in the region. Past peoples inhabiting the area appear to have been very mobile, especially during late prehistoric and early historic times. During early historic times, native peoples inhabited towns/hamlets located along the Colorado River, within the Coachella Valley, and at major desert springs/oases.

The Chuckwalla Valley may have been a relatively closed resource exploitation zone. It also may have served as an east-west oriented trade corridor between the Pacific Ocean and the Colorado River and greater Southwest. An extensive network of trails is present within the Chuckwalla Valley. Given its orientation and location, the valley may have been neutral territory (i.e., a buffer zone), unclaimed by neighboring native peoples. Quarry sites probably were "owned" by unilinear corporate groups. The distribution of particular types of toolstones may have corresponded to a group's territorial boundaries, and a toolstone type may not have occurred beyond the limits of a group's specific territory.

Within the Chuckwalla Valley, prehistoric sites are clustered around springs, wells, and other obvious important features or resources. Sites include villages with cemeteries, occupation sites with and without pottery, large and small concentrations of ceramic sherds and flaked stone tools, rock art sites, rock shelters with perishable items, rock rings/stone circles, intaglios and cleared areas, and a vast network of trails, trail segments, markers and shrines, and quarry sites. Possible village locations are present at Palen Lake, Granite Well, and Hayfield Canyon.

A cluster of temporary habitation and special activity (task) sites occurs around a quarry workshop in the Chuckwalla Valley. The Chuckwalla Valley quarry workshop complex probably was used throughout the Holocene. During this period, Chuckwalla Valley most likely was occupied, abandoned, and reoccupied by a succession of ethnic groups. In the Early Holocene (i.e., Lake Mohave complex times), the area may have been relatively densely inhabited. During the Middle Holocene (i.e., Pinto and Gypsum complexes period) it only may have been sporadically visited. The subsequent Late Holocene Rose Spring and Late Prehistoric periods probably witnessed reoccupation of the valley by Yuman and Numic-speaking peoples.

Cultural Landscapes

In the Colorado Desert, trails, cairns, geoglyphs, cleared circles, rock rings, other desert pavement features, rock art sites, and artifact scatters appear to be elements of a prehistoric-ethnohistoric cultural landscape[9] (Schaefer and Laylander 2007, pp. 254–255; Cleland and Apple 2003). Specific resources include the Pilot Knob Complex, the

[9] "Ethnohistoric" refers to the period during which Euroamerican accounts of Native Americans augment the archaeological record and Native American oral traditions as sources of information on Native Americans. Cultural landscapes, when related to specific ethnic groups, are referred to as "ethnographic landscapes" (Hardesty 2000).

rock art complex at Palo Verde Point, the Ripley Locality, and the Quien Sabe-Big Maria complex. Lower Colorado River geoglyph and rock art sites may represent prehistoric ceremonial centers, located along a route extending between sacred places, representing the cosmology and iconography of Yuman peoples (Altschul and Ezzo 1995; Cleland 2005; Ezzo and Altschul 1993; Gregory 2005; Hedges 2005; Johnson 1985, 2004; Woods et al. 1986).

Trails

During Late Prehistoric and ethnohistoric times, an extensive network of Native American trails was present in the Colorado Desert and environs (Heizer 1978; Cleland 2007; Sample 1950, p. 23; Apple 2005; Earle 2005; Melmed and Apple 2009; Von Werlhof 1986). Segments of many trails are still visible, connecting various important natural (for example, springs) and cultural (for example, rock art/petroglyph sites) elements of the landscape. Trail segments no longer visible are often marked by votive rock piles (cairns) and ceramic sherd scatters ("pot drops").

A Late Prehistoric-early historic Native American trail has been recorded traversing roughly east/west through the Chuckwalla Valley (Johnston and Johnston 1957, map 1). Johnston (1980, pp. 89–93, fig. 1) identifies this route as part of the Halchidhoma Trail (recorded as CA-Riv-53T) running from San Bernardino through San Gorgonio Pass to the Colorado River at present-day Palo Verde Valley. In the vicinity of the Chuckwalla Valley, the trail proceeded roughly east-northeast from Hayfield Dry Lake past the future community of Desert Center, then eastward, south of Palen Dry Lake towards Ford Dry Lake, and then on to the Colorado River[10].

Rock Alignments and Geoglyphs

In the Mojave Desert, large rock alignments are found in Panamint Valley, Death Valley, Eureka Valley, and the Owens River Valley (Davis and Winslow 1965; Gilreath 2007, pp. 288–289; von Werlhof 1987). They have been interpreted as resulting from group ritual(s) (von Werlhof 1987). Many appear characterized by multiple-use episodes, with portions added through the years as part of ongoing rituals/ceremonies.

Rock alignments and geoglyphs—"gravel pictographs"—occur throughout the deserts of southeast California and adjacent portions of southern Nevada and western Arizona (Harner 1953). Rock alignments are present throughout this region, while representational figures only occur close to the Lower Colorado River.

Colorado River geoglyphs include the Top Rock Maze (Rogers 1929) and a few dozen giant ground figures (Harner 1953; Setzler and Marshall 1952), often first observed from the air. During historic times, the Top Rock Maze was used by Yuman peoples for spiritual cleansing.

Johnson (1985, 2003), von Werlhof (2004), and Whitley (2000) relate the geoglyphs to Yuman cosmology, origin myths, and religion. Cation-ratio dating[11] of desert varnish has

[10] A more direct trail route went southeast from Hayfield Dry Lake via Aztec Well/Corn Spring and south from Ford Lake, rejoining the northern route at the south end of the McCoy Mountains.

[11] Cation ratios between weathered rock varnish and unweathered rock are used as a relative dating technique to roughly determine the age of prehistoric rock carvings (petroglyphs). The quantity of positively-charged ions within the varnish (a chemically-changed layer built up of calcium and potassium leachate over time) is compared to those within the unweathered rock beneath the varnish.

provided estimated ages of approximately AD 800–AD 1000 for the Colorado geoglyphs (Dorn et al. 1992; Schaefer 1994, p. 63; von Werlhof 1995), although use of this dating technique remains controversial (Gilreath 2007, p. 289).

Von Werlhof (1995, 2004) relates these sites to the Yuman creation story. They also may have functioned as focal points for shamanistic activities, vision quests, curing, and group rituals/ceremonies. Symbolic activities also were represented by intentional pot-drop distributions along trails near water sources. The importance to Native Americans of water sources for survival during long-distance trips and seasonal rounds is obvious. Water sources also manifested significant spiritual values and often were associated with major rock art complexes (McCarthy 1993; Schaefer 1992).

Ethnographic Background[12]

It is unclear which historic Native American group or groups occupied or used the region in which the proposed project site is located, but the Chemehuevi, Serrano, Cahuilla, Mojave, Quechan, Maricopa, and Halchidhoma may at different times all have used the area.

Singer (1984, pp. 36–38) concluded the Chuckwalla Valley was not clearly assigned to any Native American group on maps depicting group territories. Following Johnston and Johnston (1957), Singer observed that the west end of the Chuckwalla Valley was near the intersecting boundaries of Cahuilla-Serrano-Chemehuevi territory. Possibly before 800 BC, the Chemehuevi may have expanded into Serrano territory, occupying the Chuckwalla Valley. No evidence suggested that the Cahuilla occupied the area. Given its east-west orientation and location, however, the Chuckwalla Valley may have been neutral territory, occupied by no Native American group in particular, which served as an east-west trade and travel route.

The Cahuilla

A wealth of information exists regarding traditional and historic Cahuilla society and culture (see Bean and Lawton 1967 for a comprehensive bibliography of sources). Primary sources for the Cahuilla include Bean (1972; 1978), Bean and Saubel (1972), Drucker (1937), Gifford (1918), Hooper (1920), James (1960), Kroeber (1908; 1925, pp. 692–708), and Strong (1929, pp. 36–182). The Cahuilla language, divided into Desert, Pass, and Mountain dialects, has been assigned to the Takic subfamily of the Uto-Aztecan family (Golla 2007; Moratto 1984; Shipley 1978).

Territory traditionally claimed by the Cahuilla was topographically complex, including mountain ranges, passes, canyons, valleys, and desert. Bean (1978, p. 375) described it as, "…from the summit of the San Bernardino Mountains in the north to Borrego Springs and the Chocolate Mountains in the south, a portion of the Colorado Desert west of Orocopia Mountain to the east, and the San Jacinto Plain near Riverside and the eastern slopes of Palomar Mountain to the west." The natural boundaries of the desert, mountains, hills, and plains separated the Cahuilla from surrounding Native American groups. The Cahuilla interacted with surrounding peoples via intermarriage, ritual, trade, and war. The Cahuilla, Gabrielino, Serrano, and Luiseño shared common

[12] This subsection written by Dwight Simons of Tremaine and Associates and Sarah Allred of the California Energy Commission.

cultural traditions, with the Cahuilla having especially close ties to the two former groups.

Cahuilla villages usually were located in canyons or on alluvial fans near water and food patches. The area immediately around a village was owned in common by a lineage. Other lands were divided into tracts owned by clans, families, and individuals. Numerous sacred sites with rock art were associated with each village. Villages were connected by trail networks used for hunting, trading, and social visiting. Trading was a prevalent economic activity. Some Cahuilla were trading specialists. The Cahuilla went as far west as the Channel Islands and east to the Gila River to trade.
Hunting and meat processing were done by men. Game included deer, mountain sheep, pronghorn, rabbits, rodents, and birds. These were stalked/pursued by individuals and communal hunting groups. Blinds, pits, bows and arrows, throwing sticks, nets, snares, and traps were used to procure game. Communal hunts with fire drives sometimes occurred.

The Cahuilla had access to an immense variety of plant resources present within a diverse suite of habitats (Barrows 1900; Bean and Saubel 1972). Several hundred plant species were used for food, manufacture, and medicine. Acorns, mesquite and screw beans, pinyon nuts, and cactus fruits were the most important plant foods. They were supplemented by a host of seeds, tubers, roots, bulbs, fruits and berries, and greens. Corn, beans, squash, and melons were cultivated. Over 200 species of plants were used as medicines.

Structures varied in size from brush structures to dome-shaped or rectangular houses, 15–20 feet long, and ceremonial houses. The chief's house usually was the largest. Used for many social, ceremonial, and religious functions, it was located near a good water source. It generally was next to the ceremonial house, which was used for rituals, curing, and recreational activities. Other structures included a communal men's sweathouse and granaries.

Mortars and pestles, manos and metates, pottery, and baskets were used to process and prepare plant and animal foods. Cahuilla material culture included a variety of decorated and plain baskets; painted/incised pottery; bows, arrows, and other hunting-related equipment; clothing, sandals, and blankets; ceremonial and ritual costumes and regalia; and cordage, rope, and mats. Games and music were important social and ritual activities for the Cahuilla.

The Cahuilla had named clans, composed of 3–10 lineages, with distinct dialects, common genitors, and a founding lineage. Each lineage owned particular lands, stories, songs, and anecdotes. Each lineage occupied a village and controlled specific resource areas. Clan territory was jointly owned by all clan members. Territory ownership was established by marked boundaries (rock art, geographic features), and oral tradition. Most of a clan's territory was open to all Cahuilla. Kinship rules determined rights to assets and responsibilities within a lineage. Each lineage cooperated in defense, large-scale subsistence activities, and ritual performance. The founding lineage within a clan often owned the office of ceremonial leader, the ceremonial house, and sacred bundle. Artifacts and equipment used in rituals and subsistence was owned by individuals and could be sold or loaned.

The office of lineage leader usually passed from father to eldest son. He was responsible for correct performance of rituals, care of the sacred bundle, and maintenance of the ceremonial house. The lineage leader also determined when and where people could gather and hunt, administered first-fruits rites, and stored food and goods. He knew boundaries and ownership rights, resolving conflict with binding decisions. The lineage leader met with other lineage leaders concerning various issues. He was assisted in his duties by a hereditary official responsible for arranging details for performance of rituals. Other functionaries included song leaders/ceremonialists, assisted by singers and dancers.

Laws were enforced by ritual, stories, anecdotes, and direct action. Supernatural and direct sanctions were used. Tradition provided authority. The past was the referent for the present and future. Old age provided access to privilege, power, and honor. Reciprocity was a significant expectation. Doing things slowly, deliberatively, and thoughtfully was stressed. Integrity and dependability in personal relations were valued. Secrecy and caution were exercised in dealing with knowledge.

Disputes between Cahuilla villages usually arose over access to resources. Other causes included sorcery, personal insults, kidnapping of women, nonpayment of bride price, and theft. Armed conflict occurred after all other efforts to resolve things had failed. A lineage leader and/or skillful warrior lead a temporary war party. Community rituals were held before and after a fight, which usually involved ambush.

Ritual and ceremony were a constant factor in Cahuilla society. Some ceremonies were scheduled and routine, while others were sporadic and situational. The most important ceremonies were the annual mourning ceremony, the eagle ceremony, rites of passage (especially those associated with birth, naming, puberty, marriage), status changes of adults, and rituals directed towards subsistence resources. The main focus was upon performance of cosmologically-oriented song cycles, which placed the Cahuilla universe in perspective, reaffirming the relationship(s) of the Cahuilla to the sacred past, present, to one another, and to all things.

The Serrano

Sources for the Serrano include Bean and Smith (1978), Benedict (1924,1929), Drucker (1937), Gifford (1918), Johnston (1965), Kroeber (1925, pp. 615–619), and Strong (1929, pp. 5–35). The Serrano Cahuilla shared many traits and artifacts with the Cahuilla, discussed above. The Serrano spoke a language belonging to the Serean Group of the Takic subfamily of the Uto-Aztecan family (Golla 2007; Moratto 1984; Shipley 1978).

It is nearly impossible to assign definite boundaries to Serrano territory. Territory traditionally claimed by the Serrano included the San Bernardino Mountains east of Cajon Pass, lands at the base and north of the San Bernardinos in the desert near Victorville, and territory extending east in the desert to Twentynine Palms and south to, and including, the Yucaipa Valley.

The Serrano occupied small village-hamlets located mainly in the foothills near water sources. Others were at higher elevations in coniferous forest, or in the desert. The availability of water was a critical determinant of the nature, duration, and distribution of Serrano settlements.

Women gathered, and men hunted and occasionally fished. Topography, elevations, and biota present within the Serrano territory varied greatly. Primary plant foods varied with locality. In the foothills, they included acorns and pinyon nuts. In the desert, honey mesquite, pinyon, yucca roots, and cactus fruits were staples. In both areas they were supplemented by a variety of roots, bulbs, shoots, and seeds, especially chia. Among primary game animals were deer, mountain sheep, pronghorn, rabbits, rodents, and quail. Large game was hunted with bows and arrows. Small game was taken with throwing sticks, traps, snares, and deadfalls. Meat was cooked in earth ovens. Meat and plant foods were parched or boiled in baskets. Plant foods were ground, pounded, or pulverized in mortars and pestles or with manos and metates. Processed meat and plant foods were dried and stored. Occasional communal deer and rabbit hunts were held. Communal acorn, pine nut, and mesquite gathering expeditions took place. These communal activities involved several lineages under a lineage leader's authority.

Serrano houses were circular, domed, individual family dwellings, with willow frames and tule thatching. They were occupied by a husband and wife along with their children, and often other kin. Houses were mainly used for sleeping and storage. Most daily activities occurred outside, often in the shade of a ramada (a flat-roofed, open-sided shade structure) or other sun cover.

Settlements usually had a large ceremonial house where the lineage leader and his family lived. It was the social and religious center for each lineage/lineage set. The latter was two or more lineages linked by marriage, economic reciprocity, and ritual participation. Other structures included semi-subterranean, earth-covered sweathouses located near water, and granaries.

Serrano material culture was very similar to that of the Cahuilla. Stone, wood, bone, plant fibers, and shell were used to make a variety of artifacts. These included highly decorated baskets, pottery, rabbit skin blankets, bone awls, bows and arrows, arrow straighteners, fire drills, stone pipes, musical instruments, feathered costumes, mats, bags, storage pouches, cordage, and nets.

The clan was the largest autonomous landholding and political unit. No pan-tribal union between clans existed. Clans were aligned through economic, marital, and ceremonial reciprocity. Serrano clans often were allied with Cahuilla clans and Chemehuevi groups. The core of a clan was the linage. A lineage included all men recognizing descent from a common ancestor, their wives, and their descendants. Serrano lineages were autonomous and localized, each occupying and using defined, favored territories. A lineage rarely claimed territory at a distance from its home base.

The head of a clan was a ceremonial and religious leader. He also determined where and when people could hunt and gather. Clan leadership was passed down from father to son. The clan leader was assisted by a hereditary ceremonial official, from a different

clan. This official held ceremonial paraphernalia (the sacred bundle), notified people about ceremonies, and handled ceremonial logistics.

Serrano shamans were primarily healers who acquired their powers through dreaming. A shaman cured illness by sucking it out of the sick person and by the administration of herbal medicines. Various phases of an individual's' life cycle were occasions for ceremonies. After a woman gave birth, the mother and baby were "roasted," and a feast held. Differing puberty ceremonies were held for boys (*datura* ingestion used in a structured ceremonial vision quest) and girls ("pit roasting," ingestion of bitter herbs, dietary restrictions, instruction on how to be good wives). The dead were cremated, and a memorial service was held. During the annual seven-day mourning ceremony, the sacred bundle was displayed, the eagle-killing ceremony took place, a naming ceremony for all those born during the preceding year was held, images were made and burned of those who had died in the previous year, and the eagle dance was performed.

The Chemehuevi

Sources for the Chemehuevi include Drucker (1937), Kelly (1934; 1936), Kelly and Fowler (1986), Kroeber (1925, pp. 593–600), Miller and Miller (1967), and Roth (1976; 1977). Carobeth Laird married a Chemehuevi and collected a large corpus of data, primarily on ritual, religion, and myth (Laird 1974a; 1974b; 1975a; 1975b; 1976; 1977a; 1977b; 1977c; 1978a; 1978b; 1984). The Chemehuevi spoke a language belonging to the Southern Group of the Numic subfamily of the Uto-Aztecan family (Golla 2007; Moratto 1984; Shipley 1978). Many traits characterizing Chemehuevi culture are very similar or identical to those of the Mohave, discussed below. Several probable Quechan traits also were noted for the Chemehuevi.

For the territory traditionally claimed by the Chemehuevi, the Colorado River formed the eastern boundary south to the Palo Verde Mountains. The boundary then ran northwest, passing east of the Ironwood Mountains, crossing the Maria Mountains, paralleling the Iron Mountains, and then running between Old Woman Mountain and Cadiz Dry Lake (Kelly 1934; Kelly and Fowler 1986, p. 369, fig. 1). Mohave territory lay to the northeast, and that of the Las Vegas group of Southern Paiute to the north-northwest.

The Chemehuevi lacked any form of overall "tribal" organization. Anthropologists refer to territorial subdivisions among the Chemehuevi as "bands." Each band was composed of a small number of camps/communities/villages. Bands most likely correspond to economic clusters (Kelly 1964). Each group was a geographic unit, associated with a definite territory. In general, each band was economically self-sufficient.

In general, Chemehuevi settlement was mobile and scattered, with residence recurring within a fixed area. Houses were closely grouped. Their occupants usually were related by blood or marriage. Settlement size ranged from 1–2 households to 10–20. Springs often were inherited private property. Married siblings often camped at the same spring.

The Chemehuevi traveled widely. They had amicable contact with the Serrano, Cahuilla, Quechan/Yumans, and other Native American groups. The Chemehuevi sometimes joined with the Mohave/Quechan to fight the Cocopa/Halchidhoma. The Chemehuevi often crossed the Colorado River and hunted deer in Quechan, Yavapai,

and Western Walapai territory. They also traded, intermarried, and competed in games with the Yavapai. To the west, the Chemehuevi hunted in the Tehachapi area and went to the Pacific Coast along the Santa Barbara Channel to get abalone shell. Sometimes, a party of 8–10 Chemehuevi men joined men from neighboring groups to make a two-month journey to the Hopi villages (in what is now New Mexico) to trade.

The Chemehuevi apparently did not eat fish, but bighorn sheep, deer, pronghorn antelope, and desert tortoise were among the animal food resources they used (Kelly and Fowler (1986, p. 369). Plant foods in this region included pinyon nuts and mescal. Men inherited rights to hunt large game within certain tracts, defined in songs using geographic references. Women gathered a great variety of plant foods, which were more important in the Chemehuevi diet than game. In addition to pinyon nuts and mescal, agave and seeds were staples. Along the Colorado River, the Chemehuevi practiced floodplain agriculture. They grew corn, squash, gourds, beans, sunflowers, amaranth, winter wheat, grasses, and devil's claw using techniques similar to Mohave agricultural practices (see below).

Chemehuevi winter houses were conical/subconical structures. They also built earth-covered houses without a front wall, similar to those constructed by the Mohave. During the summer, many Chemehuevi lived outside, often building and occupying armadas and windbreaks.

With respect to material culture, Chemehuevi baskets and cradles were made from plant fibers. Plant fibers also provided materials for rope, string, and cordage nets. Pottery, which followed Mohave patterns and styles, included cooking pots, water jars, seed germination and storage pots, spoons/scoops, and large pots for ferrying children across the Colorado River. Watercraft included log rafts and reed balsas. Clothing consisted of double skin or fiber aprons and sandals for men and women. The Chemehuevi commonly had pierced ears and wore body paint.

Monogamy was the commonest form of marriage among the Chemehuevi, but some men had more than one wife. Women gave birth in a special enclosure, followed by a 30-day period of seclusion for mother, father, and child. Puberty rites for boys and girls were held, with the former focused on acquisition of hunting skills. Cremation of the dead was traditional, replaced by in-ground burial in the historic period.

In general, no central political control existed. Territorial boundaries were not rigid, and some bands were named, while others were not. The basic social and economic unit was the nuclear family and could include other close kin. Groups of individual households moved together on hunting and gathering trips, returning to the same spring or agricultural site. Most large bands had a headman whose leadership was more advisory than authoritative. He was usually succeeded by his eldest son.

The principal role of Chemehuevi shamans was curing illness. They acquired their healing powers through dreams rather than through the use of *datura* or a trance. Chemehuevi families held a mourning ceremony ("cry"), with which several speeches and songs were associated, within the year after the death of a relative. The "cry" was sponsored by the family and included the ceremonial burning of material goods.

The Chemehuevi had deer and mountain sheep song-dances, held for entertainment and hunting success. The Chemehuevi had other songs, as well: bird, salt, quail, and funeral songs. During winter evenings, men narrated a rich body of traditional stories and myths. These performances often included mimicry, song, and audience participation. Oral tradition related people to social norms, their territories, and to the subsistence resources present within them.

The Mohave

Information regarding the traditional lifeways of the Mohave has mainly been drawn from the accounts of early explorers and/or fur trappers who were among the first to encounter native groups, as well as from the later ethnographic accounts of anthropologists, usually well after the influences of Euro-American contact had begun to alter traditional ways of life. The following summary derives mainly from Kroeber (1925) and Stewart (1983a, 1983b).

The name Mohave is a variation on the name Hamakhava, which is what the tribal people called themselves (Kroeber 1925, p. 727). The Mohave language is classified into the Yuman subfamily of the Hokan language family. The Mohave were the northernmost and largest tribe of the River and Delta Yumans, who comprised a series of agricultural tribes that occupied the lower Colorado and Gila Rivers. The traditional ethnographic territory attributed to the Mohave includes the Mojave, Chemehuevi, and Colorado River Valleys along the lower Colorado River at the intersection of the borders of Arizona, Nevada, and California. In pre-contact times, Mohave tribal settlement is reported to have centered in the Mohave Valley where their population densities were observed to be the greatest (Stewart 1983b, p. 55).

The Colorado River served as something of an oasis in the otherwise harsh, dry environment that surrounded the river valleys. The spring overflow of the river, which spread gently over the bottomlands, left behind a rich silt deposit in its recession. It is within these bottomlands that the Mohave cultivated crops, which served as the foundation of their subsistence economy. Their agricultural methods were relatively simple, consisting of planting seeds on the richly silted floodplains and allowing their crops to mature with a minimum of maintenance or effort. Corn was the primary crop, but several varieties of tepary beans, pumpkins, melons, and other plants were also grown. Once harvested, the portions of the harvest that were not immediately consumed were dried in the sun and stored in large basketry granaries. The Mohave supplemented their diet mainly by gathering wild plants and by fishing, which served as their principle source of flesh non-plant food. Hunting played a minor role in the Mohave subsistence economy (Stewart 1983b, pp. 56–59).

Technology of the Mohave was relatively simple, and tools were reported to have been crafted to meet only the minimum requirements of utility (Stewart 1983b, p. 59). According to Kroeber (1925, p. 736), the farming implements consisted of only two items: a heavy wooden staff or digging stick for planting and a spatulate wooden hoe-like implement, whose square edge was pushed flat over the ground to control weeds. Metates, consisting of a rectangular block of stone, were used for grinding corn, wheat, and beans, and both stone and wooden pestles, as well as stone mortars, were also used for food processing (Kroeber 1925, pp. 736–737). Fish were commonly taken with

seines, large basketry scoops, sieves, dip nets, and weirs. The bow and arrow and cactus-spine fish hooks were also used for fishing. Mojave basketry was crudely woven, and their pottery was basic and utilitarian (Stewart 1983b, p. 59). Since hunting was of relatively little significance to the Mohave, hunting devices and techniques were not well developed, consisting mainly of snares, nets, bow and arrow, or curved throwing sticks (Stewart 1983b, pp. 59–61).

Mohave political and social organization was very informal, and no one individual or group had significant authority over another. Despite the Mohave's loose division into bands or local groups that were spread out over great distances, their cohesion as a tribe was very strong, and they considered themselves as one people occupying a nation with a well-defined territory (Stewart 1983a, 1983b).

The nuclear family was the basic unit of economic and social cooperation, although the extended family constituted the core of a settlement. Rather than large centralized villages, Mohave settlements were widely distributed along the riverbanks in close proximity to arable lands. Houses were situated on low rises above the floodplain and often separated by as much as a mile or two (Stewart 1983b, p. 57). During most of the year, the Mohave slept under ramadas; however, during the colder season, they occupied more substantial, semi-subterranean, rectangular earth-covered houses.

Warfare was a dominant strain in River Yuman culture, and the Mohave's strong tribal unity served them well in times of warfare. They apparently traveled great distances to do battle, and their principle weapons were bows and arrows and hard wood clubs. According to Kroeber (1925, p. 727), their main motivation was sheer curiosity, as they liked to see other lands and were eager to know the manners of other peoples, but were not heavily interested in trade.

The Mohave were culturally similar to the other River and Delta Yumans: the Quechan, Halichidhoma, Maricopa, and Cocopa. During ethnographic times, the Quechan were considered friends and allies of the Mohave, while the Halchidhoma, Maricopa, and Cocopa were considered to be enemies with whom the Mohave engaged in warfare (Stewart 1983b, p. 56). The Mohave were also friendly with the Upland Yuman tribes of the Yavapai and Walapai of western Arizona, although relations with the Walapai were somewhat mixed.

One of the most important rituals observed by the Mohave centered on death, namely the funeral and subsequent commemorative mourning ceremony. As soon as possible after death, the deceased was cremated upon a funeral pyre along with all of his or her possessions. The house and granary of the deceased were also burned. It was believed that by burning, these things would be transmitted to the land of the dead along with the soul of the deceased (Stewart 1983b, pp. 65–67).

Due to their relatively remote location inland, the Mohave maintained their independence throughout the Spanish period of the sixteenth and seventeenth centuries and were only rarely visited by explorers during that time. The few Spanish accounts of encounters with the Mohave provided similar descriptions of Mohave lifeways as those reported later by ethnographers. It is believed that the ancestors of

the Mojave resided in the area for at least 1000 years and the mode of life in prehistoric times is thought to be similar to that observed historically (Stewart 1983b, p. 56).

The Quechan/Yuma

The following summary of the Quechan or Yuma is derived mainly from Bee (1983), Kroeber (1925), and Stewart (1983a).

Quechan is a variation on the names Kwichyan or Kuchiana, which are the names the tribe called themselves, but this group is also commonly known as the Yuma. The Quechan are among the Yuman-speaking tribes who occupied the lower Colorado River where it forms the boundary between California and Arizona. According to Kroeber (1925, p. 782), the Quechan and their neighbors to the north, the Mohave, appear to be virtually identical in terms of their agriculture, manufactures, clothing, hair dress, houses, warfare, and sense of tribal unity.

The ethnographic territory traditionally associated with the Quechan, now divided between the states of California and Arizona, is centered around the confluence of the Colorado and the Gila Rivers, extending several miles north and south along the Colorado and east along the Gila. Quechan legend tells of a southward migration of their ancestors from a sacred mountain; however, it is not known when the ancestors of the Quechan first settled near the confluence (Bee 1983, p. 86). No group of this name was mentioned in the account of Hernando de Alarcón when he passed through the area during an expedition in 1540, and the first reference to this group did not appear in Spanish documents until the late seventeenth century, at which time they were settled around the river confluence area (Bee 1983, p. 86).

In an environment otherwise surrounded by dry desert terrain, the subsistence economy of the Quechan focused on riverine agriculture, which was one of the main sources of food for the tribe. Crops were cultivated in the richly silted river bottomlands following the recession of the spring floods and provided a relatively high yield in exchange for relatively low labor output (Bee 1983, pp. 86–87). The main cultivated crops included corn, tepary beans, pumpkins, and gourds. In post-contact times, watermelons, black-eyed peas, muskmelons, and wheat were introduced by Europeans and brought into cultivation by the Quechan, as well. The Quechan also relied on the gathering of wild foods, the most important of which were mesquite and screw-bean pods, although a variety of other wild plants were also collected (Bee 1983, p. 87; Castetter and Bell 1951, pp. 187–188). Fishing was of minor importance, as there were few species in the lower Colorado River suitable for eating. Among the fish sought were the humpback, white salmon, and boneytail, which were sometimes caught with unfeathered arrows or cactus spine hooks, but more often taken with traps and nets during floods (Forde 1931, pp. 107–120). Given the low incidence of game available in the area, hunting played a minor role in the overall subsistence economy (Bee 1983, p. 86).

Like the Mohave, Quechan tribal settlements, or rancherias, consisted of extended family groups that were widely dispersed along the riverbanks. Settlements shifted throughout the year, dispersing into smaller groups along the bottomlands during the spring and summer farming seasons and reconvening into larger groups on higher ground, away from the river, during the winter and spring flood periods (Bee 1983, pp.

87–88). The geographic dispersion of the households within the rancheria groups was closely correlated with the condition of the rivers and the technology of riverine agriculture (Bee 1983, p. 89). The warm climate and scant precipitation made substantial housing unnecessary for most of the year, so most people made use of ramadas or dome-shaped arrowweed shelters. Each rancheria typically had one or two large, earth-covered shelters for the rancheria leaders' families, but these shelters also accommodated small crowds during colder weather (Forde 1931, p. 122).

Much like the Mohave, Quechan technology lacked technical or decorative elaboration beyond the demands of minimal utility (Bee 1983, p. 89). Quechan bows did not feature "backed" construction and so lacked power, and their arrows were frequently untipped, so the bow and arrow's range was short and the penetrating power weak. Sharpened staffs served as digging sticks or, when cut in longer lengths, as weapons (Bee 1983, p. 89).

In terms of property, there were no marked gradations in wealth, and social pressure favored the sharing of one's abundance with others who were less fortunate. Land ownership was informal, and people did not show much interest in the accumulation of material goods beyond the immediate needs of the family group or the surplus maintained by local leaders for redistribution to needy families within their rancheria (Bee 1983, p. 89). Lands were not inherited by family members upon the death of an individual; rather, the lands of the deceased were abandoned, and replacement plots were sought by the family members.

Despite the wide distribution of settlements, the Quechan had a strong sense of tribal unity. As with their neighbors and allies, the Mohave, warfare played a major role in Quechan culture, and it was during times of warfare that tribal unity was most prevalent among the individual settlements (Bee 1983, p. 92). Their major enemies were the Cocopa and the Maricopa, and they often allied themselves with the Mohave in strikes against common enemies (Bee 1983, p. 93). Bee (1983, p. 93) suggests that warfare among the riverine peoples may have increased in scale and intensity during the eighteenth and early nineteenth centuries due to new economic incentives, such as the opportunity to trade captives to the Spaniards or to other tribes for horses or goods.

Quechan social and political organization, like that of the Mohave, appears to have been very informal, with no one individual or group having significant authority over others. Two types of tribal leadership have been reported for the Quechan, one for civil affairs and the other for war, but it is questionable how influential these leadership roles may have been. Each rancheria had one or more headmen, but their authority was contingent upon public support and continued demonstration of competence. According to Bee (1983, p. 92), important matters at either the tribal or the rancheria level were always decided by consensus, sometimes after long debates dominated by the better and more forceful speaker.

Another important aspect of Quechan society that was shared with the Mohave concerns the commemoration of the dead, which was an elaborate ceremony involving wailing and the destruction of property and ritual paraphernalia. All possessions of the deceased, including the family home, were destroyed or given away (Bee 1983, pp. 89, 93–94).

The Maricopa and the Halchidhoma

Ethnographic information for the Maricopa and the Halchidhoma is meager in comparison to the Mohave and the Quechan. The following brief summary is derived from Harwell and Kelly (1983) and Stewart (1983a).

The Halchidhoma first entered written history in the early seventeenth century with the account of Juan de Oñate, who encountered the "Alebdoma" or "Halchedoma" during a Spanish expedition on the lower Colorado River, below its junction with the Gila River. When later encountered by missionary-explorer Eusebio Francisco Kino in the early eighteenth century, the Halchidhoma (or "Alchedoma," as they were referred to by Kino) had moved farther north up the Colorado beyond the Gila. The traditional territory attributed to the Halichidhoma lay along the lower Colorado between the Mohave and the Quechan territories. They were later driven from that area under pressure from their hostile Mohave and Quechan neighbors and moved to the middle Gila River area, where some merged with the Maricopa (Stewart 1983a).

The term Maricopa refers to the Yuman-speaking groups who in the early nineteenth century occupied the area along or near the Gila River and its tributaries (in what is now southern Arizona), but who earlier had occupied the lower Colorado River area. The Maricopa language is closely related to Quechan and Mohave, all three of which are classified as members of the River branch of the Yuman language family (Harwell and Kelly 1983, p. 71). The Maricopa call themselves *pi•pa•s*, "the people." The name Maricopa is an English abbreviation of the name Cocomaricopa, first used by Eusebio Kino in the late seventeenth century (Harwell and Kelly 1983, p. 83).

The Maricopa, who by the early nineteenth century included remnant tribes of the Halyikwamai, Kahwan, Halchidhoma, and Kavelchadom, share common origins and are culturally similar to both the Quechan and the Mohave, the most prominent traits of which included floodwater agriculture and cremation of the dead. Their material culture was also essentially the same (Harwell and Kelly 1983, p. 71). The Colorado River Maricopa lived in low, rectangular, earth-covered houses, but the Maricopa of the Gila River had adopted the round houses of their Piman neighbors. Technology was of little interest to the River Yumans and remained at a low level of development (Stewart 1983a).

Historical Background[13]

The Colorado Desert area, in which the Blythe Solar Power Project (BSPP) is located, has remained one of the more sparsely populated regions of the American West. The harsh arid environment and paucity of natural water supply has presented a challenge to the development of trans-desert routes for the movement of people and goods, the exploitation of resources in the area, and the establishment of permanent settlement. The major historical themes for the Colorado Desert region and the BSPP area in eastern Riverside County, in particular, are centered on the establishment of transportation routes, water access and control, mineral exploitation, and military uses. The following brief historical background of the Colorado Desert area in eastern Riverside County is derived from the following sources: Bischoff 2000; Castillo 1978;

[13] This subsection written by Sarah Allred of the California Energy Commission.

Farmer et al 2009; Solar Millennium 2009a; von Till Warren et al. 1980; and WESTEC 1982.

The earliest recorded history of the lower Colorado River region began with the expeditions of Spanish explorers, who were lured by rumors of a rich northern Indian civilization. However, due to the Spaniards' failure to find the fabled northern treasures and the remoteness of the region, the Colorado Desert was seldom visited during the Spanish and Mexican periods.

The desert region has produced a variety of mineral deposits, including gold, silver, fluorite, manganese, copper, gypsum, and uranium, and mining activities played a significant role in stimulating early occupation and travel across the arid desert. Following the end of the Mexican period in 1848 and the onset of the California Gold Rush in 1849, a flood of gold-seeking emigrants began to pour into California, some choosing the southern overland route through the desert, many of whom were unprepared and suffered extreme hardships. The construction and expansion of the Southern Pacific Railroad into the desert in the late 1870s was a major factor in facilitating travel and transport of supplies to the remote areas of eastern Riverside County, enabling further development of mines, irrigation, and settlement in the area.

The 1880s and 1890s were years of relative prosperity for mining regions of eastern Riverside County. Intermittent mining activity has occurred in the area since that time; however, in the Palo Verde Valley area, mining has remained a relatively small part of the local economy. While no mines or significant prospects exist within the BSPP area, evidence of past mining activity in the region is evidenced by a scattering of abandoned prospecting pits, collections of food trash and other debris, and a handful of prospect claim markers in the form of wooden stakes, small stone cairns, and metal cans, which may have originally contained claim papers.

Automobile travel across and within the Colorado Desert area initially developed using existing wagon roads or following railroad rights of way. By the early twentieth century, the automobile became the preferred mode of transportation. In 1914, Riverside County established the route from Mecca to Blythe as an official County road, which served as a main route across the desert. County officials dug wells and erected signposts along this road to serve its few travelers. In the early 1920s, Highway 60 was built to the south of the original route through Shavers Valley and Chuckwalla Valley. In the 1960s, the current Interstate Highway 10 was constructed along the old route of Highway 60. With the arrival of roads, settlement patterns changed from occasional miner's camps to roadside businesses serving travelers.

With the passage of the Homestead Act in 1862, vast areas of public land were opened up to private citizens, and agriculture became an economically important industry in California. Although much of the desert lands were poorly suited to farming, the Palo Verde Valley of the lower Colorado River was an exception. Thomas H. Blythe, who is known as "the father of the Palo Verde Valley," was the first to develop large tracts of land along the west bank of the Colorado River, across from the established portage point at Ehrenberg, Arizona, near the present-day town of Blythe. Blythe died in 1883 before his development could be fully completed, but agricultural practices had already begun to take place and continued to be developed in the area. The town of Blythe was

incorporated in 1916. By the late 1920s, the Palo Verde Irrigation District Act was passed, and the region's irrigation and drainage needs were facilitated by one district. Farming continues to be a commercial industry in Blythe. On the Palo Verde Mesa, however, in the vicinity of the BSPP, agriculture was never a significant pursuit due to the poor soils and lack of readily accessible water. In the early twentieth century, some ranching activities were attempted on the mesa, as evidenced by ranch remains identified during the inventory of the BSPP area.

The BSPP area falls within the limits of Gen. George S. Patton's World War II Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA), which was in operation from 1942-1944. The area was chosen by Patton to prepare troops for the harsh conditions and environment of combat for the North Africa Campaign. At 12,000,000 acres, the DTC/C-AMA was the largest-ever military training center, stretching from west of Pomona, California, to Yuma, Arizona, and north into Nevada. The valley bordered by the Palen, Little Maria, and McCoy Mountains is considered one of the most extensive maneuver areas in the DTC/C-AMA. After two years in operation and the training of one million troops, the DTC/C-AMA was closed in 1944 as a result of the allied victory in North Africa and the need for trained troops elsewhere. Following the closure of the DTC/C-AMA, dismantling and salvage efforts began and the land was ultimately returned to private and government holdings. The remains of the DTC/C-AMA areas consist of rock features, faint roads, structural features, concertina wire, tank tracks, footprints of runway and landing strips, foxholes and bivouacs, concrete defensive positions, refuse, and trails.

CULTURAL RESOURCES INVENTORY

A project-specific cultural resources inventory is a necessary step in staff's effort to determine whether the proposed project may cause significant impacts to historically significant cultural resources and would therefore have an adverse effect on the environment.

The development of a cultural resources inventory entails working through a sequence of investigatory phases. Generally the research process proceeds from the known to the unknown. These phases typically involve doing background research to identify known cultural resources, conducting fieldwork to collect requisite primary data on not-yet-identified cultural resources within and near the proposed project, assessing the results of any geoarchaeological studies or environmental assessments completed for the proposed project site, and compiling recommendations or determinations of historical significance for any cultural resources that are identified.

This subsection describes the research methods used by the applicant and staff for each phase and provides the results of the research, including literature and records searches (California Historical Resources Information System (CHRIS) and local records), archival research, Native American consultation, and field investigations.

This subsection also provides a brief summary of the cultural resource types identified by the applicant. For this project, staff has used the analytic process of Approach 3 (defined above under "Methodology and Thresholds for Determining Environmental Consequences"), so the inventory consists of the body of resources the applicant

identified in the Application for Certification (AFC), (sent by the applicant to the Energy Commission), and the descriptions are limited to what the applicant provided, either with the AFC or in response to staff's data requests

Staff's assessments of the project's impacts on known cultural resources, potential impacts on previously unidentified, buried archaeological resources, and proposed mitigation measures for the project's impacts are presented in a separate subsection below.

Project Areas of Analysis

The inventorying of cultural resources within what staff defines as the appropriate area for the analysis of a project's potential impacts is the first step in the assessment of whether the proposed project may cause a significant impact to an important cultural resource and therefore have an adverse effect on the environment. The area that staff considers when identifying and assessing impacts to important cultural resources, called the "project area of analysis" (PAA), is a composite geographic area that accommodates the analysis of each type of cultural resources that is present. The PAA can vary depending on the type of cultural resources under analysis and is usually defined as a specific area within and surrounding the project site and associated linear facility corridors. For this project, staff has defined a PAA for the following cultural resources types:

For archaeological resources, staff has defined the PAA as the project site footprint, outflow zones of the drainage system outlets, the 100-foot-wide project linear facilities route corridors, the maximum depth that would be reached by all foundation excavations and by all pipeline installation trenches, and the maximum height reached by all above-ground structures.

For this project, the PAA for ethnographic and built-environment resources are the project footprints (plant site and linear facilities corridor) plus a 0.5-mile buffer from the plant site, and from any above-ground linear facilities, to take into consideration resources whose setting could be adversely affected by industrial development.

Adjustments to the project plant site boundaries and adding new linear facilities and others areas to the project's footprint in April, 2010, and again in May, 2010, resulted in changes to staff's defined PAAs from those used in the SA/DEIS.

Background Inventory Research

Various repositories in California hold compilations of information on the locations and descriptions of cultural resources older than 45 years that have been identified and recorded in past cultural resources surveys. Applicants acquire information specific to the vicinity of their project from certain repositories and provide it to staff as part of the AFC submitted to the Energy Commission. Additionally, to acquire further information on potential cultural resources in the vicinity of a proposed project, the applicant is required to make inquiries of knowledgeable individuals in local agencies and organizations and to consult Native Americans who have expressed an interest in being informed about development projects in areas to which they have traditional ties.

CHRIS Records Search

The California Historical Resources Information System, or CHRIS, is a federation of 11 independent cultural resources data repositories overseen by the California State Office of Historic Preservation. These centers are located around the state, and each holds information about the cultural resources of several surrounding counties. Qualified cultural resources specialists obtain data on known resources from these centers and in turn submit new data from their ongoing research to the centers.

Under the Bureau of Land Management's (BLM) protocol for inventory-level cultural resources investigations on lands for which a Right-of-Way (ROW) grant has been requested, the applicant undertakes a Class I survey. This is a preliminary gathering of data for known sites and other resources from published and unpublished documents, records, files, registers, and other sources, and is intended to produce an analysis and synthesis of all reasonably available data. A Class I survey encompasses prehistoric, historic, and ethnological/sociological elements and essentially chronicles past land uses (BLM 2004, sec. 8110.21).

For Palo Verde 1's Class I survey of the proposed BSPP, intended to compile information on known cultural resources and previously conducted cultural resources studies pertinent to the location of the proposed BSPP, the applicant's cultural resources consultant, AECOM, conducted records searches at the Eastern Information Center (EIC, part of the CHRIS) at the University of California, Riverside. Searches conducted on February 11, 2009, and October 15, 2009, were for the area within a 1.0-mile radius of the proposed plant site and within a 0.25-mile radius of the routes of all proposed linear facilities (Solar Millennium 2009a, vol. 1, p. 5.4-18; EDAW 2009b, p. 16).

Additionally, AECOM searched the following sources to identify other known cultural resources (Solar Millennium 2009a, vol. 1, p. 5.4-18):

- National Register of Historic Places (NRHP)
- California Register of Historical Resources (CRHR)
- Local listings
- BLM site files

CHRIS Results

AECOM obtained from the EIC 26 reports of previous investigations covering parts of the area within a 0.1-mile radius of all BSPP components. Ten of these were cultural resources survey reports covering parts of the BSPP PAA (King et al.1973, Greenwood 1977, Cowan and Wallof 1977, BLM 1978, Reed 1984, Wilson 1984, Padon et al. 1990, McDonald and Schaefer 1998, McDougall et al. 2006, and Schaefer et al. 1998). One study was a records search (Schaefer 2003), one reported site sampling and evaluation (Mitchell 1989), and one was a regional overview (Von Till Warren et al. 1980). The surveys covered only small areas of the proposed BSPP PAA, so the most pertinent of the 13 studies to the BSPP cultural resources assessment are the regional overview by Von Till Warren et al. (1980) and the sampling and evaluation of prehistoric quarry sites by Mitchell (1989).

The overview depicts a region of archaeological resources that, for both the prehistoric and historic periods, represent primarily transportation and resource exploitation. In this landscape, people have mostly left remains of being in transit or of extracting useful or valuable materials—Native Americans sought and removed food, toolstones, and other raw materials for manufacturing, and Euro-Americans sought and removed various minerals or grazed their livestock. The trails and roads that cross the BSPP PAA either took people across the region or went to the places where the desired resources were found (Von Till Warren et al. 1980). An important exception to this generality is the use of the region by the U.S. military for training on a large scale, both early in World War II and just prior to involvement in Vietnam.

The BLM archaeologist who sampled and evaluated ancient Colorado River pebble terraces (two of which are located could be impacted by the proposed BSPP plant site) explored Native American extractive behavior at several sites recognized as prehistoric quarries. He analyzed Native American behavior in assaying, roughly preparing, and collecting material appropriate for the manufacture of stone tools elsewhere. Additionally the study identified other nearby sites indicative of other aspects of toolstone acquisition behavior, such as temporary habitation sites. The study also evaluated the NRHP eligibility of the terrace quarries and their integrity, which has suffered in the twentieth century from the removal, sometimes mechanized, of the water-rounded rocks for use in masonry and landscaping—another desert extractive activity (Mitchell 1989).

AECOM obtained from the EIC 71 records of previously known cultural resources located within a 1.0-mile radius of the PAA, including

4 prehistoric trail segments, 1 with an associated lithic scatter
1 prehistoric rock alignment
1 prehistoric geoglyph
7 prehistoric quarries, 1 with an associated lithic scatter
2 prehistoric cleared areas, both with associated lithic scatters, and1 with a trail segment
1 prehistoric temporary camp
6 prehistoric ceramic sherd scatters
16 prehistoric lithic scatters
1 prehistoric fire-affected rock feature
1 prehistoric lithic and ceramic sherd scatter
1 historic-period two-track road
1 historic-period refuse deposit, with structural remains
2 historic-period military camps, with tent platforms, animal enclosures, and refuse deposits
9 historic-period refuse deposits
18 isolated finds (10 prehistoric and 8 historic-period).

Eight of these previously known resources were located within or near the boundary of the proposed BSPP. Seven of these resources were prehistoric or historic-period archaeological sites, and one was a prehistoric isolated find. Two of the prehistoric sites were located on a private property in-holding within the proposed plant site. When

relocated in 2009, one of the latter (CA-Riv-1464), recorded in 1978 as a prehistoric trail segment, was found to have been replaced by a graded road. So, either this resource, which ran along the in-holding boundary, had never been a prehistoric trail, or any prehistoric trail that had been there was now destroyed. Consequently, staff has not included this resource in the inventory. As is common practice in cultural resources management, staff has eliminated the isolated finds from consideration, but has listed the other six known sites (CA-Riv-1136, CA-Riv-2846, CA-Riv-3419, CA-Riv-7175, CA-Riv-9011, and P-33-9670) in Table 2, with all newly identified archaeological sites, as resources located within the BSPP PAAs. Staff has included in that list the other resource located on the private in-holding because it is staff's understanding that the BSPP applicant is negotiating the purchase of the in-holding and so could have eventual responsibility for the site.

Archival and Library Research

Detailed resource-specific information needed by staff may entail primary and secondary research in various archives and libraries, holding such sources as historic aerial photography, historic maps, city directories, and assessors' records. The applicant may include archival information as part of the information provided to staff in the AFC or may undertake such research to respond to staff's data requests. Staff may also undertake such research to supplement information provided by the applicant.

To identify any sites or structures older than 45 years, AECOM reviewed historic maps which could be referenced on-line, dating between 1903 and 1983. They also visited the General Patton Memorial Museum on April 30, 2009, and the Palo Verde Historical Museum and Society on May 4–5, 2009. They also visited the Palo Verde Irrigation District where they reviewed historic aerial photographs from 1938, 1942, 1951, 1953, 1959, 1960, 1965, 1970, 1973, 1992, and 1994, and also examined additional historic maps (EDAW 2010a, p. 87).

Archival and Library Research Results

AECOM acquired historical data on the project vicinity, but identified no additional cultural resources in or near the BSPP PAA (EDAW 2010a, pp. 86–87).

Inquiries to Local Agencies and Organizations

California counties and cities may recognize particular cultural resources as locally historically important by ordinance, in general plans, or by maintaining specific lists. Local archaeological and historical organizations may also maintain lists of historically important resources. To facilitate the environmental review of their projects, applicants acquire information on locally recognized cultural resources specific to the vicinity of their project by consulting local planning agencies and local historical and archaeological societies.

On June 1, 2009, AECOM contacted various public agencies and historical and archaeological societies requesting information regarding historic or other cultural resources within or adjacent to the BSPP:

- Riverside County Historical Commission;
- General Patton Memorial Museum;

- Historic Resources Management Programs, University of California, Riverside;
- Palm Springs Air Museum;
- Palm Springs Historical Society; and
- Palo Verde Historical Museum and Society.

Results of Inquiries to Local Agencies and Organizations

The applicant had received no responses to its inquires to local agencies and historical organizations by August 24, 2009 (EDAW 2010a, p. 91), and so identified no additional cultural resources.

Native American Consultation

The Native American Heritage Commission (NAHC) maintains two databases to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans, referred to by staff as Native American ethnographic resources. The NAHC's Sacred Lands database has records for places and objects that Native Americans consider sacred or otherwise important, such as cemeteries and gathering places for traditional foods and materials. The NAHC Contacts database has the names and contact information for individuals, representing a group or themselves, who have expressed an interest in being contacted about development projects in specified areas. Both applicants and staff request information from the NAHC on the presence of sacred lands in the vicinity of a proposed project and also request a list of Native Americans to whom inquiries will be made to identify both additional cultural resources and any concerns the Native Americans may have about a proposed project. While the BLM must formally consult, government-to-government, with the federally recognized Native American tribes that have traditional cultural ties to the area in which the project is located, the Energy Commission provides information and sends notices of all public events regarding the project to all Native American groups and individuals whom the NAHC identifies as having an interest in development in the area, whether federally recognized or not.

On April 13, 2009, AECOM asked the Native American Heritage Commission (NAHC) to search its Sacred Lands File for any Native American traditional cultural properties and to send to the applicant a list of Native Americans who had heritage ties to Riverside County and wanted to be informed about new development projects there. The NAHC responded on April 20, 2008, indicating a negative return from the search of their Sacred Lands File, but cautioning that many Native American cultural resources were known for the project area (EDAW 2010a, p. 88). The NAHC also provided contact information for 15 Native American individuals or groups, representing the Cahuilla, the Serrano, the Chemehuevi, the Mojave, and the Luiseño. The applicant sent letters to these persons on May 1, 2009, describing the proposed BSPP and requesting information on known cultural resources that could be affected by the project, and at various later dates AECOM made follow-up contact by telephone calls, faxes, and emails. Upon the recommendation of one of their initial contacts, AECOM also contacted a representative of the Cocopah on August 14, 2009 (EDAW 2010a, p. 88).

AECOM received no response from nine Native American contacts. The responses received included indications of no comment from representatives of the Mojave and the Luiseño, requests for additional information from representatives of two Cahuilla groups and of the Cocopah, and three letters expressing concern about cultural resources that could be present and about project impacts.

Bennae Calac, Tribal Council Member of the Pauma Valley Band of Luiseño Indians, stated that the Luiseño had no comment, but he recommended that AECOM and the BLM contact other regional tribes that might be interested in the project. Esadora Evanston, Environmental Coordinator for the Fort Mojave Indian Tribe, responded that her department has no comment on the BSPP, but other representatives of the tribe could comment independently. Patricia Tuck, Tribal Historic Preservation Officer for the Agua Caliente Band of Cahuilla Indians, requested a summary report of the BSPP archaeological survey to review before commenting on the project.

Joseph R. Benitez, a Chemehuevi tribal member, in his June 14, 2009 letter, provided the information that the Chemehuevi and Halchidhoma used locations in the project vicinity "as gathering places," which AECOM interpreted to mean places where people got together "for social functions and ceremonial activities." Staff suggests, alternatively, that Mr. Benitez meant places where various plant foods were gathered by these groups. Mr. Benitez also suggested that AECOM contact the Chemehuevi Band of Indians directly, which AECOM had previously done (EDAW 2010a, p. 88).

Writing on July 27, 2009, Diana L. Chihuahua, Cultural Resources Coordinator for the Torres-Martinez Desert Cahuilla Indians, explained that the project area is not located within the Torres-Martinez Reservation and is outside of the Cahuilla's traditional use areas. She suggested the Cocopah Tribe should be contacted for comment, as the proposed project is closer to their traditional use area. She explained that the greatest concern of the Cahuilla tribe is the potential for inadvertent discovery of human remains in the project area. In addition, she made several recommendations (Galati & Blek 2010a, att. 3):

- Any cultural resources documentation or assessment of Cocopah cultural, sacred, or traditional cultural property sites should be made available to local tribes.
- A qualified archaeologist, accompanied at all times by a cultural resources monitor (staff understands this to mean a qualified Native American monitor), should complete a 100 percent cultural resources inventory of the project area.
- Approved cultural resources monitors (staff understands this to mean qualified Native American monitors) should be present during all ground-disturbing activities and be authorized to halt construction if buried cultural deposits are encountered and to bring in an archaeologist meeting the Secretary of the Interior's Professional Standards to investigate and prepare a mitigation plan for county and tribal approval.
- The project should comply with state law and notify the coroner, if human remains are found, and notify the Native American Heritage Commission if the coroner identifies the remains as Native American.
- Copies of any documentation of cultural resources should be sent to the Torres-Martinez Desert Cahuilla Indians.

Following Ms. Chihuahua's recommendation, AECOM contacted representatives of the Cocopah Indian Tribe on August 14, 2009. Jill McCormack, Cultural Resources Manager for the Cocopah Indian Tribe responded in a letter dated August 28, 2009, and requested more information and further discussion of the project (EDAW 2010a, p. 88). AECOM spoke on the telephone to Ms. McCormack on September 24, 2009, answering her questions about the project schedule, the completeness of the cultural resources survey, and a preliminary description of the newly identified cultural resources. Ms. McCormack stated that she would contact the BLM for more information on the project (Solar Millennium 2009b, att. 3).

The cultural resources specialist at the BLM Palm Springs Field Office conducted formal government-to-government consultation with Native Americans.

With the filing of the application for a ROW, the BLM took the lead in formal, government-to-government tribal consultation pursuant to the NHPA as well as other laws and regulations. The NAHC was contacted by letter about the project, and they provided a list of Native American contacts. BLM then initiated Section 106 consultation in the early stages of project planning by letter to the Agua Caliente Band of Cahuilla Indians and informational copies to 12 other Native Americans groups on November 23, 2009. The letter noted the *Federal Register* publication of the Notice of Intent (NOI) for the proposed project, stating that in compliance with the National Environmental Policy Act of 1969 (NEPA), as amended, and the Federal Land Policy and Management Act of 1976, as amended, the BLM Palm Springs-South Coast Field Office, together with the Energy Commission, intend to prepare an Environmental Impact Statement (EIS) and Staff Assessment (SA), which may also include an amendment to the California Desert Conservation Area (CDCA) Plan (1980, as amended) for BSPP. In this same notice the BLM announced its intention to use the NEPA commenting process to satisfy the public [and Native American] involvement process for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) as provided for in 36 CFR 800.2(d)(3). Publication of the NOI initiated the scoping process to solicit public comments and identify issues (BLM 2009a). The BLM has followed up with an additional letter and other information since then. BLM has identified and invited to consult on this project 13 tribes or related entities, including those listed below. Tribes were also invited to a general information meeting and proposed project site visit, held on January 25, 2009. BLM has thus far received one written comment letter, from Ms. Diana L. Chihuahua, Cultural Resources Coordinator for the Torres-Martinez Desert Cahuilla Indians.

On February 10, 2010, the BLM Palm Springs Field Office Manager, John Kalish, and Palm Springs Field Office Archaeologist George Kline met with the Ft. Yuma Quechan Tribal Council. They provided information on several solar energy projects, including the BSPP, and answered questions. Communications have been ongoing between concerned parties since the early planning efforts in the summer of 2009, and consultation will continue throughout the process. Letters to request consultation to develop a PA with tribes, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation were mailed out to the below-listed tribes on February 25, 2010.

Cabazon Band of Mission Indians

Augustine Band of Cahuilla Mission Indians
Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Officer
Morongo Band of Mission Indians
Chemehuevi Reservation
Colorado River Reservation
Fort Mojave Indian Tribe
Colorado River Indian Tribes
Cocopah Tribal Council
San Manuel Band of Mission Indians
Ft. Yuma Quechan Indian Tribe
Torres-Martinez Desert Cahuilla Indians
Twentynine Palms Band of Mission Indians

In a February 8, 2010 e-mail to Allison Shaffer of the BLM's Palm Springs Field Office, Patti Pinon, Chairperson of the La Cuna de Aztlan Sacred Sites Protection Circle, expressed concern that the proposed BSPP would be constructed on a Kokopelli geoglyph and numerous other images and ancient trails that lead to other geoglyphs a few miles away. The BLM Palm Springs Field Office archaeologist forwarded this email to Energy Commission staff.

The BLM Palm Springs Field Office archaeologist provided Energy Commission staff with a Google Earth location for the Kokopelli geoglyph and another nearby geoglyph identified as Cicimitl.[14] It appeared to staff that the two geoglyphs were located within the BSPP PAA for ethnographic resources. In the SA/DEIS, staff considered the two geoglyphs as potential cultural resources subject to impacts from the BSPP.

The BLM Palm Springs Field Office Field Manager and archaeologist met with Alfredo Acosta Figueroa and other representatives of the La Cuna de Aztlan Sacred Sites Protection Circle on March 2, 2010, to tour the location of the two geoglyphs and some other sacred sites identified by Mr. Figueroa, including the Creator's Throne (a rock masonry feature), and some ancient trails Mr. Figueroa says connected these two geoglyphs and the throne to the Blythe Intaglios[15] and other sacred sites (Figueroa 2010a, att. 4; Kelly 2010). The locations of the trails was not established in landscape, but were indicated as lines on a map provided by Mr. Figueroa. The map was of too large a scale for the trail locations to be checked on the ground.

Energy Commission staff has also, on several occasions, sought Native American opinions and concerns regarding the BSPP. On April 16, 2010, staff attended a Tribal Renewable Energy Symposium in Palm Desert, where representatives of the BLM, of the NAHC, and of a number of Native American tribes and groups met to learn about how BLM, other federal agencies, and the Energy Commission were handling the impacts to prehistoric and ethnographic cultural resources that could result from the large number of renewable energy projects being proposed for BLM-managed lands,

[14] Kokopelli is the now familiar hump-backed, dancing, flute-playing figure known from petroglyphs and pottery of Puebloan origins, who was associated with agriculture and fertility. According to Alfredo Acosta Figueroa, Cicimitl is "the spirit of the underworld." The deity is part of the Aztec pantheon.

[15] Well-known prehistoric geoglyphs of anthropomorphic and zoomorphic figures located several miles north of the BSPP.

among them the BSPP. The Native Americans also took this opportunity to discuss the development of a strategy they could use in responding to the potential destruction of cultural resources of concern to Native Americans.

Staff also attended a meeting organized by BLM on April 23, 2010, in Palm Desert, to formally initiate the NHPA Section 106 consultation for PAs for four solar projects proposed for Chuckwalla Valley locations north of the I-10 freeway including the BSPP.[16] Attending or calling in were Energy Commission staff, representatives of the applicants for the four projects, representatives of the intervenors in the three Energy Commission cases (BSPP, Genesis Solar Energy Project, and Palen Solar Power Plant), representatives of Native American tribes, and a representative of the Office of Historic Preservation. The description and status of cultural resources inventory and evaluation for the four projects were presented by project representatives and their cultural resources consultants. Rolla Queen, archaeologist for the BLM's California Desert District Office described the Section 106 consultation process for the development of PAs, gave a preliminary timeline for the PAs, and suggested the general form the PAs would probably take, indicating the likelihood that they would be based on the PA that had been developed for the Imperial Valley Solar Project. Representatives of the San Mañuel Band of Mission Indians, the Twentynine Palms Band of Mission Indians, and the Agua Caliente Band of Cahuilla Indians were present. They expressed concerns about the great number of desert projects and the difficulties of Native Americans in trying to respond to these developments and participate in the Section 106 process.

The Energy Commission held a workshop in Palm Springs on April 28, 2010, to receive comments from the applicant, the intervenors, and the public, and to answer questions on all aspects of the joint Energy Commission-BLM BSPP SA/DEIS. Patti Tuck-Garcia, Tribal Historic Preservation Officer, and Sean Milanovich, Cultural Resources Specialist, for the Agua Caliente Band of Cahuilla Indians both attended this workshop. Ms. Tuck-Garcia again requested from the applicant a summary report of the BSPP archaeological survey to review before commenting on the project.

The cultural resources consultant for the BSPP and Palen Solar Power Plant summarized more recent applicant consultation with Native Americans at the BLM-sponsored meeting in Palm Desert on April 23, 2010, mentioning an ethnographer conducting meetings with 20 or more Native American groups, for educational, public relations, and marketing purposes for the two projects. Staff spoke with the AECOM ethnographer and learned that there was no expectation that the collected Native American comments on the two projects would be provided to the Energy Commission. Subsequently, staff sent an email to the ethnographer on April 27, 2010, and again on May 30, 2010, asking that the applicant permit the ethnographer to provide to staff summarized Native American comments, but, to date, staff has received no response to this request.

[16] The four were: BSPP, Genesis Solar Energy Project, Palen Solar Power Plant, all of which would utilize solar concentrating technology, and First Solar Desert Sunlight Solar Farm, which would use photovoltaic technology.

The Quechan Tribe has expressed the most interest in BSPP, and has contacted BLM multiple times. Their concerns were summarized in a formal September, 3, 2009 letter, to BLM from Mike Jackson, Sr., Tribal Council President. The letter was in response to the proposed Programmatic Environmental Impact Statement for Solar Energy Development for the six southwestern states. The Quechan consider the area around Blythe, presumably including the BSPP site footprint and linear facilities corridor, to be part of the Quechan Tribe's traditional land. To alleviate potential impacts to cultural resources, spiritual landscapes, or traditional cultural properties (TCPs) they requested to be consulted prior to any plans being finalized. They further requested that the clustering of the large multi-thousand-acre projects be prohibited, that traditional areas rich in cultural resources be avoided, that projects be placed on land that has already been disturbed, and that existing buildings be favored over undisturbed land for the placement of solar panels. Finally, they emphasized their concern over indirect as well as direct impacts to cultural resources. They requested that BLM not "focus exclusively on archaeological site impacts, while failing to fully address impacts to resources such as cultural landscapes and TCPs" (Jackson 2009, p. 3). An additional letter from the Quechan Tribe was sent on February 16, 2010, to John Kalish, Field Manager of the BLM Palm Springs Field Office. In this letter President Jackson expressed doubt that the appropriate Section 106 consultation process could be completed within the "fast-track" timeframe that requires a final Record of Decision from the BLM by September, 2010. He further commented that the Tribe does not believe that the "fast-track" projects meet the regulatory criteria for the use of a programmatic agreement (QIT 2010).

Alfredo Acosta Figueroa, a member of CAlifornians for Renewable Energy (CARE) and a member of the La Cuna de Aztlan Sacred Sites Protection Circle opposes the desert solar projects in general and on May 28, 2010, provided to CARE, for submission to the Energy Commission in case 10-CRD-01 (Consolidated Hearing on Issues Concerning U.S. Bureau of Land Management Cultural Resources Data), a packet of materials that identified a number of sacred sites (see below)

Results of Inquiries Made to Native Americans

AECOM identified no additional cultural resources from their consultation with Native Americans, but Mr. Figueroa has identified in the field to BLM Palm Springs Field Office personnel two geoglyphs, and has provided a map of the prehistoric trails about which he expressed concern. Additionally, in his signed June 15, 2010 Declaration, he states (Figueroa 2010b, p. 2),

> 12. The proposed Blythe Solar Power Project is overlaid on more than 25 large geoglyphs that we have found throughout the area. They include the world known image Kokopilli, [sic] Cicimitl (the Great Spirit that takes human spirits to their final resting place in Topock Maze, "Mictlan"). Included in the area is the image of El Tosco, over 5 large windrow mazes, a 9-level pyramid and over 24 sacred images that have not yet been deciphered.
>
> 13. The main East/West & North/South trails all lead to and from the Blythe Giant Intaglios. One trail leads to Kokopili and Cicimitl which

traverse west through the south end of the McCoy Mountains to the McCoy Springs [sic].

Cultural Resources Table 2, below, provides a list and brief description of the ethnographic resources identified as located within the BSPP ethnographic PAA.

Field Inventory Investigations

To facilitate the environmental review of their projects, applicants conduct surveys to identify previously unrecorded cultural resources in or near their proposed project areas. These surveys include a pedestrian archaeological survey and a built-environment windshield survey. The applicant includes the acquired new survey information as part of the information provided to staff in the AFC and may undertake additional field research, including geoarchaeological studies and site testing, to respond to staff's data requests. Staff may also undertake additional field research to supplement information provided by the applicant.

BLM's Class I survey, mentioned above, is an archival exercise. Under BLM's protocol for inventory-level cultural resources investigations on lands for which a Right-of-Way grant has been requested, after the Class I survey, the applicant generally undertakes field research, sequentially, at two increasing levels of intensity. A Class II survey, sometimes referred to as a "reconnaissance survey," is a statistically based sample survey designed to help characterize the probable density, diversity, and distribution of archaeological sites in a large area by interpreting the results of surveying (walking across and examining the ground surface) limited and discontinuous portions of the target area. A Class III survey is a continuous, intensive survey of an entire target area, aimed at locating and recording all archaeological properties that have surface indications, by walking close-interval parallel transects until the area has been thoroughly examined (BLM 2004, sec. 8110.21).

AECOM obtained BLM Fieldwork Authorizations on March 27, and August 5, 2009, for cultural resources field investigations in an approximately 7,850-acre ROW within which the proposed BSPP would be sited (EDAW 2009b, att.3, BLM Contacts).

AECOM reported no Class II cultural resources survey for the proposed BSPP, but reported the methods and results of a Class III pedestrian archaeological survey The survey was conducted in two phases. The first, between March 30 and June 26, 2009, was of the proposed plant site (plus 200 feet around the site perimeter). The second, between October 13 and 16, 2009, was of a newly defined 100-foot-wide corridor in which would be located the routes of the plant access road, the natural gas pipeline, and the transmission gen-tie line (EDAW 2010a, p. 93; EDAW 2009b, p. 2). The typical, sparse desert vegetation made ground visibility "extremely good" (EDAW 2010a, p. 109).

The survey methods for all archaeological survey entailed four-to eight-person survey teams walking at 20-meter intervals looking for archaeological remains. The survey team sought to relocate previously recorded sites and assess their current condition. For new resources, they defined four or more artifacts as a site and three or fewer as an isolate. They used an arbitrary distance of 30 meters (m) between artifacts and features

to separate deposits into individual sites. They used handheld GPS units to plot the locations of features, sites, and isolated artifacts and flagged finds for the recording team that would follow them. The recording team recorded all sites and architectural resources over 45 years of age with the data required by Department of Parks and Recreation (DPR) series 523 forms. They photographed site overviews and diagnostic artifacts, drew site sketch maps, compiled artifact and feature descriptions, and made observations on the terrain and ecology. Once a site was recorded the recording team removed all flagging tape. AECOM undertook no subsurface testing and collected no artifacts (EDAW 2010a, pp. 93–95).

The applicant conducted additional pedestrian archaeological survey, using the same methods as described above, in late April and early May, 2010, to cover several changes in the project areas, including:

- approximately 1.0-mile-long (off-site) temporary construction power line route, 100-foot-wide corridor;
- newly purchased private in-holding in the center of the BSPP plant site area;
- approximately 1.5-mile-long (off-site) stretch of Black Rock Road to be paved between the truck weigh station and the new project access road, 250-foot-wide corridor;
- modified, approximately 6.5-mile-long (off-site) route gen-tie transmission line tying into the Colorado River Substation, 300-foot-wide corridor; and
- modified plant site boundaries in various perimeter locations (Tennyson and Meiser 2010, p. 1).

This survey did not cover a more recent change in the gen-tie transmission line route, which is proposed to jog to the west away from the access road and natural gas line routes, then drop south, and then jog back to the east to rejoin the access road and natural gas line routes, going around a private parcel known as the Ashton parcel. This route change has been surveyed for cultural resources, but BLM has not released the confidential cultural resources data, so staff cannot at this time analyze any impacts to cultural resources from this changed route.

On May 8, 2009, AECOM also completed a built-environment field survey with an PAA extending out 0.5 mile beyond the proposed BSPP plant. In October, 2009, AECOM conducted an additional built-environment survey with a PAA extending out 0.5 mile beyond the newly defined linear facilities corridor (EDAW 2009d, p. v; EDAW 2009e, p. 21). In late April and early May, 2010, additional built-environment survey was conducted to cover several changes in the project areas, as listed above. All built-environment surveys were primarily “windshield” surveys to field-check built-environment resources 45 years of age or older as identified from historic maps. Additionally, for the linear facilities corridor survey, AECOM met with Art Wilson, author of *Runways in the Sand: The History of Blythe Army Air Base in World War II* (Wilson 2008), who provided a guided tour and shared his extensive knowledge of that resource (EDAW 2009e, p. 21).

Results of Pedestrian Archaeological Survey

Adjustments to the project plant site boundaries and to the linear facilities corridor avoided direct impacts to some archaeological sites but subjected some additional archaeological sites, both previously known and newly identified in the April-May, 2010 survey, to potential direct project impacts.

Thus the counts of archaeological sites in the SA/DEIS and the counts in this document are different. The counts that staff can provide at this time are not the final counts for the BSPP cultural resources inventory for two reasons. First, staff did not have new boundary data of sufficient resolution to determine with accuracy whether some archaeological sites identified previously by AECOM are now inside the new project boundaries or outside. In these cases, staff considered such sites to be inside the new project boundaries and thus potentially subject to direct project impacts. Additionally, a more recent change in the gen-tie transmission line route has apparently been proposed to go around the Ashton parcel, and no cultural resources survey data have been provided to staff for this new corridor. The final and correct counts for the BSPP cultural resources inventory may not be determined until after the project is certified.

Staff's current total for archaeological sites in the BSPPs archaeological PAAs, including previously known sites and sites identified in AECOM's three surveys, is 201, of which 176 date to the historic-period and 25 to the prehistoric period. Of the historic-period sites, seven also have a prehistoric component.

Cultural Resources Table 2, below, provides a list and brief description of the archaeological sites staff currently believes are located in the BSPP archaeological PAA.

Site types broadly characterize the content and arrangement of the observed archaeological remains at sites and posit a site's function(s). Below, staff will recommend protocols for site evaluation and data recovery as mitigation based on site types.

AECOM reported four prehistoric site types as present on the BSPP, (EDAW 2010a, pp. 137–142), and staff added a fifth type:

- Prehistoric Lithic Scatters (debris from the production of one or more flaked stone tools, possibly tools used to make flaked stone tools, and occasionally the flaked stone tools themselves);
- Prehistoric Quarry Sites (a geological deposit of stone material suitable for the manufacture of flaked stone tools);
- Prehistoric Sites with Features (features are remains of non-residential human modifications or additions to the natural landscape, such as hearths, arrangements of stones, cleared areas), all but one of which in the BSPP project areas were "thermal cobble features"—probably the remains of roasting pits;
- Prehistoric Trails (footpaths evidencing denuding of desert pavement, with possible shallow depression from compaction of soils); and

- “Pot Drop” (isolated scatter of sherds from a single pot, possibly associated with sacred activity).

AECOM defined three broad categories of historic-period sites, Early Twentieth-Century Mining and Ranching Sites, World War II-era DTC/C-AMA Sites, and Other Historic-period Sites (EDAW 2010a, pp. 127, 144–156), under which they identified 10 site types.

The Early Twentieth-Century Mining and Ranching Sites consisted of:

- Early twentieth-century habitation sites (residential structural remains and domestic non-biodegradable refuse);
- Early twentieth-century sites with features (features are remains of non-residential human modifications or additions to the natural landscape, such as non-residential structural remains, mining claim markers, prospecting, refuse, and privy pits); and
- Early twentieth-century refuse scatter sites (deposits of non-biodegradable refuse of all kinds).

The World War II-era DTC/C-AMA Sites consisted of:

- World War II-era sites with features (features are remains of non-residential human modifications or additions to the natural landscape, such as fortified positions, cleared areas for tent pads, and hearths);
- World War II-era refuse dump sites (distinguished from refuse scatter sites by the greater volume of material and multi-episodic deposition); and
- World War II-era refuse scatter sites (recognized by the presence of military-issued rations containers or cans opened with the military-issued P-38 can-opener or a bayonet).

The Other Historic-period Sites consisted of:

- Transportation routes (pre-1967 dirt roads traversing the proposed plant site);
- Non-specific twentieth-century sites with features (these lacked materials that could be dated or associated with a specific activity);
- Non-specific twentieth-century refuse dump sites; and
- Non-specific twentieth-century refuse scatter sites.

Results of Geoarchaeological Investigations

Between July 29 and August 5, 2009, AECOM’s geoarchaeologist observed the drilling of 22 geotechnical borings on the BSPP site, located throughout the proposed plant site. The geoarchaeologist sorted and examined all the removed sediments for evidence of paleosols, archaeological deposits, or isolated finds. The sediments were also hand-sampled at 5-foot intervals as the borings progressed. The geoarchaeologist recorded the sediments and stratigraphy before the borings were backfilled (Galati & Blek 2010m, p. 3). The geotechnical investigations also included the excavation of test pits (no details provided), but the geoarchaeologist did not observe that activity.

The distribution of the borings was sufficient to provide the geoarchaeologist with an adequate characterization of the subsurface stratigraphy of the BSPP plant site. The site is underlain by (from the oldest to the youngest): ancestral Colorado River sands, lake-deposited clays, alluvial fan sands and gravels, and moderately well-developed soils based on alluvial fan sands and gravels.

The geoarchaeologist reasoned that when the cool, wet Pleistocene gave way to the drier Holocene climate, alluvial fan growth was probably accelerated, so the lake-deposited clays that underlay the alluvial fan deposits could represent the Pleistocene. Therefore, evidence of human use of this area would be found no deeper than the contact between the upper part of the Pleistocene clay deposit and the lower part of the Holocene sand and gravel deposit. That contact generally occurs at about 10 feet, so the geoarchaeologist concluded t hat buried archaeological deposits, if any, would be limited to the upper 10 feet of the BSPP site (Galati & Blek 2010m, p. 17).

The geoarchaeologist observed no paleosols or buried archaeological deposits, but reported that a buried A horizon was recorded by the geotechnical staff in two of the test pits at a depth of 1 meter below the surface in the northeastern part of the plant site. This indicates that a stable surface existed for long enough for soil development to take place, so human occupation would also have been possible on such a surface (Galati & Blek 2010m, p. 17).

Based on the locations where the lake clay-alluvial fan contact and the buried A horizon were observed in the borings, the geoarchaeologist recommended archaeological monitoring, down to the depth of 10 feet, during ground-disturbing construction along the northern BSPP boundary, in a zone extending along the eastern two-thirds of the boundary and to the south about 0.5 mile. Noting that the potential for buried deposits is high near drainages, the geoarchaeologist also recommended archaeological monitoring during construction around the dry wash, particularly the north side, that runs diagonally across the southwest part of the BSPP plant site (Galati & Blek 2010m, p. 17; fig. 5).

Results of Windshield Survey for Built-Environment Resources

AECOM's April-May, 2010 built-environment survey, covering changes in the project's linear facilities routes, identified no additional built-environment resources (Tennyson and Meiser 2010, p. 4).

The AECOM archaeological survey of the same dates and coverage, however, identified an additional built-environment resource, the Blythe-Eagle Mountain 161-kV transmission line, to which AECOM gave the temporary resource number, SMB-H-MT-104. This transmission line was built in the 1950s and runs 52.1 miles from Blythe-Eagle Mountain Substation to Dunes Substation in Blythe. Its supports are H-frame wooden poles, some of which were replaced in 2002. This linear resource intersects with the proposed BSPP linear facilities corridor just south of the I-10 freeway. AECOM recorded an approximately 1,000-foot-long segment of this line, which is currently in use.

In their previous surveys, AECOM's architectural historian identified two built-environment resources, aged 45 years or older, that are located within 0.5-mile of the linear facilities corridor: a reservoir to the west that was constructed to serve the former Blythe Army Air Base (BAAB) of World War II vintage, and a radio communications facility, built in 1950, to the south of the corridor (EDAW 2009e, p. 22; fig. 3).

The BAAB reservoir is in the foothills of the McCoy Mountains and more than 0.5 mile west of the BSPP proposed linear facilities corridor. Water from on-base wells was pumped to the reservoir, then returned to the base by gravity flow. The reservoir is no longer in use, and associated nearby structures and a covering structure are no longer present. The reservoir is an open concrete bowl with a 557,000-gallon capacity (EDAW 2009e, p. 25). No information was provided on the location of the two pipelines that connected the reservoir to the BAAB.

The radio communications facility is nearly one-half mile south of the linear facilities corridor. The building is one-story, square, and constructed of concrete blocks. A tower in the shape of a truncated cone rises from the middle of the flat, circular roof, around which instruments are installed. An antenna tower is located nearby. The AECOM recorder of this building stated that it appeared that significant alterations had been made in the 1980s (EDAW 2009e, p. 26). No information was provided on its current status, but it may still be in use.

Cultural Resources Table 2, below, provides a list and brief description of the built-environment resources identified by AECOM as located within the BSPP built-environment PAA.

Additional Staff-Identified Cultural Resources

Based on an analysis of the BSPP archaeological data from previous and present surveys, staff identified an archaeological district that staff has assumed is CRHR-eligible, parts of which are located on the BSPP plant site and on or near the BSPP's linear facilities corridors. This historical resource is the Prehistoric Quarries Archaeological District (PQAD), located along the east side of the proposed BSPP plant site. As defined by staff, additional contributors include thermal cobble features and lithic reduction stations. Staff believes this district could evidence the repetitive visits by Native Americans to the quarries to assay and mine toolstone and the activities associated with these visits. Staff recognizes this assumed-eligible discontiguous archaeological district as inclusive of the quarries, the thermal cobble/roasting pit features, and nearby chipping stations.

The primary contributors are five previously recorded prehistoric quarry sites (two small—CA-Riv-3417 and CA-Riv-3672)—and three large—CA-Riv-2846, CA-Riv-3418, CA-Riv-3419—recognized as coincident with geological features known as dissected pebble terraces. These terraces are remnants of abandoned gravel deposits of former channels of the Colorado River, dating from the Pleistocene epoch, on which desert pavements have developed. These terraces have been a source of abundant material for stone tools throughout California prehistory for Native Americans in this area.

The thermal cobble features, nine known examples of which are located on the BSPP plant site (SMB-P-434, SMB-P-435, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, and SMB-P-441, SMB-H-452, and SMB-P-454), would also include two additional examples identified by the applicant but now located outside the project boundaries: SMB-P-445 and SMB-P-448. Additionally, the CHRIS record for quarry site CA-Riv-3418 also noted the presence of four associated roasting pit features. These roasting pit features are almost certainly the same as the "thermal cobble features" AECOM identified along the west side of quarry site CA-Riv-2846. Other thermal cobble features may exist in unsurveyed areas adjacent to other quarry sites. Additionally, if the PQAD were formally evaluated as not CRHR and NRHP eligible, these features could be contributors to a separate thermal cobble archaeological district.

Also based on staff's analysis of the BSPP archaeological survey data, and considering the similar archaeological data staff accessed from the Genesis Solar Energy Project and the Palen Solar Power Project, staff additionally identified two cultural landscapes (historic districts): the Prehistoric Trails Network Cultural Landscape (PTNCL), to which all the BSPP prehistoric archaeological resources contribute; and the DTC/C-AMA Cultural Landscape (DTCCL), to which many of the BSPP historic-period archaeological resources contribute. Staff has not attempted to definitively establish the boundaries of these cultural landscapes, but at this time staff considers the boundaries to roughly coincide with the geographic boundaries of the Chuckwalla Valley and the Palo Verde Mesa, encompassing the BSPP, the Genesis Solar Energy Project ,and the Palen Solar Power Project identify additional contributors to the PTNCL, on all of which archaeological sites considered to be contributors to these landscapes are located.

The Prehistoric Trails Network Cultural Landscape consists of the Halchidhoma Trail and the associated joining and diverging trails (and trail-related features such as pot drops and rock cairns), and the varied loci of importance to prehistoric Native Americans that these trails connected. These loci included springs (and the dry lakes when they were not dry), food and materials resource areas, and ceremonial sites (geoglyphs, rock alignments, petroglyphs). The Halchidhoma Trail (CA-Riv-53T) does not run through the BSPP plant site, but BSPP contributors to this cultural landscape include a trail segment (SMB-P-410), three pot drops (CA-Riv-1136, SMB-M-TC-101, and SMB-M-WG-102), and an archaeological district consisting of four prehistoric quarries and associated features (see above). Also, outside the BSPP boundaries are additional potential contributors, including previously recorded resources:

- trail segments CA-Riv-53T, CA-Riv-885, CA-Riv-3673, CA-Riv-4568;
- a rock alignment CA-Riv-661;
- a geoglyph CA-Riv-662; and
- possible pot drops CA-Riv-1481, CA-Riv-7176.

Additional prehistoric cultural resources identified by the applicant but located outside of areas that would be impacted by BSPP activities are also contributors to the PTNCL, including:

- possible quarries SMB-P-270, SMB-P-272, SMB-P-275;

- thermal cobble features SMB-P-435, SMB-P-445, SMB-P-448, SMB-H-452, SMB-P-454; and
- lithic scatters SMB-P-237, SMB-P-242, SMB-M-512 (multi-component site), SMB-P-453, SMB-P-511.

The Revised Staff Assessments (RSAs) for the Genesis Solar Energy Project and the Palen Solar Power Project identify additional contributors to the PTNCL.

The DTC/C-AMA Cultural Landscape consists of all the archaeological remains of the WWII military training activities that were conducted across the entire region. These sites are highly significant for their association with Gen. George S. Patton and for their ability to contribute to our understanding of how American soldiers were trained during WWII. The period of significance would be 1942–1944, but associated resources could date from 1942–1955, as it is known that the Army carried on de-commissioning activities at the DTC/C-AMA, particularly the recovery of live ordnance, in the early 1950s. As represented at the BSPP, these remains consist primarily of refuse scatters and dumps, with some fortified positions, cleared areas, and possible tent camps, plus the remains of a structure evidencing possible weapons testing. Also, outside the BSPP boundaries additional potential contributors have been previously recorded, for example, CA-Riv-7174H, which consists of tent platforms and animal enclosures, as well as refuse. Additional historic-period archaeological resources identified by the applicant but located outside of areas that would be impacted are also contributors to the DTCCL, including:

- fortified positions SMB-H-285, SMB-H-286;
- historic-period refuse dump SMB-H-269; and
- historic-period refuse scatters SMB-H-195, SMB-H-253, SMB-H-254, SMB-H-263, SMB-H-266, SMB-H-267, SMB-H-268, SMB-H-271, SMB-H-276, SMB-H-279, SMB-H-282, SMB-M-512 (multi-component site), SMB-H-515, SMB-H-516, SMB-H-517, SMB-H-701,and SMB-H-702.

The RSAs for the Genesis Solar Energy Project and the Palen Solar Power Project identify additional contributors to the DTCCL.

Cultural Resources Table 2, below, provides a list and brief description of the district and cultural landscape resources identified by staff as located within and surrounding the BSPP.

Summary of Identified Cultural Resources in the PAAs

Cultural Resources Table 2 presents the inventory of the cultural resources that staff has currently determined could be impacted by the proposed BSPP, but, as stated above, the final and correct counts for the BSPP cultural resources inventory may not be determined until after the project is certified.

CULTURAL RESOURCES Table 2
Cultural Resources Subject to Potential Impacts from the Proposed Project

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
Prehistoric Archaeological Resources[19]			
CA-Riv-1136	"pot drop" 13 ceramic sherds	Prehistoric	Buffer (private in-holding)
CA-Riv-2846	Toolstone quarry tested cobbles, testing debris over extensive area on a remnant Pleistocene-era Colorado River terrace	Prehistoric	Plant site
CA-Riv-3419	Toolstone quarry tested cobbles, testing debris over extensive area on a remnant Pleistocene-era Colorado River terrace	Prehistoric	Plant site
SMB-P-160	Lithic scatter 11 chert flakes	Prehistoric	Plant site
SMB-M-214	Thermal cobble feature (possible roasting pit) 100 quartz cobbles (2 thermally altered), slightly embedded in ground surface 1 food can	Prehistoric and 20th century historic site	Plant site
SMB-P-228	Lithic scatter 5 quartz flakes, 1 quartzite hammerstone	Prehistoric	Plant site
SMB-P-238	Lithic scatter 30 quartz flakes, quartz flake core, 1 quartzite hammerstone	Prehistoric	Plant site
SMB-P-241	Lithic scatter and cairn 100 quartz flakes, 1 quartzite hammerstone	Prehistoric	Plant site
SMB-P-244	Lithic scatter 14 quartz flakes, 1 quartzite flake core, 2 quartzite hammerstones (site size not recorded; site plan scale incorrect)	Prehistoric	Plant site
SMB-P-249	Lithic scatter 8 quartzite flakes, 5 pieces of quartzite shatter, and 1 quartzite hammerstone	Prehistoric	Plant site

[17] Note that all "SMB" sites are newly identified as a result of applicant's surveys.

[18] Identifications and descriptive terms are from the site forms prepared by AECOM and from EDAW 2010a, Table 12.

[19] Sites with both prehistoric and historic-period components are listed according to which remains are the most abundant.

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-P-252	Lithic scatter, in 2 flaking stations about 18 meters apart station 1: 50 quartzite flakes, 2 quartzite hammerstones station 2: 50 quartzite flakes	Prehistoric	Plant site
SMB-P-410	Prehistoric trail north-south running trail segment, 200 meters long observed and recorded	Prehistoric	Plant Site
SMB-P-434	Thermal cobble features 3 concentrations of fire-affected cobbles; possible roasting pits; subsurface materials may be present no associated artifacts	Prehistoric	Plant site
SMB-P-435	Thermal cobble features 3 concentrations of fire-affected cobbles; possible roasting pits; subsurface materials may be present	Prehistoric	In path of drainage outlets
SMB-P-436	Thermal cobble features 2 concentrations of fire-affected cobbles; possible roasting pits; subsurface materials may be present	Prehistoric	Plant site
SMB-P-437	Thermal cobble feature concentration of fire-affected cobbles; possible roasting pit; subsurface materials may be present	Prehistoric	Plant site
SMB-P-438	Thermal cobble feature 1 concentration of fire-affected cobbles; possible roasting pit; subsurface materials may be present	Prehistoric	Plant site
SMB-P-440	Thermal cobble feature 1 concentration of fire-affected cobbles; possible roasting pit; eroding out a wash bank; subsurface materials may be present	Prehistoric	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-P-441	Thermal cobble features 3 concentrations of fire-affected cobbles; eroding out a wash bank; possible roasting pits; subsurface materials may be present	Prehistoric	Plant site
SMB-H-452[20]	Cobble feature (no information recorded on whether rocks fire-affected) 1 concentration of cobbles; possible roasting pit; subsurface materials may be present 2 cans: military ration can, other food can	Prehistoric	In path of drainage outlet
SMB-P-453	Lithic scatter 37 quartzite or chert flakes, 3 quartzite or chert flake cores, 10 quartzite or chert assayed cobbles, and 3 quartzite hammerstones	Prehistoric	In path of drainage outlets
SMB-P-454	Thermal cobble feature, ceramic scatter, faunal remains ceramic sherds, tentatively identified as Colorado Buffware 1 concentration of fire-affected cobbles; possible roasting pit; subsurface materials may be present bone fragments; not cut or burned; good conditions suggests recent age	Prehistoric	In path of drainage outlets
SMB-P-530	Lithic scatter 50 quartz flakes, 7 quartz flake cores	Prehistoric	Plant site
SMB-P-531	Lithic scatter 100 quartz flakes, shatter pieces, and flake cores	Prehistoric	Plant site
SMB-P-532	Lithic scatter 60 quartz flakes and 8 quartz flake cores	Prehistoric	Plant site
Historic-Period Archaeological Resources			

[20] AECOM categorized this site as historic-period because of the presence of two cans, but staff has included it among the prehistoric sites because the possible prehistoric cobble feature is of greater importance than the historic-period component.

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
CA-Riv-9011	Historic-period refuse scatter, 2 concentrations original 2008 recordation: concentration 1: 7 cans: rotary-opened cans, knife-opened cans glass jar with 1938-1977 date concentration 2: 7 cans: key-wind meat cans, sanitary cans 2009 AECOM revisit: 16 cans: P-38-opened food cans, key-wind meat cans, knife-cut beverage cans glass jar	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Substation
SMB-H-002	Historic-period refuse scatter 3 cans: military ration cans amber beer bottle	DTC/C-AMA 1942-1944 (WWII)	Substation
SMB-H-109	Historic-period refuse scatter 6 cans: Military ration can, other food cans, aluminum soft-top beer can	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site
SMB-H-110	Historic-period refuse scatter 4 military ration cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-113	Cairns (probably mining claims) and historic-period debris scatter aircraft parts	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-114	Historic-period refuse scatter 8 cans: military ration cans, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-115	Historic-period refuse scatter 8 cans: military ration cans, key-wind meat can, church-key-opened beer can bullet casing, braided wire	DTC/C-AMA, 1942-1944 (WWII)	Plant site
SMB-H-116	Historic-period refuse scatter 19 cans: hole-in-cap milk cans, food cans, one embossed “SANITARY,” a practice dating to the 1800s	Prospecting/ranching Early 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-118	Historic-period refuse scatter 29 cans: military ration cans, milk cans, beer cans, juice can, sardine can, fuel can glass liquor bottle embossed “Federal Law Forbids Sale or Re-Use of This Bottle” military mess-kit spoon (embossed with, "U.S."), bullets, wire	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-119	Historic-period refuse scatter 5 cans: hole-in-cap milk cans, key-wind meat can	Prospecting/ranching Early 20th century	Plant site
SMB-H-120	Historic-period refuse scatter 4 cans: church-key-opened sardine cans, key-wind sanitary can	Prospecting/ranching Early 20th century	Plant site
SMB-H-121	Historic-period refuse scatter 15 cans: military ration cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-122	Historic-period refuse scatter 5 cans: military ration cans, other can military mess-kit spoon embossed with "U.S."	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-123	Historic-period refuse scatter 4 cans: military ration cans, church-key-opened beer can, other can, can lids glass bottle	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-124	Historic-period refuse scatter 11 cans: key-wind sardine cans, other food cans, can lid	Prospecting/ranching Early 20th century	Plant site
SMB-H-125	Historic-period refuse scatter 5 cans: military ration cans, key-wind meat can, other food can	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-126	Historic-period refuse scatter military ration cans, other food can glass jar	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-127	Historic-period refuse scatter 4 sanitary cans	Other historic site 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-129	Historic-period refuse scatter military ration can, key-wind sardine can, hole-in-cap can, other food cans 3 glass bottles with 1938 and 1941 maker's marks piece of wooden lath	Prospecting/ranching and DTC/C-AMA Early-to-mid 20th century and 1942-1944 (WWII)	Plant site
SMB-H-130	Historic-period refuse scatter 2 cans: P-38-opened can, aluminum soft-top beer can glass jugs with 1948 and 1952 maker's marks	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site
SMB-H-131	Historic-period refuse scatter 5 cans: military ration can, P-38-opened can, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-132	Historic-period refuse scatter 8 cans: military ration cans, military-issue soluble coffee can, other food cans, can lid	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-133	Historic-period refuse scatter and rock ring (historic hearth) 2 cans: military ration can, other can	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-134	Historic-period refuse scatter 3 cans: military ration cans, sardine can glass bottles	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-135	Historic-period refuse scatter 19 cans: military ration cans, other food cans, milk cans, beer cans, paint can glass bottle fragments metal band, smoke landmine	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-136	Historic-period refuse scatter 16 cans: military ration cans, meat cans, other food cans, can lids glass jar embossed with 1943 date brass munitions casing, sheet metal	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-137	Historic-period refuse scatter U.S. General Land Office survey marker dated 1917 9 cans: military ration cans, sardine can, beer can, wooden lath pieces	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-138	Historic-period refuse scatter 4 cans: military ration can, military-issue soluble coffee cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-139	Historic-period refuse scatter 8 cans: military ration can, key-wind-opened cans, other cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-140	Historic-period refuse scatter 20 cans: military ration cans, military-issue soluble coffee can, milk can, beer cans, aerosol can, other cans, can lids military mess-kit spoon embossed "U.S.," munitions casings, lath pieces	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-143	Historic-period refuse scatter and well head 3 cans: key-wind-opened meat can, hole-in-cap can, sanitary can milled lumber, galvanized sheet metal piece	Prospecting/ranching Early 20th century	Plant site
SMB-H-144	Historic-period refuse scatter 6 cans: military ration can, hole-in-cap can, other food cans, two can lids	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-145	Historic-period refuse scatter 4 cans: church-key-opened cans, hole-in-cap milk can, other food can, can lid glass jar, glass bottle with 1938 maker's mark	Prospecting/ranching Early-to-mid 20th century	Plant site
SMB-H-147	Historic-period refuse scatter 6 cans: military ration can, other food cans, milk can, baking powder can, aluminum soft-top beer can	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site
SMB-H-148	Historic-period refuse scatter 6 cans: military ration can, hole-in-cap milk can, other food cans, can lid	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-151	Historic-period refuse scatter 10 cans: military-issue soluble coffee can, rotary-opened food cans, can lid	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-152	Historic-period refuse scatter 13 cans: military ration can lid, key-wind meat cans, other food cans	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-153	Historic-period refuse scatter 4 cans: milk cans, tapered meat can, other food can, metal bracket with military-style coating	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-154	Historic-period refuse scatter (two concentrations 14 cans (east concentration): military ration cans, military-issue soluble coffee cans, P-38-opened can, other food cans saw-cut bone fragments (large mammal) boot sole flat glass fragment 23 cans (west concentration): solder-dot cans, other food cans	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-155	Historic-period refuse scatter 5 cans: military ration cans, can adapted as a pail, coffee can, paint can glass canning jar wooden lath pieces, plank, embossed sheet metal	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-156	Historic-period refuse scatter 38 cans: military ration cans, military soluble coffee can, milk cans, sardine can, other food cans, beer cans (some church-key-opened, some aluminum soft-top type), can lids glass bottles with maker's marks	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII)	Plant site
SMB-H-157	Historic-period refuse scatter 7 cans: military ration can, army-issued garbage can lid embossed with 1942 date, milk cans, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-158	Historic-period refuse scatter 4 cans: military ration can, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-159	Historic-period refuse scatter 7 cans: military ration can, baking powder cans, milk can, key-wind-opened meat can, other food can	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-161	Historic-period refuse scatter 6 cans: hole-in-cap milk can, key-wind-opened meat can, other food cans, metal band	Prospecting/ranching Early 20th century	Plant site
SMB-H-162	Historic-period refuse scatter 5 cans: hole-in-cap milk can, other food cans (one P-38-opened) glass fragments with maker's	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-163	Fortified positions (4) 37 cans: military ration cans, other food cans (some church-key-opened and P-38-opened), milk can, beer cans, tobacco tin, can lids, fuel can, oil cans auto part, bailing wire coils	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-164	Historic-period refuse scatter 36 cans: military ration cans, other food cans, beer cans (some aluminum soft-top beer cans), milk can, baking powder can glass bottle fragments, one embossed "CLOROX" car hood spring, bottle cap, metal sign post, metal band, and wire (Under **Features**, a "deflated hearth" (thermal cobble feature?) is noted, but the site plan shows "F. 1" and "F. 2" with no further information provided))	Prospecting/ranching, DTC/C-AMA, and possibly prehistoric Early 20th century, 1942-1944 (WWII), and mid-20th century Prehistoric (?)	Plant site
SMB-H-165	Historic-period refuse scatter 35 cans: military ration cans, sardine can, key-wind-opened meat can, milk cans, church-key-opened beer cans, other food cans (some P-38-opened), can lids	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-166	Historic-period refuse scatter 38 cans: hole-in-cap milk cans, key-wind-opened meat can, other food cans (including one knife-cut-X-opened, dating to the early 20th century), can lid glass jar	Prospecting/ranching Early 20th century	Plant site
SMB-H-167	Historic-period refuse scatter 36 cans: hole-in-cap milk can, key-wind-opened meat can, knife-cut-X-opened can, other food cans (some P-38-opened), can lids, fuel can glass jars metal bucket military ration can, smoke landmine	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-168	Historic-period refuse scatter 62 cans: milk cans, sardine cans, key-wind-opened meat cans, spice can, other food cans (some rotary-opened), fuel cans historic ceramic fragment glass bottle fragments, glass stemware miscellaneous metal military ration cans, other food cans (some P-38-opened)	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-169	Historic-period refuse scatter 5 cans: hole-in-cap milk can, military ration can, other food cans (some P-38-opened)	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-170	Historic-period rock ring hearth with charcoal and a refuse scatter 1 sanitary can (post-dates 1904)	Other historic site 20th century	Plant site
SMB-H-171	Historic-period refuse dump 166 cans: military ration cans, milk cans, sardine cans, military-issue soluble coffee cans, key-wind-opened meat can, tobacco tin, other food cans, can lids, beer cans (some church-key-opened, some aluminum soft-top type), oil and fuel cans glass bottle fragments, glass jar threaded metal jar lid, mess-kit spoon embossed “U.S.”	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-173	Historic-period refuse scatter 13 cans: hole-in-cap milk cans, key-wind-opened meat can, other food cans	Prospecting/ranching Early 20th century	Plant site
SMB-H-175	Historic-period refuse scatter 13 cans: military ration cans, other food cans, can lids, beer cans glass fragments from bottles and jars (hearth was mentioned on original form and in Table DR-CR-131, but not on new site form, or on revised Class III report p. 163; of concern is whether a hearth, if present, is prehistoric or historic)	DTC/C-AMA 1942-1944 (WWII) Prehistoric?	Plant site
SMB-H-176	Historic-period refuse scatter, hearth (charcoal, no rocks), and wood pile (pieces of native wood) 2 cans wire, metal bar	Prospecting/ranching Early 20th century	Plant site
SMB-H-177	Historic-period refuse scatter 12 cans: sardine can; milk cans, other food cans, beer cans (some church-key-opened beer, some aluminum soft-top type)	Prospecting/ranching and possibly Desert Strike Early 20th century and late 20th century	Plant site
SMB-H-178	Historic-period refuse dump and rock alignment (interpreted as an aerial marker pointing at a survey monument) 226 cans: food cans, beverage cans, oil cans, fuel cans glass bottle with probable 1970s embossing pail, propane tank, jack, hack saw, vehicle tire	Other historic site 20th century AECOM dates this to the DTC/C-AMA, 1942-1944 (WWII) (EDAW 2010a, p. 188)	Plant site
SMB-H-179	Historic-period refuse scatter 4 cans: hole-in-cap cans, other food cans	Prospecting/ranching Early 20th century	Plant site
SMB-H-180	Historic-period refuse scatter 5 cans: military ration can, P-38-opened food cans, other food can, aluminum soft-top beer can	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site
SMB-H-181	Historic-period refuse scatter 30 cans: hole-in-top milk can, other cans, aluminum soft-top beer can glass jar with 1920-1964 maker's mark	Other historic site and possibly Desert Strike 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-182	Historic-period refuse scatter 38 cans: food cans (some P-38-opened), key-wind-opened meat can, tapered meat can, spice can, can lid ceramic fragments flat glass fragments, glass jar with 1920-1964 maker's mark, glass bottle with 1929-1954 maker's mark tape dispenser	Prospecting/ranching and DTC/C-AMA Mid-20th century 1942-1944 (WWII)	Plant site
SMB-H-183	Historic-period refuse scatter 4 cans: food cans, church-key-opened beer cans	Other historic site Mid-20th century	Plant site
SMB-H-184	Historic-period refuse scatter 18 cans: hole-in-top milk cans, military ration can, other food cans (some P-38-opened), can lids, aluminum soft-top beer cans	Other historic site and possibly Desert Strike Staff dates this to the DTC/C-AMA, 1942-1944 (WWII) 20th century	Plant site
SMB-H-185	Historic-period refuse scatter 4 cans: food cans (some P-38-opened), fuel can	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-186	Historic-period refuse scatter 8 cans: bayonet-opened food cans, hole-in-cap milk can, coffee can	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-189	Historic-period refuse scatter 12 cans: military ration can, military-issue soluble coffee can, beer cans (church-key-opened and aluminum soft-top type), knife-cut-X-opened cans, oil can glass bottles with post-1932, 1942, 1970s maker's marks	Other historic site and possibly Desert Strike Staff dates this to the DTC/C-AMA, 1942-1944 (WWII) 20th century	Plant site
SMB-H-190	Historic-period refuse scatter 6 cans: military ration can, other food cans, key-wind-opened meat can, church-key-opened beer can, aluminum soft-top beer can	Other historic site Staff dates this to the DTC/C-AMA, 1942-1944 (WWII) Early-to-mid 20th century	Plant site
SMB-H-191	Historic-period refuse scatter 4 bayonet-opened cans glass bottle with 1858-1895 maker's mark, glass jar with1932-1942 maker's mark	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-192	Historic-period refuse scatter 4 cans: P-38-opened cans, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-193	Historic-period refuse scatter 4 cans: bayonet-opened cans, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-194	Historic-period refuse scatter 5 cans: hole-in-top milk can, church-key-opened cans, other food cans glass jar with 1920-1964 maker's mark	Prospecting/ranching Mid-20th century	Plant site
SMB-H-197	Historic-period refuse scatter 3 cans: hole-in-cap milk can, church-key-opened beer can, fuel can glass bottle fragments (several pint liquor bottles represented) with 1930s-1940s maker's marks	Prospecting/ranching Early-to-mid 20th century	Plant site
SMB-H-198	Historic-period refuse scatter 7 cans: milk can, sanitary cans, church-key-opened beer cans, aluminum soft-top beer can, fuel can piece of steel pipe, steel cable pieces	Other historic site Mid-20th century	Plant site
SMB-H-199	Historic-period refuse scatter 22 cans: milk can, oval sardine can, other food cans, church-key-opened beer can, aluminum soft-top beer can	Other historic site and possibly Desert Strike 20th century	Plant site
SMB-H-200	Historic-period refuse scatter 3 cans: rotary-opened tuna can, other food cans (one rotary-opened) munitions casing, wire	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-202	Historic-period refuse scatter 12 cans: hole-in-top milk can, other food can, church-key-opened beer cans; beer can marker "COORS" wooden post, braided wire	Prospecting/ranching Early-to-mid 20th century	Plant site
SMB-H-203	Historic-period cleared areas, possible aerial marker 16 approximately 7-foot-x-2–3-foot rectangles cleared of the top layer of desert pavement and laid out in a line, with their long sides parallel	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-204	Historic-period refuse scatter 4 cans: key-wind-opened meat can, other food cans, oil can	Prospecting/ranching Early 20th century	Plant site
SMB-H-205	Fortified positions (site plan indicates 13, but that may be schematic rather than actual) 31 cans: military ration cans, 24 oil cans, food cans, beverage can glass fragments with post-1916 and 1940s maker's marks wire	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-206	Historic-period refuse scatter 37 cans: sardine can, military-issue soluble coffee can, beer cans (one church-key-opened), tobacco cans, can lids glass bottle fragments with 1924-1968 and post-1945 maker's marks historic ceramic sherd boot sole wash basin, stove parts, automobile parts	Other historic site Staff dates this to the DTC/C-AMA, 1942-1944 (WWII) Mid-20th century	Plant site
SMB-H-207	Fortified positions, 22 of them, associated historic-period refuse scatter 6 cans: military-issue soluble coffee can, food cans, can embossed "GRENADE," can lids grenade spoons, shell casing, metal strapping	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-208	Historic-period refuse scatter 9 cans: military ration can, key-wind-opened meat can, other food cans, aluminum soft-top beer can glass ink well-shaped bottle with metal threaded cap	Prospecting/ranching and DTC/C-AMA and possibly Desert Strike 20th century and 1942-1944 (WWII)	Plant site
SMB-H-209	Historic-period refuse and debris scatter 5 cans: food cans, church-key-opened beer can, can lid cement block with rebar, wooden lath pieces	Other historic site 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-210	Fortified positions, 8 of them, and 2 cairns 7 cans: military ration cans, military-issue soluble coffee cans, can lids munitions clips, milled lumber, metal strapping	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-212	Historic-period refuse scatter 6 cans: military ration cans, military-issue soluble coffee cans, can lids	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-213	Historic-period refuse scatter 1 food can glass jar with post-1925 maker's mark metal pipe fragment, metal spring, metal rod	Other historic site Early 20th century	Plant site
SMB-H-215	Historic-period refuse scatter 26 cans: military ration cans, oil cans, other food cans, beer can, can lids grenade part	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-216	Historic-period refuse scatter 49 cans: military-issue soluble coffee can, hole-in-top milk can, other food cans (some P-38-opened), oil cans, can lids glass bottle fragments with 1940s and 1939-1957 maker's marks metal band, wire, electrical conduit	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-218	Historic-period refuse scatter and rock ring hearth containing charcoal 4 cans: "vent-hole" milk can, other food can, oil cans flat glass bone button 1940s delivery van nails, bolt, washers, wire, milled lumber plastic (no details)	Prospecting/ranching Early 20th century	Plant site
SMB-H-219	Historic-period refuse scatter 4 cans: military ration cans and lids	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-220	Historic-period refuse scatter 8 cans: military ration cans, military-issue soluble coffee can, can lids glass bottle with 1920-1963 maker's mark: "JERGENS LOTION"	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-221	Historic-period refuse scatter 3 cans: other food cans glass bottle fragments 1/8-inch metal rods	Other historic site 20th century	Plant site
SMB-H-222	Historic-period rock alignments forming letters and figures, rock hearth containing charcoal and pieces of wood, tank tracks 1 military ration can lid	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-223	Fortified positions, 8 of them 4 cans: military ration can, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-224	Historic-period refuse dump 110 cans: military ration cans, lantern globe (Dietz, post-1918), Clorox bottle glass (1929-1950), other bottle glass historic ceramic fragments metal teapot, metal tray, metal plate, metal screen, wire, miscellaneous metal bands and sheets (site plan indicates site just sampled, so was not completely recorded)	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-227	Historic-period refuse scatter 9 cans: food cans (some rotary-opened), can lids (no detailed can recordation)	Other historic site 20th century	Plant site
SMB-H-229	Historic-period refuse scatter 6 cans: military ration can, paint can, other food cans, pull-top beverage cans	Other historic site Staff dates this to the DTC/C-AMA, 1942-1944 (WWII) 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-230	Historic-period refuse scatter 4 cans: military ration can, other food cans, key-wind-opened meat can, can lid (no detailed can recordation)	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-231	Historic-period refuse scatter 4 cans: key-wind-opened sardine can, other food cans (one rotary-opened), baking powder can	Prospecting/ranching Early 20th century	Plant site
SMB-H-232	Historic-period refuse scatter 8 cans: military ration can, other food cans, can lids glass bottle with post-1938 maker's mark	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-233	Historic-period refuse scatter 11 cans: military ration cans, other food cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-234	Historic-period refuse scatter and cairn 19 cans: military ration cans, other food cans, beer cans (most aluminum soft-top type), can lid	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site
SMB-H-235	Historic-period refuse scatter 8 cans: military ration cans, milk can, meat can, other food cans wire, sheet metal, munitions casing	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-236	Historic-period refuse scatter 12 cans: military ration cans, milk can, other food can	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-243	Historic-period refuse scatter and hearth containing charcoal and can 2 cans: military ration cans and can lid bottle crown cap, braided wire (site plan scale incorrect)	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-245	Historic-period refuse scatter, rock ring hearth, and 2 rock cluster features 15 cans: military ration cans, military-issue soluble coffee cans, milk cans, other food cans, can lids	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-246	Historic-period refuse scatter 10 cans: key-wind-opened meat can, other food cans, fuel cans, beer can glass jar with 1942 maker's mark	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-247	Historic-period cleared areas (3 probable tent pads) 1 P-38-opened can (site form site plan shows a "possible mining claim" and associated piece of milled lumber northeast of the tent pads, but form provides no description or discussion and EDAW 2010a, Table 12 does not mention it or include it in the use/date for the site)	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-248	Historic-period refuse scatter 6 cans: milk can, church-key-opened beer can, P-38-opened can, other food cans	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-250	Historic-period cleared area, circle with 2 ear-like projections no artifacts	Other historic site 20th century	Plant site
SMB-H-251	Historic-period cleared areas, 1 oval, 1 circle no artifacts	Other historic site 20th century	Plant site
SMB-H-255	Historic-period refuse scatter 18 cans: sardine can, other food cans, beer cans (some church-key-opened, 1 aluminum soft-top type), can lids	Prospecting/ranching Early 20th century and late 20th century	Linear facilities corridor
SMB-H-256	Historic-period refuse scatter ? cans: military-issue soluble coffee cans glass medicine bottle milled lumber	DTC/C-AMA 1942-1944 (WWII)	Linear facilities corridor
SMB-H-257	Historic-period refuse scatter 9 cans: 7 military ration cans 1 food can 1 liquid can	DTC/C-AMA 1942-1944 (WWII)	Modified linear facilities corridor
SMB-H-258	Historic-period refuse scatter 3 cans: military ration can, church-key-opened beer can, other can glass bottle	DTC/C-AMA 1942-1944 (WWII)	Linear facilities corridor

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-259	Historic-period refuse scatter 4 cans: 2 church-key-opened beer cans 2 aluminum top pull-tab beer can 2 glass bottle fragments	Other historic site, possibly Desert Strike Mid-to-late 20th century	Modified linear facilities corridor
SMB-H-261/262 (AECOM combined sites SMB-H-261 and SMB-H-262 as a result of additional survey (Tennyson and Meiser 2010, p. 3)	Historic-period refuse scatter, bomb crater, 2 historic-period rock and cinder block hearths, burn area 100+ cans: evaporated milk cans, military ration cans, key-wind-opened meat can, pocket tobacco tin with hinged lid china fragment glass bottles with post-1938 maker's mark milled lumber, cinder blocks metal pipe, stove parts, refrigerator, air conditioner parts, automobile parts, bucket, dummy bomb fragments, wire	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Linear facilities corridor
SMB-H-265	Historic-period refuse scatter 75 cans: military ration cans, other food cans glass fragments with 1941 maker's mark	DTC/C-AMA 1942-1944 (WWII)	Linear facilities corridor
SMB-H-283	Historic-period refuse scatter 12 cans: milk cans, other food cans, church-key-opened beer can, fuel can glass bottle with 1935 or 1945 maker's mark	Prospecting/ranching Early 20th century	Plant site
SMB-H-284	Historic-period refuse scatter 11 cans: food cans, fuel can, baking powder can	Prospecting/ranching Early 20th century	Plant site
SMB-H-287	Historic-period refuse scatter 82 car parts 21 glass fragments suggestion that these associated with ranch site 404	Other historic site 20th century Staff assumes this is associated with site SMB-H-404, categorizes this as a Mining and Ranching site and dates it to the 1930s	Plant site
SMB-H-288	Historic-period refuse scatter 2 cans: milk can, other food can car parts, alarm clock parts, gasket suggestion that these associated with ranch site 404	Prospecting/ranching Early 20th century Staff assumes this is associated with site SMB-H-404 and dates it to the 1930s	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-290	Historic-period refuse scatter 10 cans: hole-in-cap milk cans, church-key-opened cans, other food cans (some P-38-opened)	Prospecting/ranching, DTC/C-AMA, and possibly Desert Strike Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-291	Historic-period refuse scatter 5 cans: 1 hole-in-cap milk can 1 church-key-opened beer can 1 fruit or vegetable can, bayonet-opened 1 aluminum top pull-tab beer can 1 fuel can	DTC/C-AMA, possibly Desert Strike 1942-1944 (WWII) mid-late 20th centure	Plant site
SMB-H-401	Historic-period refuse scatter 4 cans: food cans (opened with lever-type, or "jab and lift," opener, 1855-present), can lid, tobacco can with hinged lid	Prospecting/ranching Early 20th century	Plant site
SMB-H-402	Historic-period refuse scatter 4 cans: hole-in-cap milk cans, other food can cans partially embedded in ground, suggesting possible additional remains subsurface	Prospecting/ranching Early 20th century	Plant site
SMB-H-403	Historic-period oil can dump 67 motor oil cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-404	Historic-period ranch 3 stone and concrete structures, watering trough cans (no count or description provided, except that aluminum soft-top beer cans were noted) glass and ceramic fragments vehicle parts sheet metal, pipes, chicken wire cinder blocks, milled lumber, fencing components military ration cans, smoke landmines, munitions casings and clips	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-406	Historic-period refuse scatter 6 cans: sanitary cans, key-wind meat cans, tobacco can with hinged lid wood pile, cluster of quartz rocks	Prospecting/ranching Early 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-M-407	Historic-period refuse scatter 7 cans: military ration can, milk can, other food cans, church-key-opened beer can, can re-used as pail milled lumber one lithic flake isolate	Prospecting/ranching Early 20th century Staff dates this to the DTC/C-AMA, 1942-1944 (WWII)	Plant site
SMB-H-408	Historic-period refuse scatter and possible historic-period rock hearth (rocks thermally altered, no charcoal present) 4 cans: sanitary food cans (knife-cut-circle-opened or rotary-opened) saw-cut faunal bone fragment	Prospecting/ranching Early 20th century	Plant site
SMB-H-409	Historic-period refuse scatter 3 cans: food cans, tobacco can with hinged lid glass soda bottle embossed with “1938” date (no detailed can recordation)	Prospecting/ranching Early 20th century	Plant site
SMB-H-411	Historic-period geoglyph, long narrow oval (possible aerial marker) no associated artifacts	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-413	Historic-period refuse scatter 3 cans: hole-in-top milk cans, coffee can glass jars and glass jar fragments (condiments)	Prospecting/ranching Early 20th century	Plant site
SMB-H-414	Historic-period refuse scatter 5 cans: key-wind meat can, “matchstick filler”-type milk can, other food cans, can lids wire bundle, ironwood firewood pile	Prospecting/ranching Early 20th century	Plant site
SMB-H-415	Historic-period refuse scatter 26 cans: P-38-opened cans, hole-in-cap milk cans, military-issued soluble coffee can, baking powder can, pocket tobacco tin with hinged lid solarized bottle glass fragments	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-416	Historic-period refuse scatter; wooden ramp 5 cans: military ration cans, other food can, milk can, oil can	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-417	Historic-period refuse scatter 6 cans: food can, “matchstick filler”-type milk can, oil cans	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-M-418	Historic-period refuse scatter and rock hearth (rocks thermally affected; 1 rock an assayed cobble) 7 cans: food cans, hinged-lid tobacco cans, milk can, lard pail glass catsup bottle with post-1888 maker’s mark and metal threaded cap	Prospecting/ranching Early 20th century	Plant site
SMB-H-419	Historic-period refuse scatter in 2 loci; wooden ramps locus 1 6 cans: 1 food can, 1 fuel can window glass fragments wire, munitions clips, horseshoe nails, miscellaneous hardware locus 2 5 cans: food cans, hinged-lid can	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-420	Historic-period refuse scatter 9 cans: oval sardine cans, milk cans, other food cans milled lumber piece	Prospecting/ranching Early 20th century	Plant site
SMB-H-423	Historic-period refuse and airplane crash debris scatter 28 cans: military ration cans, military soluble coffee can, milk cans, other food cans (P-38-opened, knife-cut-opened, punched-hole opened, bayonet-opened), fuel can, aluminum soft-top beer cans 300 airplane fragments	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site
SMB-H-424	Historic-period refuse scatter 37 cans: military ration cans, other food cans, military-issue soluble coffee can, milk cans, sardine can, aluminum soft-top beer can, fuel can glass jar wooden lath piece	DTC/C-AMA and possibly Desert Strike 1942-1944 (WWII) and late 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-426	Historic-period refuse scatter 13 cans: knife-cut-opened sanitary cans (11 probably contained liquid, such as fruit juice) modern glass bottle (Anheiser Busch) (partially or nearly entirely buried "in desert pavement"—suggests aggrading environment)	Prospecting/ranching Early 20th century	Plant site
SMB-H-427	Historic-period refuse dump 93 cans recorded (all?): military ration cans, cocoa powder can, other food cans (almost all P-38-opened), spice cans, beer or beverage cans, oil cans glass condiment jar, glass fragments with circa 1939 maker's mark munitions casings (.22 caliber)	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-432	Historic-period structure foundation concrete slab foundation of a cinder-block structure (only stubs of walls left) 1 church-key-opened beer can	Other historic site Mid-20th century	Plant site
SMB-H-439	Historic-period refuse scatter 7 cans: military ration cans, meat can, milk can, other food cans, can lid	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-442	Historic-period refuse scatter 25 cans: military ration can, other food cans (most P-38-opened), spice can, tobacco can with hinged lid, can lids glass bottle fragments, flat glass fragments bucket, crown bottle caps, wire, nail, bucket handles, wire	Prospecting/ranching and DTC/C-AMA Early 20th century and 1942-1944 (WWII)	Plant site
SMB-H-447	Historic-period refuse scatter 10 cans: meat cans, hole-in-cap food cans, Coors beer can	Other historic site 20th century	Plant site
SMB-H-450	Historic-period refuse scatter 7 cans: hole-in-cap food cans, military ration cans, other food cans (most P-38-opened) glass jar with Ball maker's mark (not dateable)	DTC/C-AMA 1942-1944 (WWII)	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-460	Historic-period refuse scatter 8 cans: military ration cans, sardine can, other food can, baking soda can, fuel cans braided wire	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-505	Historic-period refuse scatter 27 cans: military ration can, key-wind meat can, other food cans, milk cans, coffee can, seasoning can, can lid, church-key-opened beer cans, tobacco can with hinged lid 1 glass jar 4 glass bottles 1 glass cup ceramic fragment	Prospecting/ranching Early 20th century Staff dates this to the DTC/C-AMA, 1942-1944 (WWII)	Plant site
SMB-H-507	Historic-period refuse scatter 5 cans: hole-in-cap can, military ration can, aluminum soft-top beer can	Other historic site and possibly Desert Strike 20th century Staff dates this to the DTC/C-AMA, 1942-1944 (WWII)	Plant site
SMB-H-508	Historic-period refuse scatter 5 cans: aluminum soft-top beer cans, food can	Other historic site and possibly Desert Strike 20th century	Plant site
SMB-H-509	Historic-period refuse scatter 3 cans: military ration can, other food can, milk can glass jar fragment with post-1940 maker's mark	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-513	Historic-period refuse scatter 6 cans: hole-in-cap milk can, key-wind meat cans, other food can, aluminum-top pull-tab beer can	Prospecting/ranching and possibly Desert Strike Early and late 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-514	Historic-period wood-frame structures (2), cinder block hearth, arranged cobble feature 1 unidentified wood-frame structure represented by 3 upright posts and baling wire 1 wood-frame outhouse represented by an upright post and a wooden chair with a hole cut out of the plywood seat (no details on shape or mode of construction of the cinder block hearth) 3 circular piles of cobbles aligned N-S sanitary cans* milled lumber, nails, wire (no photographs or drawings of structures or features provided) *(EDAW 2010a, Table 12 indicates cans are present, but site form makes no mention of them)	Prospecting/ranching Early 20th century	Plant site
SMB-H-522/525 (AECOM combined sites SMB-H-522 and SMB-H-525 as a result of additional survey (Tennyson and Meiser 2010, p. 3)	Historic-period refuse scatter and excavated pits with berms 1,000+ cans: military ration cans, other food cans (some P-38-opened), can lids, church-key-opened and aluminum-top pull-tab beer cans, hinged-lid pocket tobacco can, hole-in-cap milk cans, aluminum soft-top beer can, kerosene cans 30 historic-period ceramic fragments 33 glass bottles and fragments bottle caps, cable, scrap metal, lantern, buckets, metal conduit, wash basin, bed frame, car seat, wire, bricks, metal lock, license plate, metal tray, sheet metal milled lumber (no detailed can recordation; glass container maker's marks not noted and/or not researched or dates not provided; and no ceramic identification or dating) 1 cryptocrystalline silicate material (CCS) hammerstone 2 CCS flakes	Prospecting/ranching, DTC/C-AMA, other historic site, possibly Desert Strike, and prehistoric 20th century and 1942-1944 (WWII) Prehistoric	Linear facilities corridor
SMB-H-527	Historic-period refuse scatter 10 cans: military ration cans, key-wind meat cans, other food cans, hole-in-cap milk can, church-key-opened beer can, aluminum soft-top beer cans, fuel can	Other historic site (possibly Desert Strike(?)) Mid-to-late 20th century	Plant site

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-528	Historic-period refuse scatter 15 cans: military ration cans, key-wind meat cans, other food cans, can lid, hole-in-cap milk can, fuel can	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-529	Historic-period refuse scatter 33 cans: military ration cans, other food cans (some p-38-opened), milk can, beer cans milled lumber	DTC/C-AMA 1942-1944 (WWII)	Plant site
SMB-H-600	Historic-period road, N-S-running dirt two-track; site forms says, "associated with the gypsum mines in Midland"	Early 20th century roads Early 20th century	Plant site
SMB-H-601	Historic-period road, N-S-running along a section line between Blythe Airport and a road south of McCoy Wash scattered refuse deposits occur along the road, many dating to the early 20th century and thought to represent sheep ranching in this area	Early 20th century roads Early 20th century	Plant site
SMB-H-CT-001 (Only the incomplete draft site form was available; staff made the cultural component and date determinations.)	Historic-period refuse scatter and four lithic debris concentrations 1 church-key-opened beer can 11+ glass fragments (bottle bases with Owens-Illinois, Hazel Atlas, and Anchor Hocking marks) (glass container maker's marks not researched, dates not provided) Lithic concentration 1: 14 CCS flakes Lithic concentration 2:5 CCS flakes Lithic concentration 3: 11 CCS debitage Lithic concentration 4: 1 biface, cores, debitage, tested cobbles (materials not noted)	Other historic site and prehistoric 20th century Prehistoric	Modified linear facilities corridor
SMB-H-CT-002	Historic-period refuse scatter 11 cans: "primarily food cans" 2 glass jars (Owens-Illinois and Anchor Hocking marks) 2 D-cell batteries, marked, "Mar 1943"	DTC/C-AMA 1942-1944 (WWII)	Modified linear facilities corridor

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-MT-002	Concrete slabs, well head, refuse piles, gravel pile, prehistoric isolate buried materials present—possibly purposeful burial of refuse 100+ cans: oil, food, beverage, meat glass fragments historic-period ceramic fragments building debris dump (no accurate can count, no can recordation, no glass dating, no ceramic identification and dating) 1 basalt scraper	Prospecting/ranching, prehistoric 20th century Prehistoric	Black Rock Road
SMB-H-TC-101 (Only the incomplete draft site form was available; staff made the historic-period cultural component and date determinations.)	Historic-period refuse scatter and round milled post; prehistoric lithics and ceramics (pot drop?) 3 cans: military ration can, knife-tip-opened evaporated milk can, jab-lift-opened sanitary can 1 quartzite flake 10 Colorado Buffware sherds	DTC/C-AMA and prehistoric 1942-1944 (WWII) Prehistoric	Modified linear facilities corridor
SMB-H-TC-102 (Only the incomplete draft site form was available; staff made the cultural component and date determinations.)	Historic-period refuse scatter 13 cans: 2 military ration cans 3 evaporated milk cans (1 knife-tip-opened, 1 ice-pick opened) 1 jab-lift-opened sanitary can 2 coffee cans (1 interior friction lid, 1 key-strip-opened) 1 shoe polish can 1 paint can	DTC/C-AMA 1942-1944 (WWII)	Modified linear facilities corridor
SMB-H-TC-103 (Only the incomplete draft site form was available; staff made the historic-period cultural component and date determinations.)	Historic-period refuse scatter; prehistoric isolate 9 cans: 3 knife-tip-opened evaporated milk cans 1 military ration can 2 sanitary cans, 1 circle-slice-opened, 1 center-opened 1 film can 1 quartzite mano	DTC/C-AMA and prehistoric 1942-1944 (WWII) Prehistoric	Modified linear facilities corridor

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
SMB-H-TC-104	Historic-period refuse scatter 17 cans: evaporated milk, beverage, sanitary, oil .30 caliber rifle cartridges (no count) 1 baking pan	DTC/C-AMA 1942-1944 (WWII)	Modified linear facilities corridor
SMB-H-WG-101 (Only the incomplete draft site form was available; staff made the cultural component and date determinations.)	Historic-period refuse scatter 120+ cans and glass fragments: 2 military ration cans 25 sanitary cans 3 internal friction lid cans 7 evaporated milk cans 2 rotary-opened cans 1 fruit juice can 5 beverage cans 1 coffee can 1 tobacco tin 1 paint can 4 gasoline cans 1 amber glass liquor bottle 1 aqua glass soda bottle 1 clear glass molasses bottle 4 green glass bottle fragments 1 sauce pan 2 buckets	DTC/C-AMA 1942-1944 (WWII)	Modified linear facilities corridor
SMB-H-WG-102	Historic-period refuse scatter and prehistoric pot drop 80+ cans: 23 military ration cans and 7 can lids 18 evaporated milk cans 12 sanitary cans 9 bayonet-opened 1 P-38-opened 1 external friction lid 1 bayonet-opened oval sardine can 1 church-key-opened meat can 1 screw-top baking powder can 2 church-key-opened beverage cans 1 cone-top beer can 1 crown bottle cap 1 fuel can 11 oil cans 15 Colorado Buffware sherds	DTC/C-AMA and prehistoric 1942-1944 (WWII) Prehistoric	Modified linear facilities corridor
<u>Ethnographic Resources</u>			
Kokopelli and Cicimitl geoglyphs and possible trails	geoglyphs, trail segments (?)	Prehistoric or ethnographic	Linear facilities corridor

Resource Type and Identifying Number[17]	Resource Description[18]	Cultural Components and Dates	Location
Built-Environment Resources			
Blythe Army Air Base reservoir	water storage facility	DTC/C-AMA 1942-1944 (WWII)	linear facilities corridor
Radio communications facility	building and equipment	Other historic site Mid-to-late 20th century	linear facilities corridor
SMB-H-MT-104	Blythe-Eagle Mountain electrical transmission line segment (approximately 1.500 feet long) wooden H-frame supports	Other historic site Mid-late 20th century	Modified linear facilities corridor
Archaeological District			
Prehistoric Quarries Archaeological District (PQAD)	Gravel deposits used as toolstone sources and associated fire features and lithic reduction loci.	Prehistoric	Plant site
Cultural Landscapes			
Prehistoric Trails Network Cultural Landscape (PTNCL)	Halchidhoma Trail, the associated joining and diverging trails (and trail-related features such as pot drops and rock cairns), and the varied loci of importance to prehistoric Native Americans that these trails connected	Prehistoric	In and around BSPP
DTC/C-AMA Cultural Landscape (DTCCL)	Archaeological remains of WWII military training activities across the entire region	1942-1944 (WWII)	In and around BSPP

C.3.5. DETERMINING THE HISTORICAL SIGNIFICANCE OF CULTURAL RESOURCES

CEQA requires the Energy Commission, as a lead agency, to evaluate the historical significance of cultural resources by determining whether they meet several sets of specified criteria. Under CEQA, the definition of a historically significant cultural resource is that it is eligible for listing in the CRHR, and such a cultural resource is referred to as a "historical resource," which is a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR", or "a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of section 5024.1 (g) of the Public Resources Code," or "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record" (Cal. Code Regs., tit. 14, § 15064.5(a)). The term, "historical resource," therefore, indicates a cultural resource that is historically significant and eligible for the CRHR.

Consequently, under the CEQA Guidelines, to be historically significant, a cultural resource must meet the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old,[21] a resource must meet at least one (and may meet more than one) of the following four criteria (Pub. Resources Code, § 5024.1):

- Criterion 1, is associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion 2, is associated with the lives of persons significant in our past;
- Criterion 3, embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values; or
- Criterion 4, has yielded, or may be likely to yield, information important to history or prehistory.

Historical resources must also possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance (Cal. Code Regs., tit. 14, § 4852(c)).

Additionally, cultural resources listed in or formally determined eligible for the National Register of Historical Places (NRHP) and California Registered Historical Landmarks numbered No. 770 and up are automatically listed in the CRHR and are therefore also historical resources (Pub. Resources Code, § 5024.1(d)). Even if a cultural resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows a lead agency to make a determination as to whether it is a historical resource (Pub. Resources Code, § 21084.1).

The assessment of potentially significant impacts to historical resources and the mitigation that may be required of a proposed project to ameliorate any such impacts depend on CRHR-eligibility evaluations.

C.3.5.1. APPROACHES TO CRHR ELIGIBILITY EVALUATIONS OF CULTURAL RESOURCES IN THE BSPP PAAS

Under CEQA, only CRHR-eligible cultural resources that the proposed project could potentially impact need be considered in staff's recommendations for mitigation measures for project impacts. Consequently, staff seeks CRHR eligibility recommendations for those cultural resources subject to possible project impacts. The existing documentation for previously known cultural resources may include CRHR eligibility recommendations, and the applicant's cultural resources consultants may make CRHR eligibility recommendations for newly identified cultural resources they discover and record in their project-related surveys.

To determine which of the cultural resources in the project's inventory are eligible for the CRHR, staff usually obtains additional data on the resources likely to be impacted by

[21] The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a potential five-year lag in the planning process.

the proposed project. Staff typically concludes all investigations necessary to identify, evaluate the CRHR eligibility of, and assess a proposed project's impacts to the cultural resources in a project's areas of analysis prior to the Energy Commission certification of the project. Where CRHR-eligible cultural resources are impacted, the conclusion of these investigations prior to certification enables staff to develop refined measures to mitigate significant impacts.

With the submission to the Energy Commission in August, 2009, of near simultaneous applications from five large solar power projects on BLM-managed lands, all having a very short time frame in which to qualify for American Recovery and Reinvestment Act (ARRA) funds, staff developed a more accelerated approach to the pre-certification review of cultural resources. Accepted by the BLM, the State Historic Preservation Officer (SHPO), and the Energy Commission legal department, this approach, in November, 2009, was offered exclusively to the applicants for four of these projects: Genesis Solar Energy Project, Blythe Solar Power Project, Palen Solar Power Project, and Ridgecrest Solar Power Project, and in December, 2009, the applicants for these four projects, including BSPP, accepted this approach.

With this approach, staff expected to ensure the thorough consideration and treatment of all of the identified resources through consultation among all stakeholders and execution of a Programmatic Agreement (PA)[22], which staff subsequently would incorporate, by reference, into the final Energy Commission-BLM joint document, the Supplemental Staff Analysis/Final Environmental Impact Statement. The primary benefit of this approach was, where cultural resources are many and project impacts are wide-scale, a substantial reduction, prior to certification, of time spent data-gathering for evaluations and of time spent writing cultural resources evaluation assessments.

In staff's BSPP SA/DEIS, under this approach, staff did not evaluate the historical significance of each individual resource, but, rather, assumed that all of the known resources were eligible for the NRHP and the CRHR, with the exception of any resources for which staff had sufficient information in hand to determine the resource's ineligibility for either register. Additionally, staff assumed that the project's impacts to all assumed register-eligible resources would have to be mitigated by means of avoidance or data recovery.

The BLM decided in April, 2010, to produce for the BSPP, the Genesis Solar Energy Project, the Palen Solar Power Project, and the Ridgecrest Solar Power Project separate final environmental documents from those of the Energy Commission. Consequently, the Energy Commission, no longer bound by the BLM's need for long

[22] In accordance with 36 CFR § 800.14(b), PAs are used for the resolution of adverse effects to cultural resources for complex project situations and when effects on historic properties(resources eligible for or listed in the NRHP) cannot be fully determined prior to approval of an undertaking. The BLM will prepare a PA in consultation with the ACHP, the SHPO, the Energy Commission, interested Native American groups, and the public at large (including tribal governments as part of government to government consultation). The PA will govern the conclusion of the identification and evaluation of historic properties (eligible for the NRHP) and historical resources (eligible for the CRHR), as well as the resolution of any significant effects that may result from the proposed or alternative actions. Historic properties and historical resources are significant prehistoric and historic cultural resources as determined by Energy Commission and BLM staff.

public review periods, decided to issue its final documents for the projects considerably earlier than had originally been scheduled. Together these two decisions foreclosed Energy Commission cultural resources staff's plan, under the approach discussed above, to incorporate into the BLM's PA the BSPP impact mitigation measures required under CEQA. Instead, staff has written and will recommend to the BSPP Siting Committee conditions of certification to provide for the project impact mitigation staff has identified as necessary.

At this time it is uncertain whether BLM's PA will require a conventional NRHP- and/or CRHR-eligibility assessment phase for all or part of the BSPP cultural resources inventory, but this possibility has caused staff to reconsider its recommended field protocols under staff's current approach, so as to incorporate register-eligibility assessment. In anticipation of BLM's possible change of approach, and wanting to facilitate an easier reconciliation between the requirements of the Commission's conditions of certification and those of the BLM's PA, Energy Commission staff has included in its recommended conditions of certification the register-eligibility assessment of each cultural resource, but not as a separate phase. Rather, staff has provided for register-eligibility assessment in an abbreviated form, known in Cultural Resources Management practice as a "compressed Phase II-Phase III." Essentially this means each archaeological site would be re-visited once, fully recorded (if this was not already done), and tested for its information values ("Phase II"). If those meet the criteria for NRHP and/or CRHR eligibility, data recovery ("Phase III") would ensue during the same visit.

If buried deposits are not present at an archaeological site, the field portion of data recovery will be considered complete at that site, and ground disturbance by the applicant may begin in that location prior to the completion of a formal cultural resources report. Staff expects that the recommended Cultural Resources Monitoring and Mitigation Plan (CRMMP) (**CUL-5**) will contain detailed plans for the compressed Phase II-Phase III activities at each site.

The compressed Phase II-Phase III protocol differs only slightly from the "phased" protocol staff expected to recommend under the approach employed in the SA/DEIS, as originally presented to the BSPP applicant. The original protocol also would have entailed a single site visit for the conduct of progressively more data-extractive activities until a representative sample of the data that make the site register-eligible was achieved. The compressed Phase II-Phase III protocol just adds a field determination of register-eligibility, based on a list of established criteria, and a brief consultation with the CEC and BLM by telephone. In contrast, if BLM's PA includes a conventional Phase II NRHP-eligibility assessment, field teams would

- go into the field and re-visit all sites,
- test them for information values,
- leave the field,
- write a report with recommendations on each site's eligibility and a proposal of data recovery procedures,

- receive concurrence or arrive at agreement on eligible sites and data recovery procedures, and
- return to the field to undertake data recovery.

One of the biggest costs of cultural resources field work is getting "geared up": marshalling staff, renting equipment, arranging lodging, traveling to the location, etc. For the compressed Phase II-Phase III protocol, gearing up would only have to happen once, which saves time and money. Moreover, at the discretion of the archaeologist, the excavation of buried features (a Phase III activity) could begin prior to the completion of determining the extent of the site (a Phase II activity) to further accelerate the process of data recovery.

Consequently, staff believes this modification to the previous approach will not increase the cost of the recommended mitigation or require more time to complete. Making this change to the previous approach is justified to have conditions that can more readily be reconciled with BLM's requirements in their PA.

One final aspect of staff's register-eligibility assessment is which register, the NRHP or the CRHR, staff considered in making BSPP cultural resources evaluations in this document. For the SA/DEIS, staff considered both because, under NEPA and Section 106, BLM must consider NRHP eligibility, while Energy Commission staff must make CRHR eligibility determinations to identify historical resources for CEQA purposes. For this RSA, staff is not required to make NRHP determinations for CEQA purposes. But for some cultural resources located within BSPP's PAAs, staff has opted to consider NRHP eligibility because the federal guidelines for NRHP eligibility for some kinds of resources are more developed than state guidance. This is the case for cultural landscapes and for Traditional Cultural Properties, both of which are important resource types in the regional cultural resources inventory. Moreover, once a resource has been listed in or formally determined eligible for the NRHP, it is automatically listed on the CRHR, and thus is a historical resource under CEQA. Staff's determinations of NRHP eligibility in this document should be considered as recommendations. Final NRHP determinations will be made by BLM staff.

C.3.5.2. CRHR EVALUATIONS OF CULTURAL RESOURCES IN THE BSPP PAAS

Energy Commission staff has determined for each cultural resource subject to potential impacts from the BSP its CRHR eligibility and for some, additionally, their NRHP eligibility. Staff has considered only archaeological sites, and has not considered archaeological isolates, as distinguished by AECOM.

Energy Commission staff assumed that all archaeological sites that would be impacted would be eligible for one or both registers (see previous subsection), so staff focused its evaluation efforts on the 203 resources (2 cultural landscapes, 1 archaeological district, and 201 individual archaeological resources) expected to be directly impacted by the BSPP. The goal of this evaluation was to determine if any of these 203 resources were not eligible so avoidance or mitigation would be unnecessary.

Ineligible Cultural Resources

Historic-Period Archaeological Sites

On the basis of the information provided in the site forms, staff was able to determine some identified individual historic-period archaeological resources ineligible for the CRHR. It is staff's professional opinion that the majority of historic-period refuse scatters, once sufficient data have been recorded to establish their accurate location, their age, and their general contents, have little more to contribute to our knowledge of the use of the Palo Verde Mesa in the historic period. Thus staff has determined that the 28 sites AECOM categorized as "Twentieth-Century Prospecting and Ranching" and the 13 sites AECOM categorized as "Other Historic Period" refuse scatters, when no other features or structures are present, are not eligible for the CRHR because they do not qualify under Criterion 4.

These ineligible sites are listed in Cultural Resources Table 3. Those Twentieth-Century Prospecting and Ranching sites that staff did assume eligible and the assumed-eligible DTC/C-AMA/ DTCCL sites are listed in Cultural Resources Table 4.

CULTURAL RESOURCES TABLE 3
Ineligible Historic-Period Archaeological Sites (Refuse Scatters)

Twentieth-Century Prospecting and Ranching	Other Historic Period
SMB-H-116	SMB-H-127
SMB-H-119	SMB-H-170
SMB-H-120	SMB-H-183
SMB-H-124	SMB-H-198
SMB-H-145	SMB-H-199
SMB-H-161	SMB-H-209
SMB-H-173	SMB-H-213
SMB-H-176	SMB-H-221
SMB-H-177	SMB-H-227
SMB-H-179	SMB-H-250
SMB-H-194	SMB-H-255
SMB-H-197	SMB-H-259
SMB-H-202	SMB-H-447
SMB-H-204	
SMB-H-218	
SMB-H-231	
SMB-H-401	
SMB-H-402	
SMB-H-406	
SMB-H-408	
SMB-H-409	
SMB-H-413	
SMB-H-414	
SMB-H-418 (historic component only)	
SMB-H-420	
SMB-H-426	
SMB-H-513	
SMB-H-CT-001 (historic component only)	

Built-Environment Resources

AECOM's recorder of the archaeological site form for the Blythe-Eagle Mountain transmission line made no recommendations regarding the eligibility of this built-environment resource for the CRHR. Energy Commission staff in the Genesis Solar Energy Project RSA, however, provided historical background information and a CRHR eligibility determination for this resource, as excerpted below.

The Blythe-Eagle Mountain transmission line is associated with regional population growth in the Colorado River Valley during the 1950s. In 1940 the population of Blythe was approximately 2,350, and by 1950 the population was over 4,000, reflecting a post-WW II boom in population occurring throughout the state. New industries and new residents came to California, including thousands of military men and their families. As populations grew, more utility customers were added, prompting Southern California Edison and other electrical companies to expand their services. This growth meant that more lines were constructed and extended. In the 1950s, when the Blythe-Eagle Mountain transmission line was constructed, Blythe's fertile agricultural lands and the expansion of rail and automobile transportation brought new residents to the area (Bagwell and Bastian 2010, p. C.3-138).

Typically, electrical transmission and distribution facilities that are evaluated CRHR-eligible achieve that status by way of their association with other historically significant facilities (that is, eligibility under Criterion 1). Borrowed from telegraph transmission technology, wood-pole support structures such as those used in the 161-kV Blythe-Eagle Mountain Transmission Line have been used for electrical transmission or distribution lines from the outset, and the technology has changed very little. The common and non-distinctive nature of wood-pole transmission or distribution line structures disqualify them as potentially CRHR-eligible under Criterion 3, being purely functional and utilitarian in use and common in appearance. A wood-pole transmission or distribution line could, however, be significant under Criterion A and/or Criterion B by way of an association with a significant facility (Bagwell and Bastian 2010, p. C.3-138).

Staff, in the Genesis Solar Energy Project RSA, concluded that the 161-kV Blythe-Eagle Mountain Transmission Line was not eligible for inclusion in the CRHR. Evaluated under Criterion 1, this linear resource was not associated with events that have made a significant contribution to broad patterns in our history. Rather it represented a common trend within the context of residential development of the United States after World War II. Research did not indicate that this transmission line was associated with any historically significant persons, and so it did not appear to be eligible under Criterion 2. Under Criterion 3, this transmission line does not embody a distinctive type, period, or method of construction. Instead, it represents a fairly standardized type and construction method shared with telegraph lines. This resource is also not eligible under Criterion 4 because it is unlikely to yield information important to history (Bagwell and Bastian 2010, p. C.3-138).

Ethnographic Resources

On the basis of the information provided by AECOM or otherwise gathered, staff determined ineligible for the CRHR the Kokopelli and Cicimitl geoglyphs identified by representatives of La Cuna de Aztlan Sacred Sites Protection Circle as Native American

sacred sites possibly subject to impact from construction in the BSPP's linear facilities corridor.

The BLM's Palm Springs Field Office archaeologist informed staff that two studies of the Kokopelli and Cicimitl geoglyphs, one done by AECOM, for the applicant, and the other by LSA, for BLM, concluded that these geoglyphs are recent in origin (Kline 2010). These conclusions were based on reviews of historic maps and aerial photography, showing that these geoglyphs did not exist prior to 1994. Additional evidence for a recent origin was observed in the lack of desert patina on many rock surfaces and in the superimposition of the rocks composing the geoglyphs over wheeled vehicle tracks and over the scars left by mechanized gravel removal (assumed to be for landscaping purposes).

To be eligible for the CRHR, a cultural resource must be 50 years old or older unless exceptionally significant, and the evidence is conclusive that the Kokopelli and Cicimitl geoglyphs are less than 50 years old. No evidence is currently available to make the case for these features to be considered exceptionally significant. They are also not listed as sacred sites with the Native American Heritage Commission, which sent the Chemehuevi Tribe a Sacred Lands File Record Form to facilitate their identifying sites and resources of importance to the Tribe (Singleton 2010). For these reasons staff has determined the Kokopelli and Cicimitl geoglyphs are ineligible for the CRHR.

While the members of La Cuna de Aztlan Sacred Sites Protection Circle consider the Kokopelli and Cicimitl geoglyphs to be sacred sites and may conduct spiritual activities associated with them, the protections afforded by California cultural resources law do not apply to these features, and so Energy Commission staff cannot recommend conditions of certification requiring avoidance or data recovery to mitigate for BSPP impacts to them.

Eligible Cultural Resources

Staff was unable, on the basis of the information provided in the site forms, to determine any identified individual archaeological resources eligible for the CRHR. Data insufficiencies contributing to staff's assuming eligibility for archaeological resources included inconsistent or incongruous field recording and site form data omissions.

Entry A13, "Site Interpretation" on the DPR 523A site forms, was consistently truncated on all forms after two lines of discussion. So, some of the most important information about the archaeological sites was often missing from the forms.

For prehistoric lithic scatter sites, some lacked site size data and/or had indecipherable site plan scales that made it impossible to determine if the Office of Historic Preservation's recordation program for small lithic scatters (called CARIDAP) would apply to them. Since CARIDAP recordation was AECOM's recommended mitigation for impacts to these sites, the lack of site size data made it impossible for staff to determine whether AECOM's recommended mitigation was appropriate. An additional problem was that some lithic scatter sites had site plans that seemed to indicate that recordation at the sites was done only on sample units, leaving the possibility that the entire sites

were not recorded. The site forms did not elucidate this situation, but rather reported artifact counts as though they were totals for the entire site.

If staff's standard cultural resources evaluation process had been applied to this project, the great majority of these site form data deficiencies would have been corrected by means of data requests, and staff would then have made eligibility determinations. But because, for the SA/DEIS, staff was assuming all identified resources were register-eligible, the data in the site forms were all that staff had on which to base eligibility determinations, and, similarly, those data are all staff now has for this RSA. These data were not and are not sufficient for a definitive determination. In fairness to AECOM, when they did their fieldwork they were operating under the usual cultural resources management survey and evaluation protocols, and so they carried out their site recordation with the entirely reasonable expectation of conducting additional fieldwork to gather data for site eligibility determinations. Under the eligibility assessment approach staff used for the SA/DEIS, AECOM did not, nor will they have that opportunity, prior to Energy Commission certification.

AECOM's architectural historian recommended the WWII Blythe Army Air Base (BAAB) as potentially eligible for both the NRHP and the CRHR under two eligibility criteria. Under Criterion A (NRHP)/Criterion 1 (CRHR), it is potentially eligible for its association with the early stages of the Desert Training Center and for its association with an important and unique period of development for the Blythe community and the Palo Verde Mesa. The possibility that the BAAB may contain archaeological deposits holding data important in history makes it also potentially eligible under CRHR Criterion 4. The BAAB reservoir, as one of the components of the base, is therefore potentially eligible for both the NRHP and the CRHR (EDAW 2009d, pp. 26–27). Staff accepts this recommendation and determines this resource eligible for the CRHR.

Cultural Resources Assumed Eligible for the CRHR

Cultural Landscapes and an Archaeological District

As discussed above, through its examination of the archaeological data, staff identified two assumed-register-eligible cultural landscapes (historic districts) and an assumed-register-eligible archaeological district. All of the prehistoric archaeological sites and the archaeological district contribute to the Prehistoric Trails Network Cultural Landscape (PTNCL). Specific prehistoric archaeological sites (quarries, thermal cobble features, and lithic chipping stations) contribute to the Prehistoric Quarries Archaeological District (PQAD). All of the World War II-era DTC/C-AMA historic-period archaeological sites contribute to the DTC/C-AMA Cultural Landscape (DTCCL).

Staff did not have sufficient data to determine the register eligibility of the PTNCL, the DTCCL, or the PQAD. So staff assumed the PTNCL, the DTCCL, and the PQAD are eligible for both the NRHP and the CRHR, and BSPP impacts to them must be avoided or mitigated.

The Prehistoric Trails Network Cultural Landscape

The PTNCL consists of the Halchidhoma Trail and the associated joining and diverging trails (and trail-related features such as pot drops and rock cairns), and the varied loci of

importance to prehistoric Native Americans that these trails connected. These loci include springs (and the dry lakes when they were not dry), food and materials resource areas, and ceremonial sites (geoglyphs, rock alignments, petroglyphs).

Staff did not have sufficient information to determine the boundaries and period of significance of the assumed-eligible PTNCL, nor was staff able to specify definitively all of the contributors to the district. But BSPP cumulative impacts (see "Cumulative Impacts and Mitigation," below) to this resource and direct impacts to its contributors must be mitigated. Below, staff recommends mitigation for cumulative impacts which would entail further research to determine the PTNCL boundaries, its period of significance, and contributing resources.

Prehistoric Quarries Archaeological District

Staff also identified a discontiguous prehistoric archaeological district, described above, encompassing prehistoric quarry sites and associated thermal cobble and chipping station features.

BLM archaeologists in the late 1980s conducted field studies on a number of prehistoric pebble terrace quarries on the Palo Verde Mesa and recommended to the State Historic Preservation Officer (SHPO) that, due loss of integrity from modern disturbances, these sites, among them CA-Riv-2846 and CA-Riv-3419 (identified by staff as contributors to the PQAD), were not individually eligible for the NRHP. The SHPO concurred on July 5, 1989, with BLM's determination. Ineligibility for the NRHP does not automatically make a cultural resource ineligible for the CRHR, however, and a contributor to an eligible cultural landscape or archaeological district does not have to be individually eligible. Moreover, staff believes this 20+-year-old determination should be re-considered, as should any determination more than five years old of an extant archaeological resource.

Staff did not have sufficient information to determine the boundaries and period of significance of this assumed-eligible district, nor was staff able to specify definitively all of the contributors to the district. But BSPP impacts to this district must be avoided or mitigated. Below staff recommends mitigation for project impacts on this resource which would entail further field work to determine the district boundaries, the period of significance, and any additional contributing resources, and if appropriate, nominate the PQAD to the CRHR and NRHP as an archaeological district.

The DTC/C-AMA Cultural Landscape

The DTC/C-AMA is a designated California Historical Landmark (#985). As defined by staff, the DTC/C-AMA Cultural Landscape (DTCCL) consists of all the archaeological remains of the DTC/C-AMA WWII military training activities that were conducted across the entire region. These sites are highly significant for their association with Gen. George S. Patton and for their ability to contribute to our understanding of how American soldiers were trained during WWII. As represented at the BSPP, these remains consist primarily of refuse scatters and dumps, with some fortified positions, cleared areas, and possible tent camps, plus the remains of a structure evidencing possible weapons testing.

The DTC/C-AMA was nominated as a historic district for listing in the NRHP in 1980, but at that time the resource was not yet 50 years old, and it was not listed. Staff has assumed an eligible DTC/C-AMA cultural landscape exists in and around the BSPP. The period of significance would be 1942–1944, but associated resources could date from 1942–1955, as it is known that the Army carried on de-commissioning activities at the DTC/C-AMA particularly the recovery of live ordnance, in the early 1950s.

The DTCCL extends beyond the boundaries and impacts of the BSPP, and its definition and management must encompass the remaining BLM-managed land where the landscape exists. Staff did not have sufficient information to determine the boundaries of the assumed-eligible DTC/C-AMA Cultural Landscape (historic district), nor was staff able to specify definitively the contributors to the district. But BSPP cumulative impacts (see C.3.x. "Cumulative Impacts and Mitigation," below) to this resource and direct impacts to its contributors must be mitigated. The author of a recent and much-consulted study, Matt C. Bischoff, has proposed the re-nomination of the DTC/C-AMA (Bischoff 2009). Below, staff recommends mitigation for cumulative impacts which would entail further research to document the resource, determine its boundaries, its period of significance, and the contributing resources, and, if appropriate, nominate the DTC/C-AMA to the NRHP as a cultural landscape.

Assumed-Eligible Individual Resources in the BSPP PAAs

Staff had insufficient information to make a determination on the CRHR eligibility of the identified resources and so assumed CRHR eligibility for the resources discussed below. Impacts to these resources would have to be avoided or mitigated by means of data recovery.

Because of data insufficiency, staff is assuming eligibility for the following 10 prehistoric lithic scatter sites: SMB-P-160, SMB-P-228, SMB-P-238, SMB-P-241, SMB-P-244, SMB-P-249, SMB-P-252, SMB-P-530, SMB-P-531, and SMB-P-532.

Because they are contributors to the PTNCL, staff is also assuming eligibility for the prehistoric trail site (SMB-P-410) and for the three prehistoric "pot drop" sites (CA-Riv-1136, SMB-M-TC-101, and SMB-M-WG-102).

SMB-P-214, a thermal cobble feature, and the hearth feature at SMB-H-164, while not in the PQAD, as examples of a rare prehistoric site type in the desert—the fire feature—must be assumed eligible for the CRHR.

For historical archaeological sites, site form recording inconsistencies between recorders and seeming incongruities in the co-occurrence of certain can types and can traits caused staff concern as to whether dateable can traits were correctly identified in the field. Misidentification could have resulted in a number of sites that may date to the DTC/C-AMA period being incorrectly interpreted as dating to the early twentieth century or to the Desert Strike use of the mesa. Misidentification would also result in multi-component sites with some cans ostensibly dating to the early twentieth-century and some to the DTC/C-AMA era having incorrect artifact counts if all the cans actually date to the DTC/C-AMA era. These uncertainties could contribute to problems in correctly determining contributors to the DTCCL that staff identified and determined CRHR-

eligible, if sites that could be contributors are not considered and if the basis for determination of contributors is the number of artifacts representing the period of significance, and that count is incorrect.

The above data problems, and the need for all contributors to DTCCL to be correctly identified, led staff in the SA/DEIS to assume eligibility for all of the refuse deposit sites having artifacts predating 1955. In this RSA, staff has opted to attribute any historic-period refuse deposit whose site form has clearly identifiable DTC/C-AMA-era artifacts to the DTC/C-AMA and DTCCL, regardless of the accuracy of dating any other materials at a refuse scatter site and regardless of their age and association. This is justified because only the DTCCL contributing refuse scatters can be assumed NRHP-eligible. Thus staff has revised earlier evaluations and has determined a number of historic-period refuse scatters ineligible for the CRHR (see above).

AECOM identified two historic roads dating to the early twentieth century, according to historic maps. They (SMB-H-600 and SMB-H-601) are both dirt two-tracks, and AECOM recorded them in a minimal way on a DPR 523A—the archaeological site form. This did not provide sufficient information for staff to make a determination on the eligibility of the two roads, so staff must assume they are eligible for the CRHR, and BSPP impacts to them must be avoided or mitigated.

AECOM's architectural historian recommended the built-environment resource, the 1950 radio facility, as not eligible for the NRHP or the CRHP. The only justification for the recommendation was that the facility appeared to have undergone significant alteration and did not retain sufficient integrity to be eligible (EDAW 2009e, p. 27). Insufficient information was provided on the facility for staff to make an independent determination on the facility's eligibility, so it must be assumed eligible for both the NRHP and the CRHR, and any BSPP impacts to it must be avoided or mitigated.

C.3.6. METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE OF IMPACTS TO HISTORICAL RESOURCES

Under CEQA, "a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" (Pub. Resources Code, § 21084.1). Thus, staff analyzes whether a proposed project would cause a substantial adverse change in the significance, that is, the CRHR eligibility, of all historical resources identified in the Cultural Resources Inventory as CRHR eligible. The degree of significance of an impact depends on:

- The cultural resource impacted;
- The nature of the resource's historical significance;
- How the resource's historical significance is manifested physically and perceptually;
- Appraisals of those aspects of the resource's integrity that figure importantly in the manifestation of the resource's historical significance; and
- How much the impact will change those integrity appraisals.

Staff usually applies the above criteria to power plant projects, but, under the previous evaluation approach employed for the SA/DEIS, staff assumed all project-related direct,

indirect, and cumulative construction impacts would be significant, as applied to known cultural resources located in the PAAs that staff did not determine to be ineligible for either the NRHP or the CRHR. Staff, however would not assume that all direct, indirect, and cumulative construction impacts to yet-to-be-discovered cultural resources would also be significant. Rather, those impacts would be assessed at the time of discovery, applying the above criteria.

C.3.6.1. Identification and Assessment of Direct Construction Impacts

To determine the BSPP's impacts, staff developed an alternate concept of the area in which cultural resources would be impacted by the project as one large, three-dimensional spatial block—an "impact block," entailing the full extent of the project's below-grade impacts (inclusive of all foundations and trenches) and above-grade impacts (inclusive of all above-ground facilities), and delimiting both the project's physical impacts to surficial and buried cultural resources and perceptual impacts to the settings of built-environment resources. Staff's assessment of the BSPP's impacts to register-eligible and assumed-register-eligible cultural resources entails assuming as well that all cultural resources located within the impact block would be significantly impacted by the project and that these impacts would require mitigation.

Staff asked Palo Verde 1 to provide graphical representations of their potential "impact block," and received two figures showing the anticipated disturbance below ground and the anticipated aboveground intrusion into the flat landscape. From these (Solar Millennium 2010b, figs. DR-CR-120a and b), staff concludes that:

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

From this, staff has determined that all archaeological resources, determined and/or assumed register-eligible, known and possibly yet to be discovered during construction, and located within the BSPP's impact block, would be significantly impacted by the BSPP's construction. Staff has also determined that the integrity of setting and integrity of feeling of all known built-environment resources, determined and/or assumed

register-eligible and located within the BSPP's impact block, would be significantly impacted by the construction of the BSPP.

The adjustments to the BSPP's eastern plant site boundary resulted in a re-routing of the project's four proposed drainage channels. The northernmost re-routed drainage outlet appears to create a regime of scouring and sediment deposition for archaeological sites located west of the pebble terrace, which would create a barrier to the diverted water. This would probably result in variable erosion and sediment deposition at these archaeological sites, depending on the volume of the flow. In addition to the one surface prehistoric thermal cobble site in this area, staff believes this location has the potential for buried thermal cobble features. While staff does not consider additional sediment deposition in this area a significant impact, staff does consider erosion that could expose and disturb buried features here a significant impact. The outlet to the south of these two appears to subject additional archaeological sites to erosion, which, again, staff considers a significant impact. Outflow from the southernmost outlet appears not to impact any archaeological sites.

Mitigation necessary to reduce the project's impacts to Worker Safety and Fire Protection may result in the construction of a new fire station somewhere along I-10 near the Ford Dry Lake Road interchange. Because the exact location of the fire station has not yet been determined, any impacts resulting from this eventuality are speculative at this time. In general, impacts resulting from the construction and operation of such a fire station could include direct and indirect impacts to archaeological sites, built-environment resources, and ethnographic resources, and cumulative impacts to the two cultural landscapes identified by staff as region-wide CRHR-eligible resources. The fire station would be outside the jurisdiction of the Energy Commission and would likely be constructed by the Riverside County Fire Department, subject to environmental review and permitting by Riverside County. Staff recommends that if significant impacts are identified, that the County require mitigation to reduce such impacts to less than significant.

Applicant's Recommended Mitigation Measures for BSPP Direct Impacts

AECOM provided recommendations for mitigation in their revised survey report (EDAW 2010a, Table 18). For prehistoric archaeological sites, they recommended either CARIDAP recordation (for sites without features) or archaeological testing (for sites with features), with two exceptions. They did not recommend mitigation for CA-Riv-1136, which they consider outside their project footprint, or for SMB-H-452, which they did not identify as having a possible prehistoric thermal cobble feature, but which staff did so identify. Staff assumes that had AECOM so identified that site, they would have recommended archaeological testing, as they did for all other thermal cobble feature sites.

For historic-period archaeological sites, AECOM recommended testing for all sites with features, but recommended no mitigation for sites without features. Under that protocol, no further archaeological investigation would be done at the great majority of historic-period refuse deposit sites of whatever age or association, with the exception of six dump sites.

BLM Mitigation for Significant Impacts

BLM cultural resources staff is in the process of making evaluations of those cultural resources that BSPP could impact, which they will detail in their Final Environmental Impact Statement. BLM staff at this time is also in the process of formal consultation under NRHP Section 106 to develop a Programmatic Agreement (PA), as allowed under 36 CFR § 800.14(b). PAs are used for the resolution of adverse effects for complex project situations and when effects on resources eligible for or listed in the NRHP cannot be fully determined prior to approval of an undertaking.

As a result of the anticipated significant effects of the proposed action on cultural resources and the large geographic extent of the BSPP potential effects, BLM staff is preparing a PA in consultation with the Advisory Council on Historic Preservation, the State Historic Preservation Officer, the Energy Commission, interested Native American groups, (including tribal governments as part of government-to-government consultation) and the public at large. The PA will govern the conclusion of the identification and evaluation of cultural resources subject to BSPP impacts, as well as the resolution of any significant effects on historic properties (significant prehistoric and historic cultural resources, as determined by BLM staff) that may result from the proposed or alternative project construction and operation activities. Treatment plans for historic properties that cannot be avoided by project construction will also be developed in consultation with stakeholders, as stipulated in the PA.

The final version of the BSPP PA will be executed no later than the BLM's signing of the Record of Decision for the Right-of-Way grant for the project. When the PA is executed and fully implemented, BLM will have fulfilled the requirements of NEPA and Section 106 of the NHPA.

The mitigation measures that Energy Commission staff recommends below reflect staff's assessment of what constitutes appropriate mitigation, under CEQA, for BSPP's identified impacts to register-eligible cultural resources. Staff recommends that the BLM adopt comparable mitigation in the Historic Property Treatment Plan, a document associated with the BLM's BSPP PA, in order to ensure that the project's impacts to cultural resources are mitigated in a way that meets both federal and state requirements.

Energy Commission Staff-Recommended Avoidance of Significant Direct Impacts

CEQA requires that a project's significant impacts to cultural resources be either avoided or mitigated to a less-than-significant level. The applicant's recent modification of their plant site boundaries and linear facilities corridors resulted in the avoidance of some archaeological sites but with some additional sites also becoming subject to project impacts, both in added areas and as a result of the re-routing of drainage channels and outlets. By staff's count (as discussed above, not to be considered final), the applicant's boundary and route adjustments resulted in a reduction in the number of impacted sites from 210 to 203, with a net avoidance of 3 prehistoric sites and 4 historic-period sites.

The applicant's adjustment of the eastern plant site boundary avoided construction impacts to five contributors to the PQAD (an archaeological district staff has assumed to

be eligible for the NRHP and the CRHR), but also made four of them subject to significant erosion impacts due to the re-location of drainage outlets. Staff recommends that the applicant move their eastern boundary and drainage outlets even further west to avoid all PQAD contributors in this area: quarry sites CA-Riv-2846 and CA-Riv-3419, thermal cobble features (sites SMB-P-434, SMB-P-435, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, and SMB-P-441, SMB-H-452, and SMB-P-454), and lithic scatter site SMB-P-453.

Staff points out the substantial advantages to the applicant if this recommendation is followed. First, this is the area that the applicant has identified as the place where they want to initiate project construction. Yet it is also the area where staff must recommend the most complex and time-consuming data recovery protocols to mitigate impacts to contributors to the assumed-eligible PQAD (see below,"Mitigation Measures for Direct Impacts to the Prehistoric Quarries Archaeological District"). If the applicant can avoid impacts to these resources, their schedule for obtaining ARRA funds would be advantaged, and they would be able to start construction where they most want to. Additionally, they would be adhering to the mode of treating impacts that is preferred by CEQA and by Native Americans.

The distribution of archaeological resources across the proposed plant site is such that further reducing the size of the proposed project, beyond the reduction discussed just above, would not allow the applicant to avoid impacting a sizeable number of archaeological sites. So, additional avoidance is not a pragmatic option. Staff's recommended mitigation, therefore, is primarily data recovery at impacted sites, to be put into effect through Energy Commission conditions of certification.

Energy Commission Staff-Recommended Mitigation for Significant Direct Impacts

BSPP is one in a series of large energy projects proposed for the southern California Desert to near the end of the Energy Commission's permitting process. Many things have been unusual about these projects. For cultural resources some of the important differences have included the high speed of the permitting process, the large size of the project areas, the small amount of information regarding the cultural resources in the region, and the large number of future or concurrent projects proposed for the area overall. These factors have influenced the way the Energy Commission cultural resources staff has strategized the recommended mitigation of significant impacts for projects in the southern California Desert.

Mitigating project impacts to cultural resources to a less-than-significant level is generally couched in terms of recovering data that would be lost when the resources are destroyed. A loss of a CRHR-eligible cultural resource is assumed to be a loss to the public of valuable information about the past. For the successful mitigation of a lost built-environment resource, the recovered data must stand in place of the lost resource. For the successful mitigation of an archaeological resource, the recovered data must be pertinent to answering questions important in history or prehistory. For built-environment resources, data recovery can entail detailed recordation of all aspects of the physical structure of the resource and documentation of it from historical resources. Archaeological sites are methodically excavated, deposits recorded and photographed, artifacts identified and dated, and samples of various materials are scientifically

analyzed. Data recovery as a mode of mitigating impacts to a traditional cultural property (TCP) to a less-than-significant level is more problematic and may not be possible or appropriate. Mitigation of impacts to a TCP must be determined with the input of the group that values it, on a case-by-case basis.

Performance Standards for Direct Impact Mitigation Measures

For the purposes of recommending mitigation of BSPP impacts to cultural resources that is adequate for CEQA, under the present modification of the approach staff employed for the SA/DEIS, staff applies performance standards in three contexts with respect to archaeological sites:

1. Adequacy of the applicant's or owner's cultural resources consultant's evaluation-phase field work (for Phase II discussion, see "Approaches to CRHR Eligibility Evaluations," above);
2. Qualification of the resource for either the CRHR or NRHP (for criteria, see "Determining the Historical Significance of Cultural Resources," above); and
3. Adequacy of the applicant's or owner's cultural resources consultant's data recovery phase field work (Phase III discussion, see "Approaches to CRHR Eligibility Evaluations," above).

The performance standards staff applies to the adequacy of evaluation-phase field work include acquisition of complete and accurate data that:

- Documents the horizontal and vertical extent of the site;
- Documents homogeneity vs. heterogeneity in material culture;
- Documents homogeneity vs. heterogeneity in the differential distribution of the material culture;
- Documents the depositional character of the sediments in the deposits and the differential distribution of the sediments of the deposits;
- Documents the integrity of the deposits and the associations among the sediments and the artifacts; and
- Documents site taphonomy (contemporaneous and post-depositional forces affecting site structure).

The performance standards for determining resource eligibility are the criteria under which a cultural resource qualifies for inclusion in the CRHR and are presented above, in the subsection headed, "Determining the Historical Significance of Cultural Resources."

The performance standards staff applies to the adequacy of data-recovery-phase field work include acquisition of a statistically significant sample of the full range of data sets pertinent to the questions about history or prehistory that the site holds and that make the site CRHR-eligible

These three sets of performance standards are manifested in various ways in the conditions of certification. Required approval of staff for project-proposed personnel and

for various research plans will result in staff's performance standards for both evaluation-phase and data-recovery-phase adequacy. Specific field methods are required that will also result in meeting staff's performance standards for both evaluation-phase and data-recovery-phase adequacy. Required consultation with staff by the applicant's or owner's cultural resources consultants will result in the performance standards for resource eligibility (e.g., does a resource qualify for the CRHR) being met.

If the applicant's or owner's cultural resources consultants meet staff's performance standards, as detailed in the cultural resources conditions of certification, then significant direct impacts to cultural resources would be reduced to a less-than-significant level through a program of data recovery, resource registration, and public outreach, and the loss to the public of the values inherent in these resources would be adequately mitigated.

Mitigation Measures for Direct Impacts to the Prehistoric Quarries Archaeological District

Staff identified a prehistoric archaeological district, the PQAD, contributors to which that are subject to direct BSPP impacts include the two quarry sites on the remnant Pleistocene Colorado River terraces on the east side of the proposed plant site and linear facilities corridor (CA-Riv-2846 and CA-Riv-3419), nine thermal cobble feature sites (SMB-P-434, SMB-P-435, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, and SMB-P-441, SMB-H-452, and SMB-P-454) near the more northerly quarry site, and a lithic scatter site SMB-P-453.

The construction of the solar array fields of BSPP's Units 1 and 4 would directly impact the western edge of quarry site CA-Riv-2846 and the entirety of thermal cobble sites SMB-P-434, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, and SMB-P-441, by grading. The outflow of BSPP's drainage diversion system would directly impact sites SMB-P-435, SMB-H-452, SMB-P-453, and SMB-P-454 by subjecting them to erosion. Erosion is also a likely impact to additional thermal cobble features now unknown but likely to be buried in the area of the outflow of the northernmost drainage outlet. The two northernmost outlets could deposit sediments on quarry site CA-Riv-2846, but that is not a significant impact. Project plant site grading would directly impact the northeastern tip of quarry site CA-Riv-3419. Additionally, the construction of the access road and the excavation of the trenches for the natural gas pipeline and the telecommunications lines would directly impact the southern and western parts of quarry site CA-Riv-3419 in a corridor some 200 feet wide and about 4,000 feet long.

Staff did not have sufficient information to determine the boundaries and period of significance of this assumed-eligible district, nor was staff able to specify definitively all contributors to the district because some are located outside of the areas surveyed for the BSPP, but staff recommends that the mitigation for project impacts on this resource entail further field work to determine the district boundaries, the period of significance, and any additional contributing resources, and the completion of a DPR district record and CRHR and NRHP nominations, if appropriate.

For mitigation of BSPP impacts to the PQAD as a district, in **CUL-6**, staff sets out research activities and performance standards for individual resource and district evaluation and data recovery.

In **CUL-6**, staff recommends protocols simultaneously to recover data from the parts of the two quarry sites that the project would impact and from the thermal cobble features and the lithic scatter the project would impact. The protocol for the quarries details a 100 percent pedestrian survey of the parts of the quarry sites that the project activities would disturb, in which all artifacts would be mapped and field-recorded as to numbers and types of flakes, cores, and hammerstones, and the material types of each, any differential distribution of artifacts would be mapped and explanations for the distribution suggested, and the integrity of the site and the evidence substantiating that opinion would be noted. The protocol for the thermal cobble features includes Phase I identification of possible additional subsurface contributors and compressed Phase II-Phase III evaluation and data recovery from a sample of intact sites. The protocol entails efforts to either locate intact buried examples, which would automatically be register-eligible, and to recover data from them, or, failing that, to excavate parts of the surface examples, assumed eligible due to their rarity, to determine if they have a subsurface presence. If a feature is only present on the surface, it would be considered ineligible and the existing recordation, updated to reflect the test excavation, would be adequate data recovery. If a feature has subsurface deposits, data recovery would ensue. The protocol for the lithic scatter would be that in **CUL-7**.

Also in **CUL-6**, a five percent sample of 10 X 10-meter units randomly selected on the unimpacted portion of the quarry sites would be surveyed and artifact data gathered using methods identical to those used in the impacted parts of the quarry sites. These data would better characterize the data sets available at the quarry sites. Also, comparison of these data with those gathered in the project-impacted parts of the sites would indicate whether the parts of the sites that would be destroyed contribute significantly to the CRHR- and NRHP eligibility of the sites. If the data from the impacted parts and the data from the unimpacted parts are demonstrably the same, then the impacted parts do not make a significant contribution to the eligibility of the sites and the project's impacts to these sites is proved to be insignificant. Also, comparison of the data from lithic scatter site SMB-P-453 with the data from quarry sites CA-Riv-2846 and CA-Riv-3419 (the lithic scatter is located about halfway between the two quarries) would perhaps validate or invalidate the merging of the quarries and the lithic scatter in a district.

CUL-6 would also require additional survey of a zone 150 meters wide running along the western edge of quarry site CA-Riv-3419, from the BSPP plant site's southern boundary to the eastern boundary of the linear facilities corridor. The survey methodology of the original survey would be used. The purpose of this survey is to locate, if any are present, additional thermal cobble features in a geomorphic zone analogous to that in which they were previously found as a means of demonstrating a predictable relationship between the two site types, thus validating the merging of the quarries and the thermal cobble features in a district.

CUL-6 would also require analysis of all collected data to reach a conclusion on the validity of the district and to make a recommendation on the NRHP and CRHR eligibility

of the PQAD. If the recommendation is positive, the completion and submission to the Office of Historic Preservation of nominations for the district would be required. If the recommendation is negative, the NRHP and CRHR eligibility of a separate archaeological district, consisting of a thermal cobble feature cluster, would be considered and a recommendation made, with nominations to follow if the recommendation was positive. The production of a Department of Parks and Recreation (DPR) 523 district form, the updating of the contributor site forms to reflect new data, and submission of the forms to the local CHRIS would also be required.

This staff-assumed register-eligible resource and recommended mitigation are listed in Cultural Resources Table 4, below.

Mitigation Measures for Direct BSPP Impacts to Individual Sites and Cultural Landscape Contributors

Staff has identified all prehistoric and many historic-period archaeological sites as contributors to the PTNCL or to the DTCCL. While staff recommends measures to mitigate cumulative impacts to these cultural landscapes below, direct BSPP impacts to their contributors must also be mitigated. Consequently, staff has recommended data recovery for all individual archaeological sites, including cultural landscape contributors. The staff-assumed register-eligible individual resources and recommended mitigation are listed in Cultural Resources Table 4, below.

For the PTNCL and DTCCL, staff identified contributing resources located outside of areas that would be impacted by BSPP activities, including, for the PTNCL, previously recorded trail segments, a rock alignment, a geoglyph, and possible pot drops, and for the DTCCL, a previously recorded tent camp. Staff also listed additional contributors to the PTNCL (all lithic scatters) and the DTCCL (fortified positions, a historic-period refuse dump, and historic-period refuse scatters) that are cultural resources identified by the applicant during BSPP surveys. As these resources are all located outside of the areas where BSPP construction and operation activities could impact them, no mitigation for direct impacts to them would be required.

The evaluation and data recovery at sites that are contributors to the PTNCL and the DTCCL can only be undertaken once the **CUL-1** and **CUL-2**-funded landscape documentation programs (see “Mitigation Measures for Cumulative Impacts to Two Cultural Landscapes,” below) produce preliminary contexts for the evaluation and data recovery of contributors.

Field investigation is needed on all prehistoric archaeological sites and some historic-period archaeological sites to determine if subsurface deposits exist and, if they do, to adequately sample those deposits.

Site types broadly characterize the content and arrangement of the observed archaeological remains at sites and posit a site’s function(s) and physical structure. Thus staff uses site types as the basis for recommending protocols for site evaluation and data recovery as mitigation.

Prehistoric Archaeological Sites

AECOM reported four prehistoric site types as present on the BSPP, (EDAW 2010a, pp. 137–142), and staff added a fifth type:

1. Prehistoric Lithic Scatters (debris from the production of one or more flaked stone tools, possibly tools used to make flaked stone tools, and occasionally the flaked stone tools themselves);
2. Prehistoric Quarry Sites (a geological deposit of stone material suitable for the manufacture of flaked stone tools);
3. Prehistoric Sites with Features (features are remains of non-residential human modifications or additions to the natural landscape, such as hearths, arrangements of stones, cleared areas), all but one of which (a cairn) in the BSPP were "thermal cobble features"—probably the remains of roasting pits;
4. Prehistoric Trails (footpaths evidencing denuding of desert pavement, with possible shallow depression from compaction of soils); and
5. "Pot Drop" (isolated scatter of sherds from a single pot, possibly associated with sacred activity).

In **CUL-7** staff recommends a protocol for evaluation and data recovery at single or multi-component sites with prehistoric lithic scatters, cairns, and pot drops. This protocol would apply to the following resources located on the proposed plant site: CA-Riv-1136, SMB-P-160, SMB-M-214, SMB-P-228, SMB-H-234, SMB-P-238, SMB-P-241, SMB-P-244, SMB-P-249, SMB-P-252, SMB-P-410, SMB-P-530, SMB-P-531, and SMB-P-532. It would also apply to the following sites, located along the southern part of the gen-tie transmission line route, unless they can be spanned: SMB-H-CT-001, SMB-H-TC-101, SMB-H-TC-103, and SMB-H-WG-102, in **CUL-7**, staff recommends the use of the CARIDAP protocol, if a site qualifies for that treatment. Otherwise, staff recommends a 5-meter-by-5-meter surface scrape and a 1-meter-by-1-meter excavation unit in the center of the artifact concentration (or rock feature) or in each concentration if multiple concentrations were identified. Consultation between the project owner's Cultural Resources Specialist (CRS) and the Energy Commission Compliance Project Manager (CPM) on site eligibility would be required, as would further excavation and data recovery if subsurface deposits are encountered. Additionally, Department of Parks and Recreation (DPR) 523 archaeological site forms for these sites would have to be updated with the information obtained from the excavations. A preliminary report would have to be submitted to the CPM, and the excavation and resultant data included in the final report for all cultural resources investigations relating to the BSPP. Data recovery would be considered complete when CRS and the CPM agreed that the site was ineligible or a sufficient sample of the significant data had been collected. When the CPM agrees that data recovery for a site is complete, ground disturbance can begin.

For evaluation and data recovery of prehistoric sites with features, staff recommends mitigation as prescribed in **CUL-6**, which is recommended as mitigation for BSPP impacts to the PQAD, including prehistoric quarries. For mitigation of project impacts to three individual multi-component sites each having an isolated potential thermal cobble or hearth feature (SMB-H-164, SMB-M-214, SMB-M-418), in **CUL-6**, staff sets out performance standards for individual resource evaluation and data recovery, including

Phase I identification of possible subsurface contributors and compressed Phase II-Phase III evaluation and data recovery.

For prehistoric trails, staff believes that the extant recordation on the only such site within the boundaries of the BSPP, SMB-P-410, is sufficient data recovery, and so recommends no further mitigation for impacts to this site.

Historic-Period Archaeological Sites

AECOM defined three broad categories of historic-period sites, Early Twentieth-Century Mining and Ranching Sites, World War II-era DTC/C-AMA Sites, and Other Historic-period Sites (EDAW 2010a, pp. 127, 144–156), under which they identified 10 site types.

The Early Twentieth-Century Mining and Ranching Sites consisted of:

1. Early twentieth-century habitation sites (residential structural remains and domestic non-biodegradable refuse);
2. Early twentieth-century sites with features (features are remains of non-residential human modifications or additions to the natural landscape, such as non-residential structural remains, mining claim markers, hearths, prospecting, refuse, and privy pits); and
3. Early twentieth-century refuse scatter sites (deposits of non-biodegradable refuse of all kinds).

AECOM's World War II-era DTC/C-AMA site types consisted of:

1. World War II-era sites with features (features are remains of non-residential human modifications or additions to the natural landscape, such as fortified positions, cleared areas for tent pads, and hearths);
2. World War II-era refuse dump sites (distinguished from refuse scatter sites by the greater volume of material and multi-episodic deposition); and
3. World War II-era refuse scatter sites (recognized by the presence of military-issued rations containers or cans opened with the military-issued P-38 can-opener or a bayonet).

AECOM's Other Historic-period site types consisted of:

1. Transportation routes (pre-1967 dirt roads traversing the proposed plant site);
2. Non-specific twentieth-century sites with features (these lacked materials that could be dated or associated with a specific activity);
3. Non-specific twentieth-century refuse dump sites; and
4. Non-specific twentieth-century refuse scatter sites.

Above, staff determined that the historic-period refuse scatters and dumps that AECOM categorized as Twentieth-Century Prospecting and Ranching sites and Other Historic-Period sites, when no other features or structures are present, are not eligible for the CRHR. Consequently no mitigation would be required for BSPP impacts to them.

Staff has identified refuse scatter sites that date to the DTC/C-AMA use of the area as contributors to the DTCCL, and therefore they are eligible for the CRHR and for the NRHP. Consequently staff recommends data recovery as mitigation for the BSPP's impacts on these sites. But staff believes that the data that make these sites eligible consist of those data that establish the sites' locations, contents, and association with the DTC/C-AMA, and that evidence the possible functions of the sites. Thus, for DTCCL refuse scatters, when no other features or structures are present, staff believes the existing recordation sufficient to be considered adequate data recovery, once existing additional data (held, staff assumes, by AECOM), such as photographs and detailed artifact recording forms, are incorporated into the site forms.

So, the remaining historic-period archaeological site types which staff assumes are NRHP- and/or CRHR-eligible, and for which staff must therefore recommend measures to mitigate BSPP impacts, are:

- Early-to-mid-twentieth-century sites with structural remains,
- Early-to-mid-twentieth-century and DTCCL sites with features,
- DTCCL refuse dump sites, and
- Unimproved roads.

Additionally, staff recommends that some historic-period refuse scatter sites be revisited to upgrade their recordation.

In **CUL-8**, staff recommends a protocol for evaluation and data recovery at historic-period archaeological sites with features (SMB-H-143, SMB-H-203, SMB-H-205, SMB-H-207, SMB-H-210, SMB-H-222, SMB-H-223, SMB-H-245, SMB-H-250, SMB-H-251, SMB-H-416, and SMB-H-419), all of which are located on the proposed plant site. The protocol includes additional mapping and artifact recordation, a metal detector survey, the excavation of the features (if appropriate) and their detailed recordation.

In **CUL-9**, staff recommends a protocol for the evaluation and data recovery at historic-period archaeological sites with structural remains (SMB-H-404, SMB-H-432, and SMB-H-514), all of which are located on the proposed plant site. The protocol includes additional mapping and artifact recordation, a metal detector survey, the detailed recordation of the structural remains, the excavation of all associated features (if appropriate) and their detailed recordation.

In **CUL-10**, staff recommends a protocol for the evaluation and data recovery at historic-period dump sites located on the proposed plant site (SMB-H-178, SMB-H-224, SMB-H-403, and SMB-H-427) and along the linear facilities corridor (SMB-H-522/525), if impacts to the latter site cannot be avoided by spanning it. The protocol includes additional mapping and photography, the detailed recordation of a random sample of 10 percent of the dump contents, the excavation (if appropriate) of any features encountered in the sampling units and their detailed recordation.

In **CUL-11**, staff recommends a protocol for upgrading the recordation of some historic-period refuse scatter sites (SMB-H-164, SMB-H-166, SMB-H-181, SMB-H-287, SMB-H-

288, and SMB-H-423), all of which are located on the proposed plant site, in order to refine the attribution of these sites, which staff believes could be DTCCL contributors. A metal detector survey is also required.

In **CUL-12**, staff recommends a protocol for the documentation, as data recovery, of two historic-period, unimproved roads (SMB-H-600, SMB-H-601). A qualified historian would conduct archival research to document the age and associations of these roads, with particular attention to their role in DTC/C-AMA activities. This research could be undertaken and completed prior to certification.

Mitigation Measures for Direct and Indirect Impacts to Built-Environment Resources

The Blythe Army Air Base (BAAB) reservoir was recommended as eligible for the NRHP and the CRHR, and staff concurred and determined the reservoir eligible. At a distance of nearly three-quarters of a mile away, the BSPP's construction would not have a physical impact on the reservoir. Nor would the project's intrusion in the landscape have an impact on the reservoir's integrity of setting or integrity of feeling, since these are already compromised by already-constructed infrastructure in the form of the I-10 freeway. The two pipelines connecting the reservoir to the base, however, if still present, must pass across the linear facilities corridor and could be subject to impacts from the excavation of the natural gas pipeline.

Archival research is also needed to establish where the two pipelines connecting the BAAP reservoir to the former air base pass across the linear facilities corridor, so that impacts to them can be avoided. Transmission line pole placement may need to be changed to avoid these pipelines, and the open trench excavation for the natural gas pipeline may need to be altered to a trenchless method to run under the reservoir pipelines. Staff recommends the conduct of this research and the generation of a plan to avoid impacts to these pipelines in **CUL-13**. This research could be undertaken and completed prior to certification.

Staff assumed a radio communications facility eligible for the NRHP or CRHR because AECOM EDAW provided insufficient information to justify their architectural historian's recommendation that it was ineligible because the building appeared to have been altered in the 1980s (EDAW 2009e, p. 26). This building could be subject to impacts to its integrity of setting and integrity of feeling from the installation of the BSPP transmission line in the linear facilities corridor, one-half mile south. Staff recommends the conduct of this research and the generation of a plan to avoid or mitigate to a less than significant level impacts to the radio communications facility in **CUL-14**. This research could be undertaken and completed prior to certification.

Staff determined the Blythe-Eagle Mountain 161-kV transmission line to be ineligible for the CRHR, so no mitigation would be required for BSPP impacts to this resource.

The staff-assumed register-eligible built-environment resources and recommended mitigation are listed in Cultural Resources Table 4, below.

CULTURAL RESOURCES TABLE 4
Staff-Recommended Mitigation for BSPP Impacts to Known Cultural Resources Eligible or Assumed Eligible by Staff

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
Cultural Landscapes		
Prehistoric Trails Network Cultural Landscape (not all contributors located in BSPP PAAs)	Cumulative	Documentation and possible NRHP nomination, funded by **CUL-1**
DTC/C-AMA Cultural Landscape (not all contributors located in BSPP PAAs)	Cumulative	Documentation and possible NRHP nomination, funded by **CUL-2**
Archaeological District		
Prehistoric Quarries Archaeological District (not all contributors located in BSPP PAAs): CA-Riv-2846, CA-Riv-3419, SMB-P-434, SMB-P-435, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, SMB-P-441, SMB-H-452, SMB-P-453, SMB-P-454	Direct, from plant site and linear facilities corridor construction and from the outflow of the drainage channels	Geophysical prospection, ground-truthing, and data recovery from a sample of resources, under **CUL-6**
Individual Archaeological Sites (and contributors to the PTNCL and the DTCCL)		
Prehistoric Sites		
CA-Riv-1136	Direct	Assessment and data recovery under **CUL-7**
SMB-P-160	Direct	Assessment and data recovery under **CUL-7**
SMB-M-214	Direct	Historic-period component assumed eligible and data recovery complete as recorded Assessment and data recovery for prehistoric component under pertinent parts of **CUL-6**
SMB-P-228	Direct	Assessment and data recovery under **CUL-7**

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
SMB-H-234	Direct	Historic-period component assumed eligible and data recovery complete as recorded Assessment and data recovery for prehistoric component under **CUL-7**
SMB-P-238	Direct	Assessment and data recovery under **CUL-7**
SMB-P-241	Direct	Assessment and data recovery under **CUL-7**
SMB-P-244	Direct	Assessment and data recovery under **CUL-7**
SMB-P-249	Direct	Assessment and data recovery under **CUL-7**
SMB-P-252	Direct	Assessment and data recovery under **CUL-7**
SMB-P-410	Direct	Extant recordation is sufficient
SMB-P-530	Direct	Assessment and data recovery under **CUL-7**
SMB-P-531	Direct	Assessment and data recovery under **CUL-7**
SMB-P-532	Direct	Assessment and data recovery under **CUL-7**
SMB-H-CT-001	Direct , gen-tie line	Historic-period component ineligible Assessment and data recovery for prehistoric component under **CUL-7**
SMB-H-TC-101	Direct, gen-tie line	Historic-period component assumed eligible and data recovery complete as recorded Assessment and data recovery for prehistoric component under **CUL-7**
SMB-H-TC-103	Direct, gen-tie line	Historic-period component assumed eligible and data recovery complete as recorded Assessment and data recovery for prehistoric component under **CUL-7**
SMB-H-WG-102	Direct, gen-tie line	Historic-period component assumed eligible and data recovery complete as recorded Assessment and data recovery under **CUL-7** and **CUL-8**
Historic-Period Sites		
CA-Riv-9011	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-002	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-109	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-110	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-113	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-114	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-115	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-118	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-121	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-122	Direct	Historic-period component assumed eligible and data recovery complete as recorded

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
SMB-H-123	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-125	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-126	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-129	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-130	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-131	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-132	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-133	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-134	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-135	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-136	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-137	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-138	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-139	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-140	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-143	Direct	Assessment and data recovery under **CUL-8**
SMB-H-144	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-147	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-148	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-151	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-152	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-153	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-154	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-155	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-156	Direct	Historic-period component assumed eligible and data recovery complete as recorded

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
SMB-H-157	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-158	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-159	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-P-160	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-162	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-163	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-164	Direct	Assessment and data recovery of prehistoric component under pertinent parts of **CUL-6** and of historic component under **CUL-11**
SMB-H-165	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-166	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-167	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-168	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-169	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-171	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-175	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-178	Direct	Assessment and data recovery under **CUL-10**
SMB-H-180	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-181	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-182	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-184	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-185	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-186	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-189	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-190	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-191	Direct	Historic-period component assumed eligible and data recovery complete as recorded

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
SMB-H-192	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-193	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-200	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-203	Direct	Assessment and data recovery under **CUL-8**
SMB-H-205	Direct	Assessment and data recovery under **CUL-8**
SMB-H-206	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-207	Direct	Assessment and data recovery under **CUL-8**
SMB-H-208	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-210	Direct	Assessment and data recovery under **CUL-8**
SMB-H-212	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-215	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-216	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-219	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-220	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-222	Directs	Assessment and data recovery under **CUL-8**
SMB-H-223	Direct	Assessment and data recovery under **CUL-8**
SMB-H-224	Direct	Assessment and data recovery under **CUL-10**
SMB-H-229	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-230	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-232	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-233	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-234	Direct	See Prehistoric Sites
SMB-H-235	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-236	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-243	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-245	Direct	Assessment and data recovery under **CUL-8**
SMB-H-246	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-247	Direct	Assessment and data recovery under **CUL-8**
SMB-H-248	Direct	Historic-period component assumed eligible and data recovery complete as recorded

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
SMB-H-251	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-256	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-257	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-258	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-261/262	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-265	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-283	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-284	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-287	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-288	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-290	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-291	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-403	Direct	Assessment and data recovery under **CUL-10**
SMB-H-404	Direct	Assessment and data recovery under **CUL-9**
SMB-M-407	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-411	Direct	Assessment and data recovery under **CUL-8**
SMB-H-415	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-416	Direct	Assessment and data recovery under **CUL-8**
SMB-H-417	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-M-418	Direct	Historic-period component CRHR-ineligible Assessment and data recovery for prehistoric component under pertinent parts of **CUL-6**
SMB-H-419	Direct	Assessment and data recovery under **CUL-8**
SMB-H-423	Direct	Assessment and data recovery under **CUL-11**
SMB-H-424	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-427	Direct	Assessment and data recovery under **CUL-10**
SMB-H-432	Direct	Assessment and data recovery under **CUL-9**
SMB-H-439	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-442	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-450	Direct	Historic-period component assumed eligible and data recovery complete as recorded

Resource Identifying Number/Name	BSPP Impact (type and project component—Plant Site unless otherwise noted)	Recommended Mitigation
SMB-H-460	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-505	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-507	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-508	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-509	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-514	Direct	Assessment and data recovery under **CUL-9**
SMB-H-522/525	Direct, linear facilities corridor	Assessment and data recovery under **CUL-10**
SMB-H-527	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-528	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-529	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-600	Direct	Assessment and data recovery under **CUL-12**
SMB-H-601	Direct	Assessment and data recovery under **CUL-12**
SMB-H-CT-001	Direct	See under Prehistoric Sites
SMB-H-CT-002	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-MT-002	Direct	Assessment and data recovery under **CUL-9**
SMB-H-TC-101	Direct	See under Prehistoric Sites
SMB-H-TC-102	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-TC-103	Direct	See under Prehistoric Sites
SMB-H-TC-104	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-WG-101	Direct	Historic-period component assumed eligible and data recovery complete as recorded
SMB-H-WG-102	Direct	See under Prehistoric Sites
<u>Built-Environment Resources</u>		
Blythe Army Air Base reservoir	Direct impacts to pipelines connecting to the former air base	Archival research, under **CUL-X** to establish where the two pipelines connecting the BAAP reservoir to the former air base pass across the BSPP linear facilities corridor, so that impacts to them can be avoided. Transmission line pole placement must avoid these pipelines, and the open trench excavation for the natural gas pipeline must be altered to a trenchless method to run under the reservoir pipelines.
Radio communications facility	Direct impacts to integrity of setting and integrity of feeling	Archival research to determine eligibility and document loss of integrity, under **CUL-Y**

Possible Mitigation Measures for the Discovery of Sites During Construction

Because of the possibility that archaeological deposits could be encountered during construction, CEQA advises a lead agency to make provisions for archaeological resources unexpectedly encountered during construction, and the project owner may be required to train workers to recognize cultural resources, fund mitigation, and delay construction in the area of the find (Pub. Resources Code, § 21083.2; Cal. Code Regs., tit. 14, §§ 15064.5(f) and 15126.4(b)). Consequently, staff recommends that procedures for identifying, evaluating, and possibly mitigating impacts to archaeological resources discovered during construction be put in place through conditions of certification to reduce those impacts to a less than significant level.

The site forms for both prehistoric and historic-period archaeological sites in the vicinity of the two remnant Pleistocene Colorado River terraces on the east side of the proposed BSPP plant site mention that observed artifacts were partially embedded in silt. This is evidence for the possibility of buried resources in the area to the west (up-slope) of the terraces, which evidently have served to locally block the sheet flow of water and thus have caused the deposition of sediments. Consequently, staff recommends monitoring during construction in this area to identify buried archaeological deposits encountered during construction.

Staff thus recommends Conditions of Certification **CUL-3** through **CUL-5** and **CUL-15** through **CUL-18**, below, intended to provide for the contingency of discovering archaeological resources during PHPP construction and related activities. Staff's proposed **CUL-3** requires a Cultural Resources Specialist (CRS) to be retained and available during PHPP construction-related excavations to evaluate any discovered buried resources and, if necessary, to conduct data recovery as mitigation for the project's unavoidable impacts on them. **CUL-4** requires the project owner to provide the CRS with all relevant cultural resources information and maps. **CUL-5** requires the CRS to write and submit to the Energy Commission Compliance Project Manager (CPM) a Cultural Resources Monitoring and Mitigation Plan (CRMMP). **CUL-15** requires the project owner to train workers to recognize cultural resources and instruct them to halt construction if cultural resources are discovered. **CUL-16** prescribes the monitoring, by an archaeologist and, possibly, by a Native American, intended to identify buried archaeological deposits. **CUL-17** requires the project owner to halt ground-disturbing activities in the area of an archaeological discovery and to fund data recovery, if the discovery is evaluated as CRHR-eligible. **CUL-18** requires the CRS to write and submit to the CPM a final report on all PHPP cultural resources data recovery and monitoring and mitigation activities.

In **CUL-16**, staff commonly specifies the parts of a project site where ground disturbance must be monitored by an archaeologist and, possibly also, by a Native American. For BSPP construction, staff recommends archaeological and Native American monitoring of the parts of the plant site where the geoarchaeologist recommended monitoring (Galati & Blek 2010m, fig. 5).

Identification and Assessment of Indirect Impacts and Mitigation

Staff identified no indirect impacts and so recommends no mitigation.

Operation Impacts and Mitigation

If, during operation of the BSPP, the owner should plan any changes or additions entailing significant amounts of ground disturbance, the owner would have to petition the Energy Commission to review the environmental impacts of those activities and approve the plan. Cultural resources staff would then determine if previously undisturbed sediments would be affected by the planned activities and, if so, recommend the application of existing conditions or devise new ones to mitigate any impacts to significant known or newly identified cultural resources. Consequently, at this time staff has recommended no conditions of certification addressing operation impacts.

Project Closure and Decommissioning Impacts and Mitigation

As for any changes or additions to the BSPP during operation, as discussed above, the owner, prior to any decommissioning activities, would petition the Energy Commission to review and approve a decommissioning plan, and cultural resources staff would then determine if previously undisturbed sites or sediments would be affected by the decommissioning. If so, staff could then recommend conditions to mitigate any decommissioning impacts to significant known or newly identified cultural resources. Consequently, at this time staff has recommended no conditions of certification addressing decommissioning impacts.

Cumulative Impacts and Mitigation

This section evaluates the potential for BSPP, and other solar and development projects within the vicinity of BSPP, to have cumulative impacts to cultural resources. As discussed previously, individually minor but collectively significant actions (usually in the form of ground disturbance) may have a cumulatively considerable impact on cultural resources. These impacts may result in a substantially adverse change in the significance of a resource, potentially jeopardizing its eligibility for listing on the NRHP and CRHR.

For the cultural resources cumulative analysis, the regional scope was defined at two levels: local and regional. At the local level, the geographic area considered for cumulative impacts on cultural resources is a loosely defined area on either side of I-10 between Desert Center and Blythe in eastern Riverside County, hereafter referred to as the I-10 Corridor. This corridor overlaps to a large extent with BLM's California Desert Conservation Area. The Corridor does not have strictly defined boundaries, and therefore does not have an area. However, the area is broadly equivalent to a 4-mile-wide strip (2 miles to either side of I-10) and 48 miles long, between Blythe and Desert Center (Cumulative Impacts Figure 2). The area of this strip is 192 square miles (122,440 acres).

Although the total number of cultural resources present in this area is unknown, a rough order of magnitude estimate can be derived (see Cultural Resources Table 14) based on recent surveys related to three proposed solar power projects (Genesis Solar Energy Project, Palen Solar Power Project and Blythe Solar Power Project) which surveyed a

total of 19,184 acres. These projects recorded 329 sites, indicating that the Corridor has an average site density of 0.017 cultural resources per acre, and 0.003 potentially eligible resources per acre. This figure suggests that the Corridor originally contained approximately 2,081 cultural resources, 367 of which may have been eligible for the NRHP and the CRHR.

CULTURAL RESOURCES TABLE 5
Cumulative Analysis Results:
Estimated Number of Cultural Resources Per Acre

Location	**Acres**	**Number of Known Cultural Resources**	**Number of Potentially Eligible Cultural Resources**
Genesis PAAs Blythe PAAs Palen PAAs	19,184	329 = Average Density of 0.017 sites per acre	58 = Average Density of 0.003 sites per acre
I-10 Corridor	122,440	2,081	367
Southern California Desert Region	11,000,000	187,000	33,000
Existing Projects, I-10 Corridor			
Chuckwalla Valley Prison and Ironwood Prison	1,720	29	5
I-10 Freeway	2,328	40	7
Devers-Palo Verde 1 Transmission Line	350	6	1
Kaiser Eagle Mountain Mine	3,500	59	1
Subtotal	7,898	133	23
Reasonably Foreseeable Future Projects, I-10 Corridor			
13 Solar Projects and Chuckwalla Raceway	47,591	809	143
4 New Transmission Lines	465	17	1
Subtotal	48,056	826	144
Reasonably Foreseeable Future Projects, Southern California Desert Region			
Solar Projects	567,882	9,654	1,704
Wind Projects	433,721	7,373	1,301
Subtotal	1,001,606	17,027	3,005

At the regional level, the geographic area considered for cumulative impacts on cultural resources is defined as the desert areas of southeastern California, southern Nevada, and western Arizona, as shown on Cumulative Impacts Figure 1 (Regional Renewable Applications). In broad terms, the area covered in this analysis includes the 25-million-acre California Desert Conservation Area. Unlike other parts of California that were more densely occupied in prehistory, little is known about the cultural resources of the desert region examined for this cumulative study. According to the CHRIS only 20 percent of Riverside and San Bernardino counties have been surveyed for cultural resources. These studies have resulted in the identification and documentation of more than 20,000 cultural resources. These results suggest that there is a high potential to discover previously unknown resources within the cumulative study region.

A detailed discussion of the cumulative project impacts on all environmental resources was provided in Section B.3. To review, this cumulative analysis for the proposed project was based upon:

- Renewable energy projects on BLM, state, and private lands, as shown on Cumulative Figure 1 and in Cumulative Tables 1A and 1B. Although not all of those projects are expected to complete the environmental review processes, or be funded and constructed, the list is indicative of the large number of renewable projects currently proposed in California.
- Foreseeable future projects in the immediate vicinity of the I-10 Corridor Area, as shown on Cumulative Impacts Figure 2, I-10 Corridor Existing and Future/Foreseeable Projects, and Cumulative Tables 2 and 3. Table 2 presents existing projects in this area and Table 5 presents future foreseeable projects in the I-10 Corridor Area. Both tables indicate project name and project type, its location and its status.

Impacts of Existing Projects

Cultural resources staff's analysis of cumulative impacts of existing projects emphasized those projects and developments listed in Cumulative Table 2 that are expansive and have disturbed the most acreage. Many of these projects were completed prior to the existence or regular enforcement of state and federal cultural resource laws. As such, the actual number of cultural resources within each project area and the number of resources destroyed by the project, is unknown. The following calculations are estimates.

I-10 Corridor

At the regional level, the construction of Chuckwalla Valley and Ironwood State Prisons probably caused the most disturbance in the Corridor. Together these projects have disturbed approximately 1,720 acres of culturally sensitive desert. This cumulative analysis suggests that 29 sites were destroyed during this project, 5 of which may have been eligible for the NHRP and the CRHR.

The construction of I-10, a four-lane divided highway, with associated bridges, off-ramps, and berm system, also resulted in significant ground disturbance in the Corridor. Assuming a width of a minimum of 200 feet and a length of 48 miles, within the I-10

Corridor this project disturbed approximately 10,137,600 square feet (2,328 acres). This analysis suggests that 40 sites were destroyed during this construction, 7 of which were eligible for the NHRP and the CRHR.

Another linear project within the Corridor was the Devers-Palo Verde Transmission Line, a 500-kV transmission line paralleling I-10. The disturbance caused by the construction of transmission lines is generally less than the disturbance caused by freeway construction. However, each line has an associated access road. Based on the construction of the access road and excluding the transmission tower pads, a width of 20 feet for each project and a length of 48 miles was assumed for this analysis. A similar calculation was made for the Blythe-Eagle Mountain Transmission Line and a natural gas line, both of which were constructed parallel to I-10. This analysis estimates that during the construction of these three linear projects, approximately 350 acres were disturbed, and 6 cultural resources were destroyed, 1 of which was likely to be eligible for the NHRP and the CRHR.

Finally, the mining activities at the Kaiser Eagle Mountain Mine may have disturbed more than 3,500 acres. Several plans for the use of this disturbed area have been proposed, but, from the perspective of cultural resources, new projects would be unlikely to cause more damage than has already occurred.

In total, together, the larger of the ground-disturbing projects within the I-10 Corridor disturbed at least 7,898 acres, or 6.4 percent of the Corridor. One hundred and thirty-three of the estimated 2,081 cultural resources were likely destroyed by these projects. Of the 367 cultural resources that would have been eligible for the NHRP and the CRHR, 23 would have been destroyed. Overall, previous projects in the I-10 Corridor do not appear to have a significant adverse affect on the cultural resources. However, certain site types, particularly those associated with dry lakes may have been disproportionately affected. A more detailed cumulative analysis would be needed to determine if this was the case.

Southern California Desert Region

Within the larger Southern California Desert Region, the most intensive use of the desert and concomitant disturbance of cultural resources has been on designated military installations (e.g., Edwards Air Force Base, Fort Irwin, Twentynine Palms Marine Corps Base, Chocolate Mountain Naval Aerial Gunnery Range) (Cumulative Impacts Figure 1) during Gen. Patton's military training from 1942 to 1944, and during later training maneuvers in May, 1964, throughout the I-10 Corridor.

Cultural resources in the Southern California Desert Region have been primarily impacted by past and currently approved projects through the ground disturbance that is required for construction of buildings, facilities, roads, and other infrastructure. Military training operations have been the most destructive, particularly at bombing ranges.

In the case of military installations and maneuvers, however, avoidance of substantial adverse changes to CRHR- and NRHP-eligible cultural resources has been accomplished through deliberate project planning. Likewise, the severity of impacts to previously unknown cultural resources have been reduced to less-than-significant by

implementing mitigation measures requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for resources evaluated to be CRHR-eligible.

Some of the physical evidence of military training exercises at the regional level are at least 50 years old and are therefore potentially CRHR- and NRHP-eligible cultural resources. This is particularly the case for historic-period cultural resources associated with the DTCCL described in detail in previous subsections. The use of heavy equipment and vehicles and the construction of camps, bunkers, and other features throughout the desert undoubtedly destroyed a number of prehistoric sites. In their place, we have a potential historic military district, with many individual resources that are known to be, or have the potential to be CRHR- or NRHP-eligible. Previous development within the region has already destroyed a number of DTCCL sites.

Impacts of Reasonably Foreseeable Future Projects

Cultural resources are also expected to be affected by the following reasonably foreseeable future projects. As detailed in Cumulative Impacts Table 3 and shown in Cumulative Impacts Figure 1, the future construction of residences and infrastructure in the local and regional cumulative analysis study areas will undoubtedly result in impacts to cultural resources. Undoubtedly, some of the projects included in this analysis will not be built. This analysis estimates the maximum number of cultural resources that may be destroyed.

I-10 Corridor

Numerous other projects are proposed and under consideration along the I-10 Corridor. Staff assumes that the 13 proposed solar projects and Chuckwalla Raceway project would destroy all of the cultural resources within the proposed project limits for the purposes of this cumulative analysis. As discussed above, transmission lines are considered to have a smaller effect on cultural resources. Using the same conservative figures used previously, the 4 new transmission lines proposed for the I-10 Corridor would affect an area 20 feet wide and 48 miles long for each project. In total these linear projects would disturb 465 acres.

Together these reasonably foreseeable future projects would disturb 48,056 acres, or 39 percent of the total I-10 Corridor. This cumulative analysis suggests that these projects would destroy 816 cultural resources, 144 of which were CRHR- and NRHP-eligible.

Southern California Desert Region

Much of the Southern California Desert Region analyzed for this cumulative analysis consists of the California Desert Conservation Area (CDCA). Eleven million acres of the 25-million-acre CDCA is managed by the BLM. Although there are undoubtedly other projects that have been proposed for this region, the projects proposed for construction within the BLM California Desert District make a reasonable proxy for patterns across the large area. Solar projects occupying 567,882 acres and wind projects occupying 433,721 acres have been proposed for this region, consisting of nearly 4percent of CDCA.

Although the cultural resources density per acre is unknown for this entire region, the density proposed for the I-10 Corridor serves as a reasonable minimum. The disturbance of 1 million acres would result in the destruction of at least 17,000 cultural resources, 3,000 of which were CRHR- and NRHP-eligible. If all of this construction took place, the majority of the projects would undergo CEQA and/or NEPA review. Cultural resources that could not be avoided would be tested to evaluate significance, and significant sites would be subject to historical documentation or data recovery excavations to mitigate impacts. Although these measures would reduce most individual site impacts to less-than-significant levels, archaeological excavation and analysis cannot recover all the scientific values of a site. Based on the above, the cumulative loss of approximately 17,000 cultural resources is considered a significant impact that cannot be mitigated to less-than-significant levels.

Construction of the solar and wind projects proposed throughout this region would result in substantial changes in the setting, feeling, and association of the areas in which they are constructed. These kinds of damages may be especially severe for traditional use areas and traditional cultural properties. Potential impacts would include direct impacts in the form of physical disturbance or alteration as a result of construction activity or indirect impacts in the form of diminished visual character of traditional use areas due to the presence of industrial structures.

Contribution of the Blythe Solar Power Project to Cumulative Impacts

The development of the BSPP is expected to result in permanent adverse impacts to cultural resources related to construction activities. However, these impacts would be expected to contribute only a small amount to the possible permanent cumulative impacts related to cultural resources because relatively few resources may be eligible for the CRHR or NRHP. BSPP would have a significant direct impact on 201 historically significant archaeological resources, most of which are contributors to one of the two historically significant cultural landscapes identified as present in the BSPP region.

If the proposed conditions of certification **CUL-1** through **CUL-1x** are properly implemented, the proposed BSPP would result in a less-than-significant impact on known and newly found archaeological resources, including contributors the PTNCL and the DTCCL.

The BSPP construction impacts, when combined with impacts from past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels. This analysis estimates that more than 800 sites within the I-10 Corridor, and 17,000 sites within the Southern California Desert Region, will potentially be destroyed. Mitigation can reduce the impact of this destruction, but not to a less-than-significant level.

Staff acknowledges that this is an unusual conclusion. The reason these cumulative impacts cannot be mitigated to a less-than-significant level is because these resources will be changed permanently. Unlike biological resources, a cultural resource cannot recover. Significant direct physical impacts to cultural resources often result in the complete destruction of the resource. Mitigation of some of these impacts involves the collection of information or “data recovery”. This analysis and interpretation of the data collected through archaeology teaches us about the lives of historic people. This

knowledge of American history enriches the lives of the general public. Therefore, although an important resource is lost forever, some of the information about that resource is retained. This allows us to argue that these significant impacts can be mitigated. However, although mitigation measures can reduce many individual site impacts to less-than-significant levels, archaeological excavation and analysis cannot recover all the scientific values of a site.

As an inherently destructive science, archaeology must walk a fine line between destruction and preservation. Some questions about the lives of people in the past can only be answered through excavation, which results in the destruction of the site excavated. But archaeological techniques improve rapidly, increasing the amount of information we might gather dramatically. Portions of sites must be preserved so they can be analyzed using these future, as-yet undeveloped, techniques.

No professionally agreed-upon limits for this balance between destruction and preservation exist. General professional archaeological opinion considers the proportion of certain site types that still exist when determining the cumulative impacts and possible public benefits of a project. If only a few such sites still exist undisturbed, then their destruction would be considered a significant impact that cannot be mitigated to less-than-significant levels. General professional opinion also considers the constant ground disturbance associated with modern development to have a devastating cumulatively considerable effect on cultural resources. Indeed, at some point in the near future all prehistoric resources may be destroyed; a kind of cultural resource extinction.

It is both politically and professionally difficult for archaeologists to point out these patterns. So, although these cultural resources trends are well known in the profession, they have rarely resulted in CEQA and NEPA documents where impacts have been considered cumulatively considerable and impossible to mitigate to less-than-significant levels, even though it would have been appropriate.

Summary of Cumulative Impacts

The BSPP impacts, when combined with impacts from past, present, and reasonably foreseeable projects, contribute significantly to the cumulatively considerable adverse impacts for cultural resources at both the local I-10 Corridor and regional levels.

The majority of the proposed future projects examined in this analysis would likely undergo CEQA and/or NEPA review. Sites that could not be avoided would be tested to evaluate significance. Register-eligible sites would be subject to historical documentation or data recovery excavations to mitigate impacts. Although these measures would reduce most individual site impacts to less than significant levels, archaeological excavation and analysis cannot recover all the scientific values of a site.

This analysis estimates that more than 800 sites within the I-10 Corridor, and 17,000 sites within the Southern California Desert Region, will potentially be destroyed. The destruction of cultural resources and cultural landscapes results in the loss of information, but also to irreparable damage to cultural and spiritual values. In terms of the loss of information mitigation can reduce the impact of this destruction, but not to a less-than-significant level. In terms of cultural and spiritual impacts, the nature of these

impacts and potential mitigation measures can only be determined by members of the community who value the resources and landscapes, in this case Native Americans. Because only they can suggest possible mitigation, if any, this cumulatively considerable impact may be unmitigatable.

To reduce as much as possible the region-wide, significant cumulative impact that staff has identified from its analysis, staff recommends that BSPP be required to contribute to the funds established to document and nominate to the NRHP, if appropriate, the PTNCL and the DTCCL (**CUL-1** and **CUL-2**).

Despite the correct implementation of the mitigation measures outlined here, BSPP's incremental contribution to cumulative impacts to cultural resources would nonetheless be cumulatively considerable. Staff acknowledges that this is an unusual conclusion when compared to previous CEQA documents.

Mitigation Measures for Cumulative Impacts to Two Cultural Landscapes

Staff has concluded that it can best fulfill its responsibilities under CEQA by designing dual-level strategies to mitigate project-specific direct and indirect impacts on the project level (above) and cumulative impacts on the regional level.

For the region-wide mitigation of cumulative impacts, rather than hiring multiple companies to produce reports in isolation from each other, with results that are difficult to compare and synthesize, staff's recommended mitigation, coordinated among three projects to start, will standardize terminologies, increase statistical sample sizes, and focus research questions. This will improve the quality and utility of the information collected, as well as save money and time for all involved. Energy Commission staff will save time by creating overarching mitigation measures that will serve for the present projects and be adaptable to later projects in the same region, leaving staff more time to focus on the unique resources specific to each individual project and PAA. A more regional approach is also an advantage for BLM, since they manage this land at a regional scale. In discussions about the PAs that BLM is developing, a representative of the state Office of Historic Preservation has stated repeatedly that the Office would like to see a landscape approach to the cultural resources of the region. Staff sees regional mitigation as an advantage for the project owners as well, as it will allow the pooling of their resources, thereby reducing their overall cultural resources impact mitigation costs.

Staff intends to coordinate the cultural resources mitigation of the shared cumulative impacts of three solar projects proposed by Solar Millennium and NextEra for areas north of the I-10 corridor between Blythe and Desert Center: BSPP, Palen Solar Power Project, and Genesis Solar Energy Project. If this coordination proves successful, staff intends to expand the number of projects and project owners involved as they enter the permitting process. The three initial projects share two broad types of cultural resources: prehistoric trails and destination sites associated with the PTNCL and historical military training sites associated with the DTCCL (defined in detail above). Seventy-five percent or more of the sites that will be impacted by these three projects are potential contributing elements to these two NRHP- and CRHR-eligible landscapes. At the time of the publication of this document, staff has identified only two shared landscapes which will structure the coordinated cultural resources mitigation for these

three projects. Other landscapes or themes may be identified later and incorporated by future project owners as appropriate.

Practically speaking, what staff recommends is shared staffing of the recommended regional-level cultural resources mitigation of cumulative impacts, and, necessarily, shared funding of this staffing. Staff recommends five cultural resources specialists to be shared by the three solar projects: PTNCL Principal Investigator (PI)-Prehistoric Archaeologist, PTNCL Ethnographer, PTNCL Ethnohistorian, DTCCL Principal Investigator (PI)-Historian and DTCCL Historical Archaeologist. All five specialists would be senior professionals in their subfield, qualified according to the Secretary of the Interior's Standards, acknowledged experts in the Southern California Desert region, and have demonstrated experience in synthetic writing. The PTNCL PI-Prehistoric Archaeologist and the DTCCL PI-Historian would also have to have large-scale project management experience.

Compensation for these specialists and the costs for their expenses and deliverables would be divided among the project owners in direct proportion to the number of acres each project would enclose or otherwise disturb. Staff feels that the number of acres disturbed is the most equitable measure of impacts to cultural resources for all three projects. Each project area has a different relative density of archaeological sites, but the number of buried archaeological sites for each is unknown. So the site counts may change dramatically and unexpectedly during future archaeological exploration and construction. In addition, the nature of direct and indirect impacts to regional ethnographic resources in the PTNCL has not yet been determined by local Native American community members. Given the sacred nature of these landscapes, some of these impacts may be considered severe and difficult or impossible to mitigate to less-than-significant levels.

Considering these unknown and unquantifiable factors, staff considers the number of acres disturbed by each project to be a reasonable and concrete proxy. Conditions of Certification **CUL-1** and **CUL-2** require the BSPP owner to contribute $35 per acre for the PTNCL and $25 per acre for the DTCCL to a special Energy Commission fund to finance the documentation and possible NRHP nomination of the PTNCL and DTCCL. Staff arrived at these amounts by estimating what the cost of each program would be, including overhead costs ($400,000 for the PTNCL, $300,000 for the DTCCL), dividing that by the total number of acres the projects together would disturb or enclose (1,890 for Genesis Solar Power Project, 7,043 for BSPP, and 2,970 for Palen Solar Power Plant; total=11,903), and rounding to the nearest $5.00.

Staff is recommending identical conditions for the project owners of the Genesis Solar Power Project and the Palen Solar Power Project. Any additional coordination among project owners that can be negotiated, beyond that specified here, is welcomed and encouraged. Also, applicants may make their contributions to the PTNCL and DTCCL funds prior to certification. This would allow staff to initiate the research on the two landscapes as soon as possible, so that the preliminary results of that research that would specifically be needed to conduct the required data recovery activities would be available when the projects are ready to initiate those activities and have the BLM's and the CPM's approval to do so. Pre-certification contributions to the two funds would not

affect a project's certification prospects in any way. The applicants making such contributions would do so, at their own risk, as a means of advantaging their schedule.

The two landscape documentation and possible nomination programs are also identical for the three projects. These programs are detailed below. Although staff at this time does not have the details worked out, it is staff's intention to enable the sharing of costs for these two programs with future projects under Energy Commission jurisdiction that would contribute to the cumulative impacts to cultural resources in the region, and also with any contemporaneous and future projects not under Energy Commission jurisdiction that contribute to the cumulative impacts to cultural resources in the region.

PTNCL Documentation and Possible NRHP Nomination Program

Energy Commission staff will engage a prehistoric archaeologist to serve as the principal investigator (PI) and prehistoric archaeologist for the following research on the PTNCL. The PTNCL PI-Prehistoric Archaeologist must have the following qualifications:

1. At a minimum, an M.A. in anthropology, with a specialization in archaeology;
2. Education and training that meet the U.S. Secretary of the Interior's Professional Qualifications Standards for Prehistoric Archaeology, as published in Title 36, Code of Federal Regulations, part 61;
3. A background in anthropology and archaeology, with at least 10 years of full-time archaeological resources mitigation and field experience in Southern California;
4. Demonstrated ability to conduct and report on archaeological research; and
5. At least three years of full-time professional experience managing large cultural resources projects in California.

The PTNCL PI-Prehistoric Archaeologist will propose and engage the PTNCL Ethnographer, PTNCL Ethnohistorian, and PTNCL Geoarchaeologist, manage and coordinate the research activities required in this condition, report on progress to staff, and complete Task D. Staff will have final decisionmaking authority regarding budget and technical cultural resources matters.

Under CUL-4 for each project, the project owners will provide to the PTNCL PI-Prehistoric Archaeologist, the PTNCL Ethnographer, the PTNCL Ethnohistorian, and the PTNCL Geoarchaeologist copies of the AFC, data responses, confidential cultural resources documents, and the Revised Staff Assessment (RSA) and Supplemental Staff Assessment for the project.

A. Ethnographic Study

The PTNCL PI-Prehistoric Archaeologist will obtain the services of an ethnographer to serve as the PTNCL Ethnographer. The PTNCL Ethnographer must meet the NPS standards for Anthropologist/Applied Ethnographer (GS-190, 11-12 or 13-15) and have already-established, long-term relationships with Native American groups whose traditional territories are in or near the Chuckwalla Valley and Palo Verde Mesa. The PTNCL PI-Prehistoric Archaeologist will submit the resume of the proposed PTNCL Ethnographer to staff for review and approval and to the BLM Palm Springs Office archaeologist for review and comment.

The PTNCL PI-Prehistoric Archaeologist will direct the PTNCL Ethnographer to:

1. Develop an ethnographic context for the PTNCL from ethnohistoric and ethnographic records and sources;
2. Develop an informant list: The PTNCL Ethnographer has the final choice, but must include representatives from the groups that have expressed concerns about the projects: the Quechan Tribe, the Chemehuevi Reservation, the Cabazon Band of Mission Indians, the Aqua Caliente Band of Mission Indians, the San Mañuel Band of Mission Indians, the Twentynine Palms Band of Mission Indians, La Cuna de Aztlan Sacred Sites Protection Circle, the Fort Mojave Indian Tribe, and the Colorado River Indian Tribes. Other Native Americans identified by the BLM Palm Springs Field Office archaeologist will also be included;
3. Develop interview questions about the PTNCL and potential traditional cultural properties (TCPs);
4. Submit the draft ethnographic context, informant list, and interview questions to staff for review and approval and to the BLM Palm Springs archaeologist for review and comment;
5. Using the approved informant list and questions, interview local Native American community members about the landscape and pay each an honorarium for their participation, amount to be reviewed and approved by staff.;
6. Escort, at PTNCL fund expense, to important, probable, known PTNCL contributors, such as springs, petroglyph sites, geoglyphs, and major trail segments, those members who want to visit them to determine if the Blythe, Genesis, and Palen projects would have any significant effects, from the perspective of the Native Americans, and what options for mitigation the Native Americans consider available. Pay each an honorarium for their participation, amount to be reviewed and approved by staff;
7. Alternatively and/or as additionally, photograph or simulate the viewsheds from important PTNCL contributors, such as springs, petroglyph sites, geoglyphs, and major trail segments and show them to interested Native American community members to determine if the three projects would have any significant effects, from the perspective of the Native Americans, and what options for mitigation the Native Americans consider available. Pay each an honorarium for their participation, amount to be reviewed and approved by staff;
8. Compile location data on PTNCL elements from ethnographic information, draft a map showing all these elements, and draw a provisional boundary for the PTNCL from the ethnographic perspective, with written justification for the boundary.
9. Compile interview transcripts and draft preliminary conclusions identifying TCPS and providing Native Americans' assessment of project impacts on these TCPs and their recommendations for mitigation measures for these impacts, with photos and maps as appropriate;
10. Assist interested Native Americans in adding the TCPs to the NAHC Sacred Sites list;
11. Set up an opportunity for Native Americans to write about or be recorded relating their knowledge, experience, and perspective on the PTNCL. Pay each an honorarium for their participation, amount to be reviewed and approved by staff;
12. Collaborate with the BSPP Project Prehistoric Archaeologist and the BSPP Project Ethnographer to develop a monitoring plan for the PTNCL cultural resources subject to indirect BSPP construction impacts; and
13. Submit products of 1, 7, 8, and 9 to the PTNCL PI-Prehistoric Archaeologist.

The PTNCL PI-Prehistoric Archaeologist will provide products of 1, 7, and 8 to the three project CRSs.

The PTNCL PI-Prehistoric Archaeologist will provide the product of 9 to the BLM Palm Springs Field Office archaeologist.

The PTNCL PI-Prehistoric Archaeologist will submit the draft PTNCL ethnographic documentation to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

The PI-Prehistoric Archaeologist will arrange for the donation of $20,000 from the PTNCL fund to the non-profit organization, the Cultural Conservancy, in support of the Salt Song Trail Project.

B. Ethnohistorical Study:
The PTNCL PI-Prehistoric Archaeologist will obtain the services of an ethnohistorian to serve as PTNCL Historian (PH). The PTNCL Ethnohistorian will meet the the U.S. Secretary of the Interior's Professional Qualifications Standards for Historian, with demonstrated experience in ethnohistory. The resume of the proposed PTNCL Ethnohistorian will be submitted to staff for review and approval.

The PTNCL PI-Prehistoric Archaeologist will direct the PTNCL Ethnohistorian to:
1. Develop an annotated bibliography to establish the context, themes, contributing resource types, period of significance, and boundaries for the PTNCL;
2. Write the context and define the themes, contributor resource types, and period of significance;
3. Compile a list of known contributors, with a description and individual map plot of each, and a PTNCL map showing all contributors;
4. Plot, describe, and justify the boundaries of the PTNCL from the ethnohistorical perspective; and
5. Submit products of 2, 3, and 4 to PTNCL PI-Prehistoric Archaeologist.

The PTNCL PI-Prehistoric Archaeologist will provide products of 2, 3, and 4 to the three project CRSs.

The PTNCL PI-Prehistoric Archaeologist will submit the draft PTNCL ethnohistorical documentation to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

C. Geoarchaeological Study:
The PTNCL PI-Prehistoric Archaeologist will obtain the services of a geoarchaeologist to serve as PTNCL Geoarchaeologist (PG). The PG's training and background must meet the U.S. Secretary of Interior's Professional Qualifications Standards for Prehistoric Archaeology, as published in Title 36, Code of Federal Regulations, part 61, and show the completion of graduate-level coursework in geoarchaeology or Quaternary science. The resume of the proposed PG will be submitted to staff for review and approval.

The PTNCL PI-Prehistoric Archaeologist will direct the PG to:

1. Develop a geoarchaeological context, including reconstruction of the regional paleoenvironment, with lake fluctuations, over the past 14,000 years;
2. Compile a trans-regional landform map;
3. Correlate trans-regional sites types with landforms;
4. Assign known sites to landforms for all three projects;
5. Attempt to predict on the basis of 4 where in the Chuckwalla Valley and on the Palo Verde Mesa additional sites of the several types may be found;
6. Conduct field studies [none envisioned yet];
7. Monitor during construction; and
8. Submit products 1–4 to PI-Prehistoric Archaeologist.

The PTNCL PI-Prehistoric Archaeologist will provide products 1–4 to the three CRSs.

The PTNCL PI-Prehistoric Archaeologist will submit the draft PTNCL geoarchaeological documentation, the trans-regional landform map, the trans-regional correlation of site types to landforms to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

D. Archaeological Study:
The PTNCL PI-Prehistoric Archaeologist will:
1. Synthesize the present state of knowledge of prehistory in the Chuckwalla Valley and Palo Verde Mesa and identify significant gaps in this knowledge, based on all pertinent literature, including published monographs and papers, unpublished reports in the files of the CHRIS and the BLM's Palm Springs Field Office, and on consultation with archaeologists actively conducting research in this region, particularly those based in academia;
2. Develop a comprehensive prehistoric context for the PTNCL;
3. From the prehistoric context and the literature synthesis, identify and describe the full range of archaeological resources known for the PTNCL and posit any additional resources that, while not known, are strongly suggested by the context and synthesis;
4. From the prehistoric context and the literature synthesis, formulate specific research questions
a. To fill significant gaps in our knowledge of the prehistory of this area,
b. Answerable with data from known archaeological resources, and
I. Specify what kinds of resources have the relevant data
c. To determine the presence or absence of additional archaeological resources not presently known but likely
I. Specify the methods for making this determination.
5. Develop criteria for definitively attributing archaeological sites to the PTNCL based on archaeological traits;
6. Compile location data on known PTNCL archaeological elements, draft detailed GIS-based maps of trails and the various site types and their spatial distributions, and draw on a map a provisional boundary for the PTNCL from the archaeological perspective, with a written justification for the boundary;
7. In collaboration with the BLM Palm Springs Field Office, hire the GIS Technician of their choice to identify, digitize, and enter into the BLM's existing cultural resources GIS database, data related to all archaeological sites not in the database.

The PTNCL PI-Prehistoric Archaeologist will provide products of 1–6 to the three project CRSs.

The PTNCL PI-Prehistoric Archaeologist will submit the draft PTNCL prehistoric archaeological documentation to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

E. Possible NRHP nomination of the PTNCL:
After all data recovery for the three projects is completed and reported, the PTNCL PI-Prehistoric Archaeologist will confer with the PTNCL Ethnographer and the PTNCL Ethnohistorian to decide if the PTNCL is eligible for the NRHP, and, if so, the three will collaborate on a NRHP nomination for the PTNCL under Criteria A and D. If the PTNCL PI-Prehistoric Archaeologist, the PTNCL Ethnographer, and the PTNCL Ethnohistorian agree that a PTNCL nomination is appropriate, the nomination will include:

1. Definition of resource;
2. PTNCL probable contributing resource types, known and as-yet-unknown
a. trail segments and trail-related features (pot-drops, rock cairns, lithic scatters)
b. features (hearths, other)
c. springs
d. resource areas and associated features (quarries, plant foods/materials)
e. camps
f. habitation areas
g. burial areas
h. petroglyphs (hunting blinds?)
i. geoglyphs (sacred places?)
j. other;
3. Prehistoric, ethnohistorical, and ethnographic background and context;
4. Justification of eligibility;
5. Period of significance and justification for POS;
6. Identification of contributors, map of archaeologically confirmed sites, and site descriptions of all;
7. Identify contributors as TCPs, with the permission of Native Americans, if the community representatives determine any of the contributors to be TCPs;
8. Definition of boundaries, with map depicting trail network and nodes, as identified through historical, ethnographic, and archaeological research; and
9. Provision for adding additional contributing resources to the district as further survey is done.

The PTNCL PI-Prehistoric Archaeologist will submit the draft nomination to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

The PTNCL PI-Prehistoric Archaeologist will submit the staff-approved PTNCL NRHP nomination to the State Historical Resources Commission, to initiate the process of formal consideration by the Keeper of the National Register, and track and facilitate the review of the nomination to acceptance, including required revisions and additions, or final rejection.

If the PTNCL PI-Prehistoric Archaeologist, the PTNCL Ethnographer, and the PTNCL Ethnohistorian agree that a PTNCL nomination is not appropriate, the PTNCL PI-Prehistoric Archaeologist will write and submit to staff a summary of the evidence justifying that conclusion.

F. Management Plan and Information Dissemination:
The PTNCL PI-Prehistoric Archaeologist will set up some kind of BLM management status for the PTNCL (hopefully NRHP eligibility, but other status may be necessary):
1. For managing known, unimpacted resources, and
2. For adding further contributing resources to the district as further survey done.

The PTNCL PI-Prehistoric Archaeologist will consult with BLM to determine ways of implementing the mitigation measures, if any, proposed by Native Americans in Task A for indirect impacts to resources determined to qualify under Criterion A and located outside of the boundaries of the three projects.

The PTNCL PI-Prehistoric Archaeologist will collaborate with the PTNCL Ethnographer and the PTNCL Ehtnohistorian to prepare a research paper, interpreting the implications of the PTNCL data for our understanding of the prehistory of the Mojave Desert, and submit it to a peer-reviewed journal.

The PTNCL PI-Prehistoric Archaeologist will obtain the services of an exhibit preparer and direct the preparer to craft materials, such as an instruction module for use in local school districts and or a display for existing public interpretation venues at local museums, that interpret the PTNCL for the public, based on the data compiled by the PTNCL PI-Prehistoric Archaeologist, the PTNCL PE, and the PTNCL PH. The PTNCL PI-Prehistoric Archaeologist will arrange for the materials to be used and displayed.

DTCCL Documentation and Possible NRHP Nomination Program

The DTCCL program will have a historian for a principal investigator, who will collaborate with a historical archaeologist in the tasks of documenting and nominating the DTCCL to the NRHP. The DTCCL Historical Archaeologist will also train the individual project historical archaeologists and their crews in the accurate and consistent field identification and recording of historic-period artifacts, with an emphasis on those associated with the DTC/C-AMA. The funding for this program would utilize the same mechanism and contribution basis as the above PTNCL fund, as provided in CUL-2.

Energy Commission staff will engage a historian to serve as the principal investigator (PI) and historian for the following research on the DTCCL. The DTCCL PI-Historian must have the following qualifications:
1. At a minimum, an M.A. in history, with a specialization in World War II military history.
2. Education and training that meet the U.S. Secretary of the Interior's Professional Qualifications Standards for Historian, as published in Title 36, Code of Federal Regulations, part 61;
3. Demonstrated ability to conduct and report on historical research; and

4. At least three years of full-time professional experience managing research projects.

The DTCCL PI-Historian will propose and engage the DTCCL Historical Archaeologist, manage and coordinate the research activities required in this condition, report on progress to staff, and complete Task A. Staff will have final decisionmaking authority regarding budget and technical cultural resources matters.

Under CUL-4 for each project, the project owners will provide to the DTCCL PI-Historian and Historical Archaeologist copies of the AFC, data responses, confidential cultural resources documents, and the Revised Staff Assessment (RSA) and Supplemental Staff Assessment for the project.

A. Historical Study:
The DTCCL PI-Historian will:
1. Develop an annotated bibliography, including oral history sources, to establish the context, themes, contributing resource types, material culture, period of significance, and boundaries for the DTCCL (contact staff for some local oral history sources;

2. Create a time line of DTC/C-AMA activities across the entire maneuver area, including Arizona;
3. Write the context, emphasizing material culture, and define the themes, contributor resource types, and period of significance;
4. Produce a general map of the historical DTC/C-AMA;
5. Compile a detailed map charting the maneuvers conducted on each of the three project sites (BSPP, Blythe Solar Power Plant, and Palen Solar Power Plant);
6. Compile a list of known DTCCL contributors, with a description and individual map plot of each, and a DTCCL map showing all contributors; and
7. Plot, describe, and justify the boundaries of the DTCCL from the historical perspective.

The DTCCL PI-Historian will provide the products of 2 through 6 to the three project CRSs.

The DTCCL PI-Historian will submit the draft DTCCL historical documentation to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

B. Historical Archaeological Study
The DTCCL PI-Historian will obtain the services of a historical archaeologist to serve as DTCCL Historical Archaeologist. The DTCCL Historical Archaeologist's training and background must meet the U.S. Secretary of Interior's Professional Qualifications Standards for Historical Archaeology, as published in Title 36, Code of Federal Regulations, part 61. The resume of the DTCCL historical archaeologist must demonstrate familiarity with the artifacts, environmental modifications (deliberate and incidental, including tank tracks), and trash disposal patterns associated with World War II land-based army activities, and knowledge of the full range of late nineteenth and early-to-mid-twentieth-century domestic can, bottle, and ceramic diagnostic traits. The

resume of the proposed DTCCL Historical Archaeologist will be submitted to staff for review and approval.

The DTCCL PI-Historian will direct the DTCCL Historical Archaeologist to:

1. Synthesize the present state of knowledge of DTCCL historical archaeology in the Chuckwalla Valley and Palo Verde Mesa and identify significant gaps in this knowledge, based on all pertinent literature, including published monographs and papers, unpublished reports in the files of the CHRIS and the BLM's Palm Springs Field Office, and on consultation with archaeologists actively conducting research in this region, particularly those based in academia;
2. Develop a comprehensive historic-period archaeological context for the DTCCL;
3. Have low-altitude aerial photography of the Chuckwalla Valley and Palo Verde Mesa flown, and analyze the results for evidence of larger-scale DTCCL (or other historic-period) activities and any unrecognized site types; if any such isites are identified within the project areas of the BSPP, Blythe Solar Power Project, or Palen Solar Power Project, notify the appropriate CRS(s) and have these resources recorded and added to the project's cultural resources inventory;
4. From the historical archaeological context, the literature synthesis, and the aerial photography, identify and describe the full range of archaeological resources known for the DTCCL and posit any additional resources that, while not known, are strongly suggested by the context and synthesis;
5. From the historical archaeological context and the literature synthesis, formulate specific research questions:

a. To fill significant gaps in our knowledge of the DTCCL history of this area
b. Answerable with data from known archaeological resources

I. Specify what kinds of resources have the relevant data

c. To determine the presence or absence of additional archaeological resources not presently known but likely

I. Specify the methods for making this determination

d. To definitively distinguish Desert Strike sites from DTC/C-AMA sites

I. Army records for locations of Desert Strike activities may facilitate eliminating some ambiguous sites not in those locations as Desert Strike sites;

6. Develop criteria for definitively attributing archaeological sites to the DTCCL based on archaeological traits;
7. Compile location data on known DTCCL archaeological elements, draft detailed GIS-based maps of the various site types and their spatial distributions, and draw on a map a provisional boundary for the DTCCL from the archaeological perspective, with a written justification for the boundary;
8. Train the Project Historical Archaeologists for the BSPP, Blythe Solar Power Plant Project. and Palen Solar Power Plant Project to correctly and consistently identify and record the historic-period military and domestic artifacts likely to be encountered on the these project sites and assist them in the development of field recording forms for these artifacts and sites; and
9. Assist the Project Historical Archaeologists for the BSPP, Blythe Solar Power Plant Project. and Palen Solar Power Plant Project to train their field crews to correctly and consistently identify and record the historic-period military and domestic artifacts likely to be encountered on the these project sites and to correctly and completely fill out the field forms developed for historic-period sites.

The DTCCL PI-Historian will provide the products of 1–8 to the three project CRSs.

The DTCCL PI-Historian will submit the draft DTCCL historic-period archaeological documentation to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

C. Possible NRHP nomination of the DTCCL:
After all data recovery for the three projects is completed and reported, the DTCCL PI-Historian will confer with the DTCCL Historical Archaeologist to decide if the DTCCL is probably eligible for the NRHP, and, if so, the two will collaborate on a NRHP nomination for the DTCCL under Criterion D. If the DTCCL PI-Historian and the DTCCL Historical Archaeologist agree that a DTCCL nomination is appropriate, the DTCCL nomination will include:

1. Definition of the resource;
2. DTCCL probable contributing resource types, known and as-yet-unknown:
   a. tank tracks
   b. refuse (primarily food can) scatter
   c. refuse (other activities, e.g., auto-related; ± food) scatter
   d. multiple-episode refuse dump
   e. foxhole/temporary defensive position
   f. temporary camp-related (cleared areas for tents)
   g. semi-permanent camp-related (paths, activity areas, varied shelter sizes and shapes)
   h. features (hearths, other)
   i. other;
3. Historical background and context;
4. Justification of eligibility;
5. Period of significance and justification for POS;
6. Identification of contributors, map of archaeologically confirmed sites, and site descriptions of all;
7. Definition of boundaries, as identified through historical and archaeological research; and
8. Provision for adding additional contributing resources to the district as further survey is done.

The DTCCL PI-Historian will submit the draft nomination to staff for review and approval and to the BLM Palm Springs Field Office archaeologist for review and comment.

The DTCCL PI-Historian will submit the staff-approved DTCCL NRHP nomination to the State Historical Resources Commission, to initiate the process of formal consideration by the Keeper of the National Register, and track and facilitate the review of the nomination to acceptance, including required revisions and additions, or final rejection.

If the DTCCL PI-Historian and the DTCCL Historical Archaeologist agree that a DTCCL nomination is not appropriate, the DTCCL PI-Historian will write and submit to staff a summary of the evidence justifying that conclusion.

F. Management Plan and Information Dissemination:

The DTCCL PI-Historian will set up some kind of BLM management status for the DTCCL (hopefully NRHP eligibility, but some other protective status may be necessary):
1. For managing known, unimpacted resources
2. For adding further contributing resources to the district as further survey is done

The DTCCL PI-Historian will collaborate with the DTCCL Historical Archaeologist to prepare a research paper, interpreting the implications of the DTCCL data for our understanding of WWII combat training history, and submit it to a peer-reviewed journal.

The DTCCL PI-Historian will create or direct the creation of an provide an instruction module for use in local school districts, based on the data compiled by the DTCCL PI-Historian and the DTCCL Historical Archaeologist. The PI-Historian will also obtain the services of an exhibit preparer and direct the preparer to craft materials and/or a display for existing public interpretation venues at local museums (such as the nearby George S. Patton Memorial Museum or Wiley's Well rest area), that interpret the DTCCL for the public, based on the data compiled by the DTCCL PI-Historian and the DTCCL Historical Archaeologist. The DTCCL PI-Historian will arrange for the materials to be used and displayed.

The DTCCL PI-Historian will also explore other modes of public dissemination of DTCCL data and propose these, with budgets, to staff. Some possibilities are noted here, but the PI-Historian's proposals should not be limited to these:

- A DTCCL website and chatroom for WWII veterans and history buffs to acquire and exchange information;
- A hiking or off-road-vehicle trail connecting DTCCL archaeological remains of particular interest (and where artifacts of archaeological interest are no longer present), such as the more permanent camps and air bases; this trail and a map of it providing GPS coordinates, descriptions, historical information, and historic-period photographs could be developed with BLM and made available to visitors; a model for such a trail is the California Backcountry Discovery Trails system;
- An over-flight video, with a narration identifying and providing the history of the DTCCL contributors that are better observed from the air, such as the airbases, interspersed with historic-period film footage of related DTCCL activities.

C.3.7. NOTEWORTHY PUBLIC BENEFITS

In the case of the proposed BSPP, very little is known about the prehistory of the Mojave Desert. All that is known comes primarily from surface manifestations of localized sites. Little to nothing has been done regarding the relationships between local sites, trails, quarries, and now ephemeral bodies of water (i.e. Lake Cahuilla, Ford Dry Lake, Palen Dry Lake) and the springs and oases along the I-10 corridor. Data recovery associated with the proposed project has the potential to contribute to our knowledge of the ancient peoples who lived in this area. As such, data recovery could provide public benefits in the form of information.

C.3.8. RESPONSE TO PUBLIC AND AGENCY COMMENTS

On February 17, 2010, George Kline, the BLM Palm Springs Field Office archaeologist, provided comments to staff on administrative draft of the BSPP SA/DEIS. Staff addressed Mr. Kline's comments in the published document.

At the April 28, 2010 SA/DEIS workshop, representatives of the organization California Unions for Reliable Energy (CURE) commented on the document. Since staff proposed no specific mitigation measures in that document, the CURE representatives pointed out that CEQA requires that staff at least identify the performance standards for mitigation to show how impacts to cultural resources would be reduced to less than significant.

Staff's recommended conditions of certification set out specific measures that would reduce the BSPP's impacts to a less-than-significant level, except for a residual cumulative impact. The conditions of certification require the commonly accepted mode of mitigation for direct impacts to known CRHR-eligible archaeological sites that would be destroyed by the construction of a project, which is data recovery through archaeological excavation, with standards provided for the adequacy of the recovery. The conditions also require the commonly accepted mode of addressing the possible discovery of new archaeological sites during construction-related excavation, which is to have construction observed by archaeological monitors who can identify new sites, obtain expert recommendations of the new sites' CRHR-eligibility, and undertake data recovery from the new sites if warranted, again, with standards provided for the adequacy of the recovery.

The conditions also require the documentation and possible nomination to the NRHP two cultural landscapes as mitigation for the cumulative impacts of the BSPP and two other nearby solar energy projects. This is a mode of mitigating impacts more commonly used for built-environment resources, but is appropriate for a circumstance where both the resources and the impacts are of a region-wide scale. The conditions require funding for a documentation program for each cultural landscape, and staff has provided detailed descriptions of these programs and would implement and manage them. Because the scale of impacts from the three projects (and the other past, present, and reasonably foreseeable future projects) so depletes the archaeological record of the entire Chuckwalla Valley and Palo Verde Mesa, the recommended mitigation can reduce the cumulative impact, but not to a less-than-significant level.

The Energy Commission Project Manager for the BSPP compiled public comments for each technical area, dating from December, 2009, to late May, 2010, and provided them to all staff working on the BSPP RSA in a May 27, 2010 email. Three comments regarding cultural resources were excerpted.

1. Has a 100 percent archaeological inventory been conducted pursuant to Section 106 of the National Historic Preservation Act and BLM Manual 8100?

Staff Response: As the BLM and the Energy Commission require, the applicant completed 100 percent surface pedestrian archaeological survey of all of the BSPP

project areas, including those recently identified as affected by project description changes.

2. Have archaeological sites been evaluated pursuant to the National Register of Historic Places criteria?

Staff Response: Energy Commission staff has evaluated all cultural resources according to the criteria of the California Register of Historical Resources or has provided for that evaluation in its recommended conditions of certification. BLM staff is in the process of evaluating all cultural resources according to the criteria of the National Register of Historic Places or will be providing for that evaluation in its BSPP Programmatic Agreement, currently under development.

3. Has consultation with Native Americans take place?

Staff Response: As required under the National Historic Preservation Act, Section 106, the BLM has been consulting with Native Americans about the BSPP since July, 2009. The BLM draft BSPP Programmatic Agreement presents a log of BLM-Native American consultation. CEQA does not require that state lead agencies consult with Native Americans, but Energy Commission staff has made it a policy to contact Native American groups and individuals identified by the Native American Heritage Commission as interested in development in areas to which they have traditional ties. See the "Native American Consultation," subsection above.

C.3.9. COMPLIANCE WITH LORS

With the adoption and implementation of staff's recommended conditions of certification, the BSPP construction and implementation would result in a less-than-significant direct impact on known and newly found cultural resources. The project would therefore be in compliance with the applicable federal and state laws, ordinances, regulations, and standards listed in Table 1.

The County of Riverside's General Plan has language promoting the general county-wide preservation of cultural resources. Staff's conditions of certification require specific actions not just to promote but to effect historic preservation and mitigate impacts to all cultural resources in order to ensure NEPA and CEQA compliance. Consequently, if BSPP implements these conditions, its actions would be consistent with the general historic preservation goals of the County of Riverside.

C.3.10. CONCLUSIONS AND RECOMMENDATIONS

Energy Commission cultural resources staff has analyzed cultural resources data currently available for the proposed Palo Verde Solar 1 BSPP and has concluded that the project would significantly directly impact 166 known archaeological and built-environment resources eligible or assumed eligible for the California Register of Historical Resources. Staff has also concluded that the BSPP, in conjunction with the Genesis Solar Energy Project and the Palen Solar Power Project, would have a significant cumulatively considerable impact on two staff-identified cultural landscapes,

the Prehistoric Trails Network Cultural Landscape, encompassing region-wide prehistoric trails and the resources and destinations they connected, and the DTC/C-AMA Cultural Landscape, comprehending the archaeological remains of the U.S. Army's WWII Desert Training Center.

To mitigate the significance of project's direct impacts to archaeological resources to a less-than-significant level, staff has recommended conditions of certification providing for data recovery from prehistoric archaeological sites identified as contributors to the Prehistoric Trails Network Cultural Landscape, including an archaeological district and other prehistoric archaeological sites with features (**CUL-6**), small non-habitation prehistoric archaeological sites (**CUL-7**). Staff has also recommended conditions of certification providing for data recovery from historic-period resources, including historic-period archaeological sites with features (**CUL-8**), historic-period archaeological sites with structural remains (**CUL-9**), historic-period archaeological dump sites (**CUL-10**), historic-period roads (**CUL-11**), and built-environment resources (**CUL-13** and **CUL-14**).

It is not possible to reduce the level of significance of the project's cumulative impact on region-wide cultural resources of both the prehistoric and the historic period, but to reduce those impacts, staff has recommended conditions of certification that would have the project owners of the Blythe Solar Power Project, the Genesis Solar Energy Project, and the Palen Solar Power Project fund programs to document and possibly nominate to the National Register Historic Places the Prehistoric Trails Network Cultural Landscape (**CUL-1**) and the DTC/C-AMA Cultural Landscape (**CUL-2**).

To provide for the appropriate treatment of additional cultural resource that could be encountered during construction, staff has recommended additional conditions of certification . **CUL-3** identifies the personnel and their qualifications who would implement the balance of the conditions, and **CUL-4** specifies the information the project owner would supply. **CUL-5** provides for the preparation and implementation of the Cultural Resources Monitoring and Mitigation Plan (CRMMP), which would structure and govern the implementation and coordination of the broader treatment program. **CUL-15** would provide training of project personnel to identify, protect, and provide appropriate notice about known and new potential cultural resources in the project construction area. **CUL-16** and **CUL-17** would provide construction monitoring and cultural resources discovery protocols. **CUL-18** provides for the preparation of a final report to analyze, interpret, and document the ultimate results of the whole BSPP cultural resources management program.

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

Ideally, staff's recommended conditions of certification will not conflict with the required mitigation measures for BSPP impacts promulgated by the Bureau of Land Management in their Programmatic Agreement. This Energy Commission Revised Staff Assessment will be published in advance of the Bureau of Land Management's Final

Environmental Impact Statement and Programmatic Agreement. Therefore, staff's recommended conditions may be revised, based on Bureau of Land Management's finalized Programmatic Agreement, which, it is anticipated, will coordinate the Energy Commission's and the Bureau of Land Management's cultural resources mitigation measures.

Energy Commission staff's recommended Conditions of Certification **CUL-1** through **CUL-18** reflect staff's assessment of what constitutes appropriate mitigation, under the California Environmental Quality Act, for BSPP's identified impacts to register-eligible cultural resources. Staff recognizes that the Bureau of Land Management's parallel but different process for resolving adverse project effects (consultation resulting in a PA) may result in different conclusions regarding cultural resources evaluations, the nature and severity of project impacts, and appropriate mitigation measures. Staff recommends that the Commission encourage and work with the Bureau of Land Management to incorporate staff's recommended conditions of certification into the BSPP PA and its associated plan documents.

With the adoption and implementation of Conditions of Certification **CUL-1** through **CUL-18**, the BSPP would be in conformity with all applicable laws, ordinances, regulations, and standards. **CUL-1** and **CUL-2** would reduce the significance of the project's cumulative impacts to the greatest extent possible, but those impacts would still be cumulatively considerable. **CUL-3** through **CUL-18** would reduce the significance of the project's direct impacts to less than significant.

PROPOSED CONDITIONS OF CERTIFICATION/MITIGATION MEASURES

CUL-1 PREHISTORIC TRAILS NETWORK CULTURAL LANDSCAPE (PTNCL) DOCUMENTATION AND POSSIBLE NRHP NOMINATION

The project owner shall contribute to a special fund set up by the Energy Commission to finance the completion of the PTNCL Documentation and Possible NRHP Nomination program presented in the Blythe Solar Power Plant (BSPP) Revised Staff Assessment RSA).

The amount of the contribution shall be $35 per acre that the project encloses or otherwise disturbs.

An additional contribution may be required to ensure the completion of the required documentation and possible NRHP nomination.

If a project is not certified, or if a project owner does not build the project, or, if for some other reason deemed acceptable by the CPM, a project owner does not participate in funding the PTNCL documentation and possible NRHP nomination program, the other project owner(s) may consult with the CPM to adjust the scale of the PTNCL documentation and possible NRHP nomination program research activities to match available funding. A project owner that funds the PTNCL documentation and possible NRHP nomination program,

then withdraws, will be able to reclaim their monetary contribution, to be refunded on a prorated basis.

Verification:

1. No later than 10 days after receiving notice of the successful transfer of funds to the Energy Commission's special PTNCL fund, the project owner shall submit a copy of the notice to the Energy Commission's Compliance Project Manager (CPM).

CUL-2 DESERT TRAINING CENTER CALIFORNIA-ARIZONA MANEUVER AREA CULTURAL LANDSCAPE (DTCCL) DOCUMENTATION AND POSSIBLE NRHP NOMINATION

The project owner shall contribute to a special fund set up by the Energy Commission to finance the completion of the Documentation and Possible NRHP Nomination program presented in the BSPP RSA.

The amount of the contribution shall be $25 per acre that the project encloses or otherwise disturbs.

An additional contribution may be required to ensure the completion of the required documentation and possible NRHP nomination.

If a project is not certified, or if a project owner does not build the project, or, if for some other reason deemed acceptable by the CPM, a project owner does not participate in funding the DTCCL documentation and possible NRHP nomination program, the other project owner(s) may consult with the CPM to adjust the scale of the DTCCL documentation and possible NRHP nomination program research activities to match available funding. A project owner that funds the DTCCL documentation and possible NRHP nomination program, then withdraws, will be able to reclaim their monetary contribution, to be refunded on a prorated basis.

Verification:

1. No later than 10 days after receiving notice of the successful transfer of funds to the Energy Commission's special DTCCL fund, the project owner shall submit a copy of the notice to the CPM.

CUL-3 CULTURAL RESOURCES PERSONNEL

Prior to the start of ground disturbance (includes "preconstruction site mobilization," "ground disturbance," and "construction grading, boring, and trenching," as defined in the General Conditions for this project), the project owner shall obtain the services of a Cultural Resources Specialist (CRS), one or more alternate CRSs, if alternates are needed, and the two technical specialists identified below in this condition.

The CRS shall manage all cultural resources mitigation, monitoring, curation, and reporting activities in accordance with the Conditions of Certification (Conditions). The CRS shall have a primarily administrative and coordinative role for the BSPP. The project owner shall ensure that the CRS implements

the cultural resources conditions, providing for data recovery from known historical resources, and shall ensure that the CRS makes recommendations regarding the eligibility for listing in the California Register of Historical Resources (CRHR) of any cultural resources that are newly discovered or that may be impacted in an unanticipated manner. The CRS may obtain the services of field crew members and cultural resources monitors (CRMs), if needed, to assist in mitigation, monitoring, and curation activities. No ground disturbance shall occur prior to CPM approval of the CRS and alternates, unless such activities are specifically approved by the CPM. Approval of a CRS may be denied or revoked for reasons including but not limited to non-compliance on this or other Energy Commission projects.

CULTURAL RESOURCES SPECIALIST

The resumes for the CRS and alternate(s) shall include information demonstrating to the satisfaction of the CPM that their training and backgrounds conform to the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61. In addition, the CRS shall have the following qualifications:

1. A background in anthropology and prehistoric archaeology;
2. At least 10 years of archaeological resource mitigation and field experience, with at least 3 of those years in California; and
3. At least 3 years of experience in a decision-making capacity on cultural resources projects, with at least 1 of those years in California, and the appropriate training and experience to knowledgably make recommendations regarding the significance of cultural resources.

REQUIRED CULTURAL RESOURCES TECHNICAL SPECIALISTS

The project owner shall ensure that the CRS obtains the services of a qualified prehistoric archaeologist to conduct the research specified in **CUL-6** and **CUL-7**. The Project Prehistoric Archaeologist's (PPA) training and background must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology, as published in Title 36, Code of Federal Regulations, part 61, and the resume of the PAA must demonstrate familiarity with the artifacts and environmental modifications (deliberate and incidental) associated with the prehistoric and protohistoric use of the Palo Verde Mesa. The PPA must meet OSHA standards as a "Competent Person" in trench safety.

The project owner shall ensure that the CRS obtains the services of a qualified historical archaeologist to conduct the research specified in **CUL-8** through **CUL-11**. The Project Historical Archaeologist's (PHA) training and background must meet the U.S. Secretary of Interior's Professional Qualifications Standards for historical archaeology, as published in Title 36, Code of Federal Regulations, part 61. The resume of the PHA must demonstrate familiarity with the artifacts, environmental modifications (deliberate and incidental, including tank tracks), and trash disposal patterns

associated with World War II land-based army activities, and knowledge of the full range of late nineteenth and early-to-mid-twentieth-century domestic can, bottle, and ceramic diagnostic traits.

The resumes of the CRS, alternate CRS, the PPA, and the PHA shall include the names and telephone numbers of contacts familiar with the work of these persons on projects referenced in the resumes and demonstrate to the satisfaction of the CPM that these persons have the appropriate training and experience to undertake the required research.

OPTIONAL CULTURAL RESOURCES TECHNICAL SPECIALIST

The project owner shall ensure that the CRS obtains the services of a specialist backhoe operator to conduct the activities specified in **CUL-6**, if needed. This backhoe operator shall have a resume that demonstrates previous experience using a backhoe in coordination with an archaeologist. In addition the operator shall use a machine with a "stripping bucket" that is sensitive enough to remove even and consistent layers of sediment 5 centimeters thick.

FIELD CREW MEMBERS AND CULTURAL RESOURCES MONITORS

CRMs and field crew members shall have the following qualifications:

1. A B.S. or B.A. degree in anthropology, archaeology, historical archaeology, or a related field, and one year experience monitoring in California; or
2. An A.S. or A.A. degree in anthropology, archaeology, historical archaeology, or a related field, and four years experience monitoring in California; or
3. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historical archaeology, or a related field, and two years of monitoring experience in California.
4. CRMs monitoring BSPP linear facility trenching will also have demonstrated experience in identifying Sonoran desert prehistoric features such as structures, pits, canals, and wells in the walls of backhoe trenches.

Verification:

1. At least 270 days prior to the start of ground disturbance, the project owner shall submit the resumes for the CRS, the alternate CRS(s) if desired, the PPA, and the PHA to the CPM for review and approval.

2. At least 120 days prior to the start of data recovery on known archaeological sites, the project owner shall confirm in writing to the CPM that the approved CRS, the PPA, and the PHA will be available for on-site work and are prepared to implement the cultural resources Conditions **CUL-6**, **CUL-7**, and **CUL-8**.

3. At least 10 days prior to a termination or release of the CRS, or within 10 days after the resignation of a CRS, the project owner shall submit the resume of the

proposed new CRS to the CPM for review and approval. At the same time, the project owner shall also provide to the proposed new CRS the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project. If no alternate CRS is available to assume the duties of the CRS, a monitor may serve in place of a CRS so that ground disturbance may continue up to a maximum of 3 days without a CRS. If cultural resources are discovered then ground disturbance will remain halted until there is a CRS or alternate CRS to make a recommendation regarding significance.

4. At least 20 days prior to data recovery on known archaeological sites, the CRS shall provide a letter naming anticipated field crew members for the project and attesting that the identified field crew members meet the minimum qualifications for cultural resources data recovery required by this Condition.

5. At least 20 days prior to ground disturbance, the CRS shall provide a letter naming anticipated CRMs for the project and attesting that the identified CRMs meet the minimum qualifications for cultural resources monitoring required by this Condition.

6. At least 5 days prior to additional CRMs beginning on-site duties during the project, the CRS shall provide letters to the CPM identifying the new CRMs and attesting to their qualifications.

Verification:

CUL-4 PROJECT DOCUMENTS FOR CULTURAL RESOURCES PERSONNEL

Prior to the start of ground disturbance, the project owner shall provide the PTNCL PI, the DCTCL PI, the CRS, the PPA, and the PHA with copies of the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), and the RSA Supplement/Errata, if any, for the project. The project owner shall also provide the CRS, the PPA, the PHA, the PG, and the CPM with maps and drawings showing the footprints of the power plant, all linear facility routes, all access roads, and all laydown areas. Maps shall include the appropriate USGS quadrangles and maps at an appropriate scale (e.g., 1:2400 or 1" = 200') for plotting cultural features or materials. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM. Staff shall review map submittals and, in consultation with the CRS, approve those that are appropriate for use in cultural resources planning activities. No ground disturbance shall occur prior to CPM approval of maps and drawings, unless such activities are specifically approved by the CPM.

If construction of the project would proceed in phases, maps and drawings not previously provided shall be provided to the CRS, the PPA, and the PHA, and the CPM prior to the start of each phase. Written notice identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

Weekly, until ground disturbance is completed, the project construction manager shall provide to the CRS and CPM a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur during that week.

The project owner shall notify the CRS and the CPM of any changes to the scheduling of the construction phases.

Verification:

1. At least 210 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), and RSA Errata to the PTNCL PI and the DCTCL PI.

2. At least 165 days prior to the start of ground disturbance, the project owner shall provide the AFC, data responses, confidential cultural resources documents, the Revised Staff Assessment (RSA), and RSA Supplement/Errata to the CRS, if needed, and to the PPA, the PHA, and the PG. The project owner shall also provide the subject maps and drawings to the CRS, PPA, PHA, PG, and CPM. Staff, in consultation with the CRS, PPA, and PHA, will review and approve maps and drawings suitable for cultural resources monitoring and data recovery activities.

3. At least 15 days prior to the start of ground disturbance, if there are changes to any project-related footprint, the project owner shall provide revised maps and drawings for the changes to the CRS, PPA, PHA, and CPM.

4. At least 15 days prior to the start of each phase of a phased project, the project owner shall submit the appropriate maps and drawings, if not previously provided, to the CRS, PPA, PHA, PG, and CPM.

5. Weekly, during ground disturbance, a current schedule of anticipated project activity shall be provided to the CRS and CPM by letter, e-mail, or fax.

6. Within 5 days of changing the scheduling of phases of a phased project, the project owner shall provide written notice of the changes to the CRS and CPM.

CUL-5 CULTURAL RESOURCES MONITORING AND MITIGATION PLAN

Prior to the start of ground disturbance, the project owner shall submit to the CPM for review and approval the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, with the contributions of the PPA, and the PHA. The authors' name(s) shall appear on the title page of the CRMMP. The CRMMP shall specify the impact mitigation protocols for all known cultural resources and identify general and specific measures to minimize potential impacts to all other cultural resources, including those discovered during construction. Implementation of the CRMMP shall be the responsibility of the CRS and the project owner. Copies of the CRMMP shall reside with the CRS, alternate CRS, the PPA, and the PHA, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless such activities are specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the elements and measures listed below.

1. The following statement shall be included in the Introduction: "Any discussion, summary, or paraphrasing of the Conditions of Certification in

this CRMMP is intended as general guidance and as an aid to the user in understanding the Conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the CRMMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."

2. The duties of the CRS shall be fully discussed, including coordination duties with respect to the completion of the Prehistoric Trails Network Cultural Landscape (PTNCL) documentation and possible NRHP nomination program and the Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) documentation and possible NRHP nomination program, and oversight/management duties with respect to site evaluation, data collection, monitoring, and reporting at both known prehistoric and historic-period archaeological sites and any CRHR-eligible (as determined by the CPM) prehistoric and historic-period archaeological sites discovered during construction.
3. A general research design shall be developed that:
   a. Charts a timeline of all research activities, including those coordinated under the PTNCL and DTCCL documentation and possible NRHP nomination programs;
   b. Recapitulates the paleoenvironmental, prehistoric, ethnohistoric, ethnographic, and historic contexts developed in the PTNCL and DTCCL documentation and possible NRHP nomination programs and adds to these the additional context of the non-military, historic-period occupation and use of the Palo Verde Mesa, to create a comprehensive historic context for the BSPP vicinity;
   c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological data sets known for the Palo Verde Mesa, based on the results of the research conducted under the PTNCL and DTCCL documentation and possible NRHP nomination programs and on the archaeological and historical literature pertinent to the Palo Verde Mesa; and
   d. Clearly articulates why it is in the public interest to address the research questions that it poses.
4. Protocols, reflecting the guidance provided in **CUL-6**, **CUL-7**, and **CUL-8** shall be specified for the data recovery from known prehistoric and historic-period archaeological resources.
5. Artifact collection, retention/disposal, and curation policies shall be discussed, as related to the research questions formulated in the research design. These policies shall apply to cultural resources materials and documentation resulting from evaluation and data recovery at both known prehistoric and historic-period archaeological sites and any CRHR-eligible (as determined by the CPM) prehistoric and historic-period archaeological sites discovered during construction. A prescriptive treatment plan may be included in the CRMMP for limited data types.
6. The implementation sequence and the estimated time frames needed to accomplish all project-related tasks during the ground-disturbance and post-ground–disturbance analysis phases of the project shall be specified.

7. Person(s) expected to perform each of the tasks, their responsibilities, and the reporting relationships between project construction management and the mitigation and monitoring team shall be identified.
8. The manner in which Native American observers or monitors will be included, in addition to their roles in the activities required under **CUL-1**, the procedures to be used to select them, and their roles and responsibilities shall be described.
9. All impact-avoidance measures (such as flagging or fencing) to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during ground disturbance, construction, and/or operation shall be described. Areas where these measures are to be implemented shall be identified. The description shall address how these measures would be implemented prior to the start of ground disturbance and how long they would be needed to protect the resources from project-related impacts.
10. The commitment to record on Department of Parks and Recreation (DPR) 523 forms, to map, and to photograph all encountered cultural resources over 50 years of age shall be stated. In addition, the commitment to curate all archaeological materials retained as a result of the archaeological investigations (survey, testing, data recovery), in accordance with the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, into a retrievable storage collection in a public repository or museum shall be stated.
11. The commitment of the project owner to pay all curation fees for artifacts recovered and for related documentation produced during cultural resources investigations conducted for the project shall be stated. The project owner shall identify a curation facility that could accept cultural resources materials resulting from BSPP cultural resources investigations.
12. The CRS shall attest to having access to equipment and supplies necessary for site mapping, photography, and recovery of all cultural resource materials (that cannot be treated prescriptively) from known CRHR-eligible archaeological sites and from CRHR-eligible sites that are encountered during ground disturbance .
13. The contents, format, and review and approval process of the final Cultural Resource Report (CRR) shall be described.

Verification:

1. At least 200 days prior to the start of ground disturbance, the project owner shall submit the CRMMP to the CPM for review and approval.

2. At least 120 days prior to the start of ground disturbance, in a letter to the CPM, the project owner shall agree to pay curation fees for any materials generated or collected as a result of the archaeological investigations (survey, testing, data recovery).

3. At least 90 days prior to the initiation of ground disturbance, the project owner shall provide to the CPM a copy of a letter from a curation facility that meets the standards stated in the California State Historical Resources Commission's Guidelines for the Curation of Archaeological Collections, stating the facility's willingness and ability to receive the materials generated by BSPP cultural resources activities and requiring

curation. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-6 Prehistoric Quarries Archaeological District (PQAD) Data Recovery and District Nomination

Prior to the start of ground disturbance in the areas of Units 1 and 4 and along the linear facilities corridor, the project owner shall ensure that the CRMMP includes a PQAD evaluation and data recovery plan, to identify buried additional potential contributors to the district by geophysical or mechanical survey, to investigate and establish the relationships among all potential contributors (quarry sites CA-Riv-2846 and CA-Riv-3419 and thermal cobble features SMB-P-434, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, SMB-P-441) by formulating research questions answerable with data from the contributors, conduct data recovery from a sample of the contributors, and write a report of investigations and possibly CRHR and NRHP nominations as well. The CRMMP shall also include a detailed data recovery plan for three isolated potential thermal cobble features (not included in the PQAD) at multi-component sites SMB-H-164, SMB-M-214, SMB-M-418).

The project owner shall ensure that the CRS and the PPA assess the NRHP and CRHR eligibility of the PQAD district. Additionally, if the PQAD is found to be ineligible for both registers, the thermal cobble features' eligibility as a separate archaeological district consisting of a thermal cobble feature cluster must also be considered.

The evaluation and data recovery plan shall also specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PPA, the specialist backhoe operator, and archaeological team members implement the plan, with the permission of the BLM. The PQAD evaluation and data recovery plan shall provide, at a minimum, the details of each of the numbered elements below.

1. Research Design

Based on the prehistoric and ethnohistoric contexts developed for the PTNCL under the research program funded through **CUL-1**, Tasks C and D, and the archaeological and ethnohistoric literature pertinent to the Palo Verde Mesa, the research design shall reflect archaeological themes that relate to the identity and the lifeways of Native American groups on the Palo Verde Mesa in the prehistoric and historic periods. The research design shall:

a. Verify from the geological literature the Pleistocene age of the pebble terraces;

b. Formulate archaeological research questions and testable hypotheses specifically applicable to the individual contributors (for example, hypotheses regarding the function of the thermal cobble features—cooking? lithic heat treatment? or both?) and to the PQAD overall;

c. Define data sets needed to answer the formulated research questions; and

d. Develop explicit CRHR-eligibility and NRHP-eligibility assessment criteria, correlated with the research questions and specifically referencing the data sets required to answer them, for the PQAD and for the thermal cobble features as a separate potential archaeological district.

2. Program for Evaluation, Data Recovery, and Possible Nomination

The data recovery program shall:

a. Explain how the data sets that are anticipated for the PQAD will contribute to knowledge of the prehistoric and historic-period Native American themes of the research design and answer particular research questions;

b. Set out the purposes and methods of the several field phases of the PQAD evaluation and data recovery program (Geophysical Test, Geophysical Survey/Mechanical Survey, Evaluation and Data Recovery);

c. Set out the purposes and methods of the concomitant material analyses; and

d. Describe the required reports of investigations, the resource registrations (if appropriate), and the process of producing them.

3. PQAD Arbitrary Provisional Boundary Definition

The CRS, PPA, and CPM shall derive and agree upon, in consultation, the precise location of an arbitrary provisional PQAD boundary on the surface of the plant site and in the vicinity of the linear facilities corridor.

4. Evaluation and Data Recovery Methodology

a. Quarries:

The protocol for the quarry sites simultaneously recovers data from the parts of the two quarry sites that the project would impact and allows an assessment of the significance of the impacts of the project to the two quarry sites and an assessment of the validity of the PQAD concept.

i. Conduct a 100 percent pedestrian survey of the parts of the quarry sites that the project activities would disturb;

ii. Map and field-record artifacts (numbers and types of flakes, cores, tool blanks, finished tools, hammerstones, and concentrations, and the material types of each), the other types of prehistoric artifacts present, any differential distribution of artifacts (with suggested explanations for the distribution), and assess the integrity of the site, providing the evidence on which that opinion is based;

iii. Collect for dating and source analyses any obsidian artifacts;

iv. Conduct a survey of a five percent sample of randomly selected 10 X 10-meter units on the unimpacted portions of the quarry sites;

v. Gather the same data in the same way as for the impacted parts of the quarry sites;

vi. Compare these data to those gathered in the project-impacted parts of the sites

vii. Compare the data from lithic scatter site SMB-P-453 (see below) with the data from quarry sites CA-Riv-2846 and CA-Riv-3419;

viii. Conduct a survey of a zone 150 meters wide running along the western edge of quarry site CA-Riv-3419, from the BSPP plant site's southern boundary to the eastern boundary of the linear facilities corridor, using the same survey methodology as was used in the original survey for the BSPP;

ix. Draw conclusions from the collected data on whether the parts of the quarry sites that would be destroyed by the project contribute significantly to the CRHR- and NRHP eligibility of the sites;

x. Draw conclusions from the collected data, if possible, on whether the merging of the quarries and the lithic scatter in a district is valid.

xi. Draw conclusions from the collected data, if possible, on whether the merging of the quarries and the thermal cobble features in a district is valid.

b. Thermal Cobble Features

The protocol for the thermal cobble features shall include Phase I identification of possible additional subsurface contributors and compressed Phase II-Phase III evaluation and data recovery from a sample of intact sites or from all of the surface sites, whether intact or not. Phase I is geophysical and/or mechanical testing to determine the horizontal and vertical extent of the distribution of the thermal cobble features, to identify any buried intact examples of thermal cobble features out 100 meters, within the area subject to project impacts, from all surface examples, and to determine if morphological differences are present among the thermal cobble features.

Phase II-Phase III (evaluation and data recovery) would reflect judgment that features only present on the surface would be register ineligible and the existing recordation, updated to reflect the test excavation, would be adequate data recovery. Features with subsurface deposits would be register eligible, and data recovery would ensue.

Geophysical Test for Subsurface PQAD Contributing Thermal Cobble Features:

i. Test, in a 1-acre parcel within 30 meters of known thermal cobble features, the efficacy of the use of magnetometry to locate buried examples of thermal cobble features;

ii. Ground-truth by hand or mechanical excavation a minimum 25 percent sample (but no more than 5 individual anomalies) of the anomalies identified in the test survey;

iii. Keep field notes and the forms for the survey areas sufficient to completely document the geophysical test;

iv. Inform the CPM of the results of the magnetometry survey and ground-truthing and consult on the efficacy of continuing this survey method;

Geophysical Survey for Subsurface PQAD Contributing Thermal Cobble Features:

If the CRS and CPM agree, after consultation, that the geophysical test demonstrates that the use of magnetometry appears to be reasonably effective in locating buried thermal cobble features, the project owner shall ensure that the PPA proceeds to a broader magnetometry survey of a sample of the area within the PQAD provisional district boundary. The PPA shall:

i. Develop a single stratified random sample for the PQAD that would result in a magnetometry survey of a minimum of 10 percent of the total district area on the plant site;

ii. Use criteria to derive the sample that the CRS, the PPA, and the CPM shall agree upon and that reflect the spatial variability in the physical and material character and in the chronology of the PQAD, as such variability is presently known from the field investigations;

iii. Ground-truth by hand or mechanical excavation the lesser of 10 percent or 10 individual anomalies of those identified in the test survey;

iv. Inform the CPM of the results of the survey

v. Keep field notes and the forms for the survey areas sufficient to completely document the geophysical survey.

Mechanical Survey for Subsurface PQAD Contributing Thermal Cobble Features:

If the CRS and CPM agree, after consultation, that the geophysical test demonstrates that the use of magnetometry appears to be ineffective in locating buried thermal cobble features, the project owner shall ensure that the PPA submits, for CPM review and approval, the CRS's and PPA's plan and methods for a mechanical subsurface survey of the PQAD, using construction equipment, such as a road grader or a backhoe that can work in 5-centimeter lifts. The plan and methods shall include:

i. Use of transects, the proposed width and length of which the CPM would approve;

ii. Removal of thin (no thicker than approximately 5 centimeters) layers to carefully expose target archaeological deposits

iii. Survey of a minimum of 2.5 percent of the total PQAD area on the plant site;

iv. Use criteria to derive the sample that the CRS, the PPA, and the CPM shall agree upon and that reflect the spatial variability in the physical and material character and in the chronology of the PQAD, as such variability is presently known from the field investigations;

v. Preservation of found archaeological deposits until the conclusion of the survey to facilitate the formulation of a representative data recovery sample;

vi. Consideration of the PPA recovering a sample of the buried land surfaces that may surround individual features or groups of features and documenting the material culture assemblages that may be found on such surfaces;

vii. Verbal report to the CPM on the results of the survey;

viii. Retention of field notes and the forms for the survey areas sufficient to completely document the mechanical survey.

Data Recovery from Thermal Cobble Features

Data shall be recovered from a sample of the individual thermal cobble features to document these characteristic elements of the PQAD. The purpose of this documentation would be to describe the physical variability of the features, to identify and inventory the artifacts and ecofacts that are found in them, and to interpret the methods of construction and the potential uses of the features. The procedures below shall also be used for data recovery at the three non-PQAD thermal cobble features (sites SMB-H-164, SMB-M-214, SMB-M-418). Data recovery activities shall include:

i. Excavation of a sample of 20 percent of thermal cobble features, drawn from all of the thermal cobble features found as a result of the entire cumulative effort to inventory these PQAD contributors; preference should be given to data recovery from intact, buried examples, if any identified in geophysical or mechanical survey;

ii. Use of criteria to derive the sample that the CRS, the PPA, and the CPM shall agree upon and that reflect the spatial variability in the physical and material character and in the chronology of the PQAD, as such variability is presently known from the field investigations;

iii. Excavation would entail small (approximately 1–3 meters square) areal exposures by hand, where feasible, to remove the archaeological deposits in anthropogenic layers, if present;

iv. Retention of samples of each layer sufficient to submit for radiocarbon assays, and macrobotanical, palynological, geochemical, or other analyses;

v. Screening of the balance of each layer through hardware cloth of no greater than 1/8-inch mesh;

vi. Recordation of these small exposures in drawings and photographs;

vii. Retention of field notes and the forms for the excavated features sufficient to acquire the complete complement of data necessary for the description of each feature and the interpretation of the construction and use of each feature to the satisfaction of the CPM;

viii. Completions by PPA or CRS and submission by project owner to CPM and BLM of draft DPR 523C site forms for sites where data recovery completed.

Data Recovery from Former Land Surfaces Surrounding Thermal Cobble Features

Data shall be recovered from a sample of buried land surfaces assumed to be adjacent to buried thermal cobble features, if any, identified during the geophysical or mechanical subsurface survey, to document the material culture assemblages and other evidence of behavior that may be found on such surfaces. The project owner shall ensure that the PPA:

i. Develops, in consultation with the CRS and the CPM a sample of the potential buried surfaces, if any, that would be subject to excavation;

ii. Uses criteria to derive the sample that the CRS, the PPA, and the CPM shall agree upon and that reflect the spatial variability in the physical and material character and in the chronology of the PQAD, as such variability is presently known from the field investigations;

iii. Excavates by hand three large (3 meters square) block exposures,

iv. Successfully recovers data from at least four block exposures, but must make no more than eight attempts to find buried surfaces around thermal cobble features.

v. Removes the archaeological deposits from the top of the surface in anthropogenic layers, if present. Excavates each block exposure as a single excavation unit rather than as nine separate, one-meter-square excavation units; the PPA may excavate three continuous, 1-meter-square excavation units together across the center of the feature to assess the presence of a surface and then excavate the other six units if a surface is present;

vi. Retains samples of each layer sufficient to submit for radiocarbon assays, and macrobotanical, palynological, geochemical, or other analyses;

vii. Screens the balance of each layer through hardware cloth of no greater than 1/8-inch mesh;

viii. Keeps field notes and the forms for the excavated features sufficient to acquire the complete complement of data necessary for the description of the distributions of artifacts and ecofacts across each surface, and the interpretation of the use of each surface, to the satisfaction of the CPM;

c. Lithic Scatter

The protocol for the lithic scatter shall be that in **CUL-7**.

5. Materials Analyses
The project owner shall ensure that the PQAD evaluation and data recovery plan articulates the anticipated scope of the analyses of the artifact and ecofact collections that cumulatively result from the investigations of the PQAD, articulates the analytic methods to be used, and articulates how the data sets that such analyses will produce are relevant to the themes and questions in the research design for the PQAD.

6. Report of Investigations
The project owner shall ensure that the PQAD evaluation and data recovery plan states that a final report for the PQAD evaluation and data recovery plan Data Recovery Program is required and describes the content, production schedule, and approval process for the report.

7. Provision of Results to the PTNCL PI
The project owner shall ensure that the CRS provides the data and results of the PQAD evaluation and data recovery plan Data Recovery Program to the PTNCL PI for incorporation into the PTNCL NRHP nomination.

8. California Register of Historical Resources (CRHR) and National Register of Historic Places (NRHP) Registrations.
The project owner shall ensure that the PPA prepares a CRHR nomination and a NRHP nomination for the PQAD, including both the contributors located within the boundaries of the BSPP and such contributors, entire and partial, located beyond the boundaries of the BSPP, as are known or posited. The nominations should the PPA's best estimate of a boundary for the district, a boundary that the PPA shall derive on the basis of the results of the PQAD evaluation and data recovery program and present in the final report for that program.

The project owner shall ensure that the CRS

a. submits the CRHR nomination to the State Historical Resources Commission for formal consideration of CRHR eligibility,
b. submits the NRHP nomination to the State Historical Resources Commission to initiate the process of formal consideration by the Keeper of the National Register, and
c. tracks and facilitates the review of both nominations to acceptance or rejection.

9. Outreach Initiatives if PTNCL not eligible
a. Professional Outreach. The project owner shall ensure that the CRS and/or PPA prepare a research paper and present it at a professional conference, or prepare and publish a peer-reviewed journal article to inform the professional archaeological community about the PQAD and to

interpret its implications for our understanding of the prehistory and early history of Native American life in the region.

b. Public Outreach. The project owner shall prepare and present materials that interpret the PQAD for the public. Potential public interpretation efforts may include the preparation of an instructional module for use in local school districts, or the preparation of a display for existing public interpretation venues such as Wiley's Well Road Rest Area.

Verification:

1. At least 200 days prior to the start of project-related ground disturbance, the project owner shall submit the PQAD evaluation and data recovery plan (in the CRMMP) to the CPM for review and approval and to the BLM Palm Springs archaeologist for review and comment.

2. At least 190 days prior to the start of BSPP construction-related ground disturbance in Units 1 and 4 or along the linear facilities corridor, the project owner shall ensure that the PPA completes the geophysical test and that the CRS and PPA consult with the CPM, via telephone, to arrive at an agreement on the reliability of the use of magnetometry to locate buried PQAD thermal cobble features and how to proceed with the subsurface survey, The project owner shall also submit, for the review and approval of the CPM, the precise geographic coordinates of the provisional boundary of the PQAD and a stratified random sample for a broader magnetometry survey of 10 percent of the PQAD within the project boundaries and a stratified random sample for a mechanical subsurface survey of 2.5 percent of the PQAD located inside the project's boundaries.

3. At least 150 days prior to the onset of BSPP construction-related ground disturbance anywhere in the PQAD, the project owner shall ensure that the PPA completes the preliminary report on the formal inventory of the PQAD prepared by or under the direction of the CRS, and separate samples for the data recovery excavation of 10 PQAD thermal cobble features, the three isolated thermal cobble features, and four block exposures to reveal intact buried land surfaces there. The project owner shall ensure that the preliminary report is a concise document that provides descriptions of the schedule and methods of the inventory field effort, a preliminary tally of the numbers and, where feasible, the types of archaeological deposits that were found, a discussion of the potential range of error in that tally, and a map of the locations of the found archaeological deposits that has topographic contours and the project site landform designations as overlays. The results of the formal inventory, as set out in the preliminary report, shall be the basis for the refinement of the provisional district boundary.

4. At least 90 days prior to the start of BSPP construction-related ground disturbance in Units 1 and 4 or along the linear facilities corridor, the project owner shall ensure that the CRS completes the data recovery phases of the data recovery program and submits, for the review and approval of the CPM, a preliminary report of the results. The preliminary report shall be a concise document that provides descriptions of the schedule and methods of the data recovery effort, technical descriptions of excavated archaeological features and buried land surfaces that, while draft in format, present the highest resolution of technical data that can be derived from the data recovery field

notes, plan and, as appropriate, profile drawings and photographs of excavated archaeological features and buried land surfaces, and technical descriptions and appropriate graphics of the stratigraphic contexts of excavated archaeological features and buried land surfaces.

5. No longer than 240 days after the end of all construction-related ground disturbance, the project owner shall ensure that the CRS completes the preparation of the National Register of Historic Places and the California Register of Historical Resources nominations for the PQAD and submits the nominations to the State Historic Resources Commission for formal consideration.

6. No longer than 300 days after the end of all construction-related ground disturbance, the project owner shall ensure that the CRS completes the professional paper and provides the CPM with three copies of the final product of that effort, and prepares, and submits for the approval of the CPM, a public outreach product. Upon the CPM's approval of the latter product, the project owner shall ensure, as appropriate, the product's installation, implementation, or display.

7. No longer than 360 days after the end of all construction-related ground disturbance, the project owner shall ensure that the CRS completes the requisite material analyses for, prepare, and submits, for the approval of the CPM, the final cultural resources report for the Blythe cultural resources data recovery and monitoring activities.

CUL-7 DATA RECOVERY FOR SMALL PREHISTORIC SITES (LITHIC SCATTERS, CAIRNS, AND POT DROPS)

Prior to the start of ground disturbance within 30 meters of the site boundaries of sites CA-Riv-1136, SMB-P-160, SMB-M-214, SMB-P-228, SMB-H-234, SMB-P-238, SMB-P-241, SMB-P-244, SMB-P-249, SMB-P-252, SMB-P-410, SMB-P-530, SMB-P-531, SMB-P-532, SMB-H-CT-001, SMB-H-TC-101, SMB-H-TC-103, and SMB-H-WG-102, the project owner shall ensure that the CRMMP includes a detailed data recovery plan for these sites, including the use of the CARIDAP protocol (if a site qualifies), how to proceed if features or other buried deposits are encountered, and the materials analyses and laboratory artifact analyses that will be used. The plan shall also specify in detail the location recordation equipment and methods used and describe any post-processing of the data. The project owner shall then ensure that the CRS, the PSSA, the PPA, and/or archaeological team members implement the plan, if allowed by the BLM, which, for sites where CARIDAP does not apply, shall include, but is not limited to the following tasks:

1. Use location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers) to add to the original site maps the following features: seasonal drainages, site boundaries, location of each individual artifact, and the boundaries around individual artifact concentrations;

2. Request the PG to identify the specific landform for each site;

3. Map and field-record all lithic artifacts (numbers of flakes, the reduction sequence stage each represents, cores, tool blanks, finished tools,

hammerstones, and concentrations, and the material types of each) and the other types of prehistoric artifacts present

4. Map any differential distribution of artifacts and suggest explanations for the distribution

5. Assess the integrity of the site and provide the evidence substantiating that assessment;

6. Collect for dating and source analyses any obsidian artifacts;

7. Field record the surface location of all other artifacts and collect all ceramic artifacts and botanical and faunal remains for laboratory analysis and curation;

8. Surface scrape to a depth of 5 centimeters a 5-meter-by-5-meter area centered on the artifact concentration, field-record the lithic artifacts as to location, material type, and the reduction sequence stage each represents, record the location of all other artifacts, and retain the obsidian and ceramic artifacts and botanical and faunal remains for laboratory analysis and curation;

9. Excavate one 1-meter-by-1-meter unit in 10-centimeter levels until the unit reaches a depth of 20 centimeters below any anthropogenic materials, placing the unit in the part of the site with the highest artifact density and recording its locations on the site map;

10. Place one 1-meter-by-1-meter excavation unit, as described above, in the center of each concentration if multiple artifact concentrations have been identified;

11. Notify the CPM by telephone or e-mail that subsurface deposits were or were not encountered and make a recommendation on the site's CRHR eligibility;

12. If no subsurface deposits were encountered, and the CPM agrees the site is not eligible for the CRHR, data recovery is complete;

13. If subsurface deposits are encountered, test the horizontal limits of the site by excavating additional 1-meter-by-1-meter excavation units in 10-centimeter levels until the unit reaches a depth of 20 centimeters below any anthropogenic materials, using a shovel or hand auger, or other similar technique, at four spots equally spread around the exterior edge of each site, recording the locations of these units on the site map;

14. Sample the encountered features or deposits, using the methods described in the CRMMP, record their locations on the site map, retain samples, such as flotation, pollen, and charcoal, for analysis, and retain all artifacts for professionally appropriate laboratory analyses and curation, until data recovery is complete;

15. Present the results of the **CUL-7** data recovery in a letter report by the PPA or CRS, which shall serve as a preliminary report. Letter reports may address one site, or multiple sites depending on the needs of the CRS. The letter report shall be a concise document the provides description of the

schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, a map showing the location of excavation units including topographic contours and the site landforms, and a discussion of the CRHR eligibility of each site and the justification for that determination;

16. Update the existing Department of Parks and Recreation (DPR) 523 site form for these sites, including new data on seasonal drainages, site boundaries, location of each individual artifact, the boundaries around individual artifact concentrations, the landform, and the eligibility determination; and

17. Present the final results of data recovery at these prehistoric sites in the CRR, as described in **CUL-18**.

Verification:

1. At least 90 days prior to ground disturbance, the project owner shall notify the CPM that data recovery for small sites has ensued.

2. After the completion of the excavation of the first 1-meter-by-1-meter excavation unit at each of the subject sites, the CRS shall notify the CPM regarding the presence or absence of subsurface deposits and shall make a recommendation on the site's CRHR eligibility.

3. Within one week of the completion of data recovery at a site, the project owner shall submit a letter report written by the PPA or CRS for review and approval of the CPM. When the CPM approves the letter report, ground disturbance may begin at this site location.

CUL-8 DATA RECOVERY ON HISTORIC-PERIOD SITES WITH FEATURES

Prior to the start of ground disturbance, the project owner shall ensure that a data recovery plan for 12 historic-period archaeological sites with features (SMB-H-143, SMB-H-203, SMB-H-205, SMB-H-207, SMB-H-210, SMB-H-222, SMB-H-223, SMB-H-245, SMB-H-250, SMB-H-251, SMB-H-416, and SMB-H-419), all of which are located on the proposed plant site, is included in the CRMMP. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks:

1. The project owner shall hire a PHA with the qualifications described in **CUL-3** to supervise the field work.
2. The project owner shall ensure that, prior to beginning the field work, the PHA and all field crew members are trained by the DTCCL Historical Archaeologist in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the early phases of WWII land-based U.S. army activities,

as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist.

3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits.
4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features (previously known and newly found in the metal detector survey), using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers).
5. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, if not done previously. Types of seams and closures for each bottle and all cans shall be documented. Photographs shall be taken of any text or designs. Unusual or unidentifiable artifacts may be collected for further analysis, but otherwise artifacts shall not be collected.
6. The project owner shall ensure a systematic metal detector survey be completed at each site, and that each "hit" is investigated. All artifacts and features thus found must be mapped, measured, photographed, and fully described in writing.
7. The project owner shall ensure that all features are recorded, and that any features having subsurface elements are excavated by a qualified historical archaeologist. All features and contents must be mapped, measured, photographed, and fully described in writing.
8. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA ,which shall serve as a preliminary report, that details what was found at each site, as follows:
    a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and
    b. The letter report shall be a concise document the provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms.
9. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the 12 historic-period sites are contributing elements to the DTCCL.
10. The project owner shall ensure that the PHA analyzes all recovered data and writes or supervisors the writing of a comprehensive final report. This report shall be included in the CRR (**CUL-18**). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by **CUL-2**).

Verification:

1. At least 90 days prior to ground disturbance, the project owner shall notify the CPM that mapping and in-field artifact analysis has ensued on historic-period sites with features.
2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.

CUL-9 DATA RECOVERY ON HISTORIC-PERIOD SITES WITH STRUCTURES

Prior to the start of ground disturbance, the project owner shall ensure that a data recovery plan for three historic-period archaeological sites with structures (SMB-H-404, SMB-H-432, and SMB-H-514), all of which are located on the proposed plant site, is included in the CRMMP. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks:

1. The project owner shall hire a qualified historian to research the locations of these sites and attempt to determine their origins and functions from the historical record.
2. The project owner shall hire a PHA with the qualifications described in CUL-3 to supervise the field work.
3. The project owner shall ensure that, prior to beginning the field work, the PHA and all field crew members are trained by the DTCCL Historical Archaeologist in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist.
4. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits.
5. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features (previously known and newly found in the metal detector survey), using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers).
6. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, if not done previously. Types of seams and closures for each bottle and all cans shall be documented. Photographs shall be taken of any text or designs. Unusual or unidentifiable artifacts may be collected for further analysis, but otherwise artifacts shall not be collected.

7. The project owner shall ensure a systematic metal detector survey be completed at each site, and that each “hit” is investigated. All artifacts and features thus found must be mapped, measured, photographed, and fully described in writing.
8. The project owner shall ensure that all structures are mapped, measured, photographed, and fully described in writing, and that all associated features having subsurface elements are excavated by a qualified historical archaeologist. All features and contents must be mapped, measured, photographed, and fully described in writing.
9. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA ,which shall serve as a preliminary report, that details what was found at each site, as follows:
    a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and
    b. The letter report shall be a concise document the provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms.
10. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the three historic-period sites are contributing elements to the DTCCL.
11. The project owner shall ensure that the PHA analyzes all recovered data and writes or supervises the writing of a comprehensive final report. This report shall be included in the CRR (CUL-18). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by CUL-2).

Verification:

1. At least 90 days prior to ground disturbance, the project owner shall notify the CPM that mapping and in-field artifact analysis has ensued on historic-period sites with structures.

2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.

CUL-10 DATA RECOVERY ON HISTORIC-PERIOD DUMP SITES

Prior to the start of ground disturbance, the project owner shall ensure that a data recovery plan is included in the CRMMP for five historic-period dump sites located on the proposed plant site (SMB-H-178, SMB-H-224, SMB-H-

403, and SMB-H-427) and along the linear facilities corridor (SMB-H-522/525), if impacts to the latter site cannot be avoided by spanning it. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks:

1. The project owner shall hire a PHA with the qualifications described in **CUL-3** to supervise the field work.
2. The project owner shall ensure that, prior to beginning the field work, the PHA and all field crew members are trained by the DTCCL Historical Archaeologist in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist.
3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits.
4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages, any man-made features, the limits of any artifact concentrations and features, using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers).
5. The project owner shall ensure that each dump is entirely mapped, measured, photographed, and fully described in writing.
6. , The project owner shall ensure that 10 percent of the surface contents of each dump is recorded as follows:
7. Apply a 1-meter x 1-meter grid to the entire dump and randomly select 10 percent of the units.
8. Do a detailed in-field analysis of all artifacts in each unit, documenting the measurements and the types of seams and closures for each bottle, and the measurements, seams, closure, and opening method for all cans. Photographs shall be taken of maker's marks on bottles, any text or designs on bottles and cans, and of decorative patterns and maker's marks on ceramics. Unusual or unidentifiable artifacts may be collected for further analysis, but otherwise artifacts shall not be collected.
9. If any subsurface elements are found in the units, a qualified historical archaeologist shall excavate the part in the unit. All features and contents must be mapped, measured, photographed, and fully described in writing.
10. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA ,which shall serve as a preliminary report, that details what was found at each site, as follows:

a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and

b. The letter report shall be a concise document the provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms.

c. The letter report for each site shall present preliminary conclusions regarding the period(s) of use of the dump and suggest who the possible users were in each represented period.

11. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the five historic-period dump sites are contributing elements to the DTCCL.

12. The project owner shall ensure that the PHA analyzes all recovered data and writes or supervises the writing of a comprehensive final report. This report shall be included in the CRR (**CUL-18**). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by **CUL-2**).

Verification:

1. At least 90 days prior to ground disturbance, the project owner shall notify the CPM that mapping and in-field artifact analysis has ensued on historic-period dump sites.

2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.

CUL-11 DATA RECOVERY ON HISTORIC-PERIOD REFUSE SITES

Prior to the start of ground disturbance, the project owner shall ensure that a recovery plan for upgrading the recordation of six historic-period refuse scatter sites (SMB-H-164, SMB-H-166, SMB-H-181, SMB-H-287, SMB-H-288, and SMB-H-423), all of which are located on the proposed plant site, is included in the CRMMP. (SMB-H-164 also has a probable prehistoric thermal cobble feature for which assessment and data recovery would be accomplished under **CUL-6**.) The focus of the recordation upgrade is to determine if these sites can be attributed to the DTC/C-AMA use of the region and are therefore contributors to the DTCCL. The plan shall specify in detail the location recordation equipment and methods to be used and describe any anticipated post-processing of the data. The project owner shall then ensure that the CRS, the PHA, and/or archaeological team members implement the plan, if allowed by the BLM, which shall include, but is not limited to the following tasks:

1. The project owner shall hire a PHA with the qualifications described in **CUL-3** to supervise the field work.
2. The project owner shall ensure that, prior to beginning the field work, the PHA and all field crew members are trained by the DTCCL Historical Archaeologist in the identification, analysis and interpretation of the artifacts, environmental modifications, and trash disposal patterns associated with the early phases of WWII land-based U.S. army activities, as researched and detailed by the DTCCL PI-Historian and the DTCCL Historical Archaeologist.
3. The project owner shall ensure that, prior to beginning the field work, the field crew members are also trained in the consistent and accurate identification of the full range of late nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits.
4. The project owner shall ensure that the original site map shall be updated to include at minimum: landform features such as small drainages , any man-made features, the limits of any artifact concentrations and features (previously known and newly found in the metal detector survey), using location recordation equipment that has the latest technology with sub-meter accuracy (such as UTM 11 North or California Teale Albers).
5. The project owner shall ensure that a detailed in-field analysis of all artifacts shall be completed, documenting the measurements and the types of seams and closures for each bottle, and the measurements, seams, closure, and opening method for all cans. Photographs shall be taken of maker's marks on bottles, any text or designs on bottles and cans, and of decorative patterns and maker's marks on ceramics. Artifacts shall not be collected.
6. The project owner shall ensure a systematic metal detector survey be completed at each site, and that each "hit" is investigated. All artifacts and features thus found must be mapped, measured, photographed, and fully described in writing.
7. The project owner shall ensure that all structures are mapped, measured, photographed, and fully described in writing, and that all associated features having subsurface elements are excavated by a qualified historical archaeologist. All features and contents must be mapped, measured, photographed, and fully described in writing.
8. The project owner shall ensure that the details of what is found at each site shall be presented in a letter report from the CRS or PHA ,which shall serve as a preliminary report, that details what was found at each site, as follows:
    a. Letter reports may address one site, or multiple sites depending on the needs of the CRS; and
    b. The letter report shall be a concise document the provides a description of the schedule and methods used in the field effort, a preliminary tally of the numbers and types of features and deposits that were found, a discussion of the potential range of error for that tally,

and a map showing the location of collection and/or excavation units, including topographic contours and the site landforms.

c. The letter report shall make a recommendation on whether each site is a contributor to the DTTCL.

9. The project owner shall ensure that the data collected from the field work shall be provided to the DTCCL Historical Archaeologist to assist in the determination of which, if any, of the six historic-period sites are contributing elements to the DTCCL.

10. The project owner shall ensure that the PHA analyzes all recovered data and writes or supervisors the writing of a comprehensive final report. This report shall be included in the CRR (**CUL-18**). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by **CUL-2**).

Verification:

1. At least 90 days prior to ground disturbance, the project owner shall notify the CPM that mapping and upgraded in-field artifact analysis has ensued on six historic-period refuse scatter sites.
2. Within one week of completing data recovery at a site, the project owner shall submit to the CPM for review and approval a letter report written by the CRS, evidencing that the field portion of data recovery at each site has been completed. When the CPM approves the letter report, ground disturbance may begin at the site location(s) that are the subject of the letter report.

CUL-12 DATA RECOVERY ON HISTORIC-PERIOD ROADS

The project owner shall ensure that a qualified architectural historian (must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for historian, as published in Title 36, Code of Federal Regulations, part 61) conducts research and writes a report on the age and use of two historic-period, unimproved roads (SMB-H-600, SMB-H-601), with particular attention paid to their role during the use of the area by the U. S. Army in World War II training maneuvers (DTC/C-AMA).

The project owner shall provide the historian's report to the DTCCL PI-Historian for use in the possible DTCCL NRHP nomination.

The project owner may undertake this task prior to Energy Commission certification of the project.

Verification:

1. At least 15 days prior to ground disturbance, the project owner shall submit to the CPM the historian's report documenting the age and historical use of the two roads.

2. Within 15 days after the CPM approves the report, the project owner shall forward it to the DTCCL PI-Historian.

CUL-13 ARCHIVAL RESEARCH ON BLYTHE ARMY AIR BASE RESERVOIR PIPELINES

The project owner shall ensure that a qualified architectural historian (must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for historian, as published in Title 36, Code of Federal Regulations, part 61) conducts research to establish the current existence and locations of the water supply pipelines that connect the Blythe Army Air Base Reservoir pipelines to the former Blythe Army Air Base. The project owner shall ensure that the construction of the project's underground facilities that cross these old pipelines avoids impacting them.

The project owner shall provide the historian's report to the DTCCL PI-Historian for use in the possible DTCCL NRHP nomination.

The project owner may undertake this task prior to Energy Commission certification of the project.

Verification:

1. At least 15 days prior to excavating any trenches crossing the old Blythe Army Air Base Reservoir water pipelines, the project owner shall submit to the CPM the historian's report verifying the current presence or absence of the pipelines and, if they are present, a plan indicating how they will be avoided.

2. Within 15 days after the CPM approves the report, the project owner shall forward it to the DTCCL PI-Historian

CUL-14 ARCHIVAL RESEARCH ON RADIO COMMUNICATIONS FACILITY

The project owner shall ensure that a qualified architectural historian (must meet the U.S. Secretary of the Interior's Professional Qualifications Standards for historian, as published in Title 36, Code of Federal Regulations, part 61) conducts research to evaluate the CRHR eligibility of the radio communications facility, considering all pertinent register criteria, as well as integrity. If the facility is recommended as CRHR-eligible, the project owner shall propose ways to avoid or mitigate, to a less than significant level, the project's impacts to the facility's integrity of setting and integrity of feeling.

The project owner may undertake this task prior to Energy Commission certification of the project

Verification:

1. At least 60 days prior to construction, the project owner shall submit to the CPM the historian's recommendation, with supporting evidence, on the eligibility of the radio communications facility and, if it is eligible, a plan indicating how the project's impacts to the facility's integrity of setting and integrity of feeling will be avoided or mitigated to a less than significant level.

2. At least 30 days prior to construction, the project owner shall implement those elements of the submitted avoidance/mitigation plan approved by the CRS.

CUL-15 WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program (WEAP) training to all new workers within their first week of employment at the project site, along the linear facilities routes, and at laydown areas, roads, and other ancillary areas. The training shall be prepared by the CRS, may be conducted by any member of the archaeological team, and may be presented in the form of a video. The CRS shall be available (by telephone or in person) to answer questions posed by employees. The training may be discontinued when ground disturbance is completed or suspended, but must be resumed when ground disturbance, such as landscaping, resumes.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. A discussion of what such artifacts may look like when partially buried, or wholly buried and then freshly exposed;
4. A discussion of what prehistoric and historical archaeological deposits look like at the surface and when exposed during construction, and the range of variation in the appearance of such deposits;
5. Instruction that the CRS, alternate CRS, and CRMs have the authority to halt ground disturbance in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts, as determined by the CRS;
6. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources discovery and shall contact their supervisor and the CRS or CRM, and that redirection of work would be determined by the construction supervisor and the CRS;
7. An informational brochure that identifies reporting procedures in the event of a discovery;
8. An acknowledgement form signed by each worker indicating that they have received the training; and
9. A sticker that shall be placed on hard hats indicating that environmental training has been completed.
10. No ground disturbance shall occur prior to implementation of the WEAP program, unless such activities are specifically approved by the CPM.

Verification:

1. At least 30 days prior to the beginning of ground disturbance, the CRS shall provide the training program draft text and graphics and the informational brochure to the CPM for review and approval.

2. At least 15 days prior to the beginning of ground disturbance, the CPM will provide to the project owner a WEAP Training Acknowledgement form for each WEAP-trained worker to sign.

3. Monthly, until ground disturbance is completed, the project owner shall provide in the Monthly Compliance Report (MCR) the WEAP Training Acknowledgement forms of workers who have completed the training in the prior month and a running total of all persons who have completed training to date.

CUL-16 CONSTRUCTION MONITORING PROGRAM

The project owner shall ensure that the CRS, alternate CRS, or CRMs, to prevent construction impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner, monitor full time all ground disturbance:

- in the areas recommended by the geoarchaeological study to the depth recommended;
- for the trenches for underground communication lines and the natural gas pipeline;
- for the holes for the transmission line support structures
- in the parts of sites CA-Riv-2846 and CA-Riv-3419 that the project will grade away, in the area inside project boundaries within 1,000 feet of the margins of archaeological sites CA-Riv-2846 and CA-Riv-3419 and within 300 feet of all known and discovered examples of thermal cobble features; and
- for the jack-and-bore tunneling for underground conductor or cable lines or pipelines, that they monitor the excavation of the jack-and-bore entry and exit pits and examine, log, and screen auger backdirt samples, as detailed in the CRMMP.

Full-time archaeological monitoring for this project shall be the archaeological monitoring of the earth-removing activities in the areas specified in the previous paragraph, for as long as the activities are ongoing. Where excavation equipment is actively removing dirt and hauling the excavated material farther than fifty feet from the location of active excavation, full-time archaeological monitoring shall require at least two monitors per excavation area. In this circumstance, one monitor shall observe the location of active excavation and a second monitor shall inspect the dumped material. For excavation areas where the excavated material is dumped no farther than fifty feet from the location of active excavation, one monitor shall both observe the location of active excavation and inspect the dumped material.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Contact lists of

interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

The research design in the CRMMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of non-compliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended.

The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.
The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

Verification:

1. At least 30 days prior to the start of ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log.

2. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the CRMMP.

3. At least 24 hours prior to implementing a proposed change in monitoring level, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for changing the monitoring level.

4. Daily, as long as no cultural resources are found, the CRS shall provide a statement that "no cultural resources over 50 years of age were discovered" to the CPM as an e-mail or in some other form of communication acceptable to the CPM.

5. Weekly, during jack-and-bore tunneling for the underground transmission line, the project owner shall provide the CPM with copies of the soil and sediment descriptions and auger-backdirt screening logs kept by the CRS, alternate CRS, or CRMs, as detailed in the CRMMP.

6. At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting.

7. No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information. Additionally, the project owner shall submit to the CPM copies of letters of transmittal for all subsequent responses to Native American requests for notification, consultation, and reports and records.

8. Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

CUL-17 AUTHORITY TO HALT CONSTRUCTION; TREATMENT OF DISCOVERIES

The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, PPA, PHA, PG, and the CRMs in the event of a discovery. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor in consultation with the CRS.

In the event that a cultural resource over 50 years of age is found (or if younger, determined exceptionally significant by the CPM), or impacts to such a resource can be anticipated, ground disturbance shall be halted or redirected in the immediate vicinity of the discovery sufficient to ensure that the resource is protected from further impacts. Monitoring and daily reporting, as provided in other conditions, shall continue during the project's ground-disturbing activities elsewhere. The halting or redirection of ground disturbance shall remain in effect until the CRS has visited the discovery, and all of the following have occurred:

1. The CRS has notified the project owner, and the CPM has been notified within 24 hours of the discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning, including a description of the discovery (or changes in character or attributes), the action taken (i.e., work stoppage or redirection), a recommendation of CRHR eligibility, and recommendations for data recovery from any cultural resources discoveries, whether or not a determination of CRHR eligibility has been made.

2. If the discovery would be of interest to Native Americans, the CRS has notified all Native American groups that expressed a desire to be notified in the event of such a discovery.

3. The CRS has completed field notes, measurements, and photography for a DPR 523 "Primary" form. Unless the find can be treated prescriptively, as specified in the CRMMP, the "Description" entry of the DPR 523 "Primary" form shall include a recommendation on the CRHR eligibility of the discovery. The project owner shall submit completed forms to the CPM.

4. The CRS, the project owner, and the CPM have conferred, and the CPM has concurred with the recommended eligibility of the discovery and approved the CRS's proposed data recovery, if any, including the curation of the artifacts, or other appropriate mitigation; and any necessary data recovery and mitigation have been completed.

Verification:

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM and CRS with a letter confirming that the CRS, alternate CRS, PPA, PHA, PG, and CRMs have the authority to halt ground disturbance in the vicinity of a cultural resources discovery, and that the project owner shall ensure that the CRS notifies the CPM within 24 hours of a discovery, or by Monday morning if the cultural resources discovery occurs between 8:00 AM on Friday and 8:00 AM on Sunday morning.

2. Within 48 hours of the discovery of a resource of interest to Native Americans, the project owner shall ensure that the CRS notifies all Native American groups that expressed a desire to be notified in the event of such a discovery.

3. Unless the discovery can be treated prescriptively, as specified in the CRMMP, completed DPR 523 forms for resources newly discovered during ground disturbance shall be submitted to the CPM for review and approval no later than 24 hours following the notification of the CPM, or 48 hours following the completion of data recordation/recovery, whichever the CRS decides is more appropriate for the subject cultural resource.

CUL-18 CULTURAL RESOURCES REPORT (CRR)

The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for review and approval and to the BLM Palm Springs archaeologist for review and comment. The final CRR shall be written by or under the direction of the CRS. The final CRR shall report on all field activities including dates, times and locations, results, samplings, and analyses. All survey

reports, revised and final Department of Parks and Recreation (DPR) 523 forms, data recovery reports, and any additional research reports not previously submitted to the California Historical Resource Information System (CHRIS) and the State Historic Preservation Officer (SHPO) shall be included as appendices to the final CRR.

If the project owner requests a suspension of ground disturbance and/or construction activities, then a draft CRR that covers all cultural resources activities associated with the project shall be prepared by the CRS and submitted to the CPM and to the BLM Palm Springs archaeologist for review and approval on the same day as the suspension/extension request. The draft CRR shall be retained at the project site in a secure facility until ground disturbance and/or construction resumes or the project is withdrawn. If the project is withdrawn, then a final CRR shall be submitted to the CPM for review and approval at the same time as the withdrawal request.

Verification:

1. Within 30 days after requesting a suspension of construction activities, the project owner shall submit a draft CRR to the CPM for review and approval.

2. Within 180 days after completion of ground disturbance (including landscaping), the project owner shall submit the final CRR to the CPM for review and approval and to the BLM Palm Springs Field Office archaeologist for review and approval. If any reports have previously been sent to the CHRIS, then receipt letters from the CHRIS or other verification of receipt shall be included in an appendix.

3. Within 10 days after the CPM and the BLM Palm Springs Field Office archaeologist approve the CRR, the project owner shall provide documentation to the CPM confirming that copies of the final CRR have been provided to the SHPO, the CHRIS, the curating institution, if archaeological materials were collected, and to the Tribal Chairpersons of any Native American groups requesting copies of project-related reports.

C.3.15. REFERENCES

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GLOSSARY

CULTURAL RESOURCES ACRONYM GLOSSARY

Blythe Solar Power Plant

AD	After the Birth of Christ
AFC	Application for Certification
ARMR	Archaeological Resource Management Report

BC	Before the Birth of Christ
BSPP	the proposed project, Blythe Solar Power Project
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
Conditions	California Energy Commission Conditions of Certification
CRHR	California Register of Historical Resources
CRM	Cultural Resources Monitor
CRMMP	Cultural Resources Monitoring and Mitigation Plan
CRR	Cultural Resource Report
CRS	Cultural Resources Specialist
DEIS	Draft Environmental Impact Statement
DPR 523	Department of Parks and Recreation cultural resource inventory form
DTCCL	Desert Training Center, California-Arizona Maneuver Area (DTC/C-AMA) Cultural Landscape
EIC	Eastern Information Center (CHRIS), University of California, Riverside
LORS	laws, ordinances, regulations, and standards
MCR	Monthly Compliance Report
MLD	Most Likely Descendent
NAHC	Native American Heritage Commission
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PQAD	Prehistoric Quarries Archaeological District
Project Area	

of Analysis	The project site (see below) plus what additional areas staff defines for each project that are necessary for the analysis of the cultural resources that the project may impact.
Project Site	The bounded area(s) identified by the applicant as the area(s) within which they propose to build the project.
PVS1	Palo Verde Solar 1, applicant
Proposed Action	Equivalent in present analysis to “proposed project” and “undertaking.” The “proposed action” and other “alternative actions” are developed under NEPA to meet a specified purpose and need.
Proposed Project	Equivalent in present analysis to “proposed action” and “undertaking.” A “project,” pursuant to 14 CCR § 15378, “means the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.”
PTNCL	Prehistoric Trail Network Cultural Landscape
SHPO	State Historic Preservation Officer
Staff	BLM and Energy Commission cultural resources technical staff
SA	Staff Assessment
Undertaking	Equivalent in present analysis to “proposed action” and “proposed project.” An undertaking, pursuant to 36 CFR § 800.16(y), “means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.”
WEAP	Worker Environmental Awareness Program

C.8 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Testimony of Scott Debauche

C.8.1 SUMMARY OF CONCLUSIONS

Energy Commission staff ("staff") has reviewed the Blythe Solar Power Project (BSPP or proposed project) in accordance with the requirements of the California Environmental Quality Act (CEQA). Staff concludes that the BSPP would not cause a significant adverse direct or indirect impact or contribute to a cumulative socioeconomic impact on the area's housing, schools, parks and recreation, police, or hospitals.

The construction and operation of the proposed project would not result in any disproportionate socioeconomic impacts to low-income or minority populations. Gross public benefits from the project include capital costs, construction and operation payroll, and sales tax from construction and operation spending.

Staff has concluded in the **Worker Safety and Fire Protection** section of this report that the project would cause a significant direct and cumulative impact on local fire protection services. As discussed in the **Worker Safety and Fire Protection** section of this report, staff proposes a new fire station required by **Worker Safety-7** to mitigate for the direct and cumulative impacts of the project on local fire protection services. It should be noted that this potentially significant impact to fire protection services was determined using the significance thresholds presented in the **Worker Safety and Fire Protection** section, which are independent and differ from those utilized within this **Socioeconomics** section to determine potential impacts to police, school, emergency services, and recreational public services. Please refer to the **Worker Safety and Fire Protection** section of this report for a detailed discussion of fire protection services. Please refer to the **Land Use, Recreation, and Wilderness** section of this document for further analysis of recreation impacts.

C.8.2 INTRODUCTION

The socioeconomics impact analysis evaluates project-related changes on existing population and housing patterns, and community services. In addition, this section provides demographic information related to environmental justice. A discussion of the estimated beneficial economic impacts of the construction and operation of the BSPP and other related socioeconomic impacts are provided.

C.8.3 METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

With respect to CEQA, socioeconomic impacts are limited to those that could be considered direct effects on the environment, such as changes to population and housing, and that are separate from strictly economic impacts, such as a loss of revenue.

A project may have a significant effect on socioeconomics if the project would:

- induce substantial population growth in an area, either directly or indirectly;
- displace substantial numbers of people and/or existing housing, necessitating the construction of replacement housing elsewhere; or
- adversely impact acceptable levels of service for public services, including: police protection, schools, parks and recreation, and emergency medical services.

In addition to the above, the BSPP socioeconomics analysis identifies beneficial fiscal and economic effects, including impacts on local finances from sales taxes as well as the creation of employment, employment revenue, and the purchases of goods and services during both BSPP construction and operation.

To satisfy the requirements of Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," this section identifies any disproportionate minority and low-income populations within the BSPP study area. Any disproportionate significant impacts to minority and low-income populations are discussed within applicable environmental issue area section of this document.

Criteria for subject areas such as utilities, fire protection, water supply, and wastewater disposal are analyzed in the **Reliability, Worker Safety and Fire Protection,** and **Soils and Water Resources** sections of this document. Impacts on population, housing, parks and recreation, schools, medical services, law enforcement, and cumulative impacts are based on subjective judgments and data from local and state agencies. Typically, long-term employment of people from regions outside the study area could potentially result in significant adverse socioeconomic impacts.

C.8.4 PROPOSED PROJECT

C.8.4.1 SETTING AND EXISTING CONDITIONS

Laws, Ordinances, Regulations, and Standards

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 1 contains socioeconomics and environmental justice laws, ordinances, regulations, and standards (LORS) applicable to the proposed BSPP.

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
State	
California Education Code, Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
California Government Code, Sections 65996-65997	Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

REGIONAL STUDY AREA

The proposed project includes the construction and operation of a solar generating facility located in the Southern California inland desert, approximately 8 miles west of the city of Blythe, in eastern Riverside County, CA. AFC Figure 5.11-1 (Estimated Travel Time for Project Workers) visually depicts contours from the BSPP site up to a two-hour commute shed (Solar Millennium2009a, Figure 5.11-1). Based on staff's independent review of these contours, which focus on the I-10 freeway corridor, staff disagrees with the AFC conclusion that the proposed project regional study area includes San Diego County, CA; Imperial County, CA; or Yuma County, AZ; (Solar Millennium2009a, pp 5.11-4 and 5.11-5). As shown in AFC Figure 5.11-1, while the two-hour commute shed contour contains small portions of these counties, there are no populated urban centers located within the two-hour commute area. Therefore, for purposes of presenting demographic data of this commute shed, the socioeconomics regional study area is Riverside County, CA; San Bernardino County, CA; La Paz County, AZ; and Maricopa County, AZ.

In order to characterize the population and housing profile of the regional study area, current and forecasted population trends as well as current housing trends for the study area are summarized in **SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 2**. As shown in **Table 2**, the regional study area contains a high total population and is expecting a large population increase. Also shown in **Table 2**, the regional study contains a high number of housing units, with La Paz County having the highest vacancy rate.

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 2
Population and Housing Profile of the Regional Study Area

Population				
Area	Year			
	2008 Population	2010 Projected Population	2020 Projected Population	2030 Projected Population
Riverside County, CA	2,078,601	2,239,053	2,904,848	3,507,498
San Bernardino County, CA	2,055,766	2,177,596	2,582,777	2,957,744
La Paz County, AZ	21,544	22,632	25,487	28,074
Maricopa County, AZ	3,987,942	4,217,427	5,276,074	6,207,980
Housing				
Area	**2008 Total Housing Units**		**2008 Vacancy Rate Percentage (%)**	
Riverside County, CA	773,402		13.2	
San Bernardino County, CA	612,801		11.6	
La Paz County, AZ	15,577[1]		42.7[1]	
Maricopa County, AZ	1,318,623[1]		11.7[1]	

Notes: [1] Data from 2007.
Source: Solar Millennium2009a, Tables 5.11-3 and 5.11-5.

LOCAL STUDY AREA

As required by the Bureau of Land Management (BLM) Land Use Planning Handbook, Appendix D requirements (BLM 2009), a project analysis of this type needs to consider existing socioeconomic conditions and impacts on several geographic scales. An analysis at a local level presents a challenge because the proposed project is in a sparsely populated area, with the largest urban center being the city of Riverside

located approximately 100 miles west of the site. Based on BLM requirements, a reasonable study area for localized socioeconomic impacts would include the three nearest communities: the city of Blythe, CA (approximately 8 miles east of the BSPP site); the city of Ehrenburg, AZ (approximately 12 miles east of the BSPP site); and the city of Quartzsite, AZ (approximately 25 miles east of the BSPP site). The most recently published population and housing data for these communities is presented below in SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3.

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 3
Population and Housing Profile of the Local Study Area

Area	Year		
	2008 Population	2008 Total Housing Units	2008 Vacancy Rate Percentage (%)
Blythe, CA	21,627	5,444	16.1
Ehrenburg, AZ	1,409	824[1]	34.9[1]
Quartzsite, AZ	3,745	3,186[1]	41.9[1]

Notes: [1] Data from 2000.
Source: Solar Millennium2009a, Tables 5.11-4 and 5.11-5.

Based on staff research, the economic structure of these local study area communities that may be affected by the management of BLM lands includes primarily a tourism, mining, and infrastructure related economic base, with the three communities being rural suburban locations closely tied to the Interstate 10 travel route between the cities of Los Angeles, CA and Phoenix, AZ.

ENVIRONMENTAL JUSTICE/DEMOGRAPHIC SCREENING

Executive Order 12898, “Federal Actions to address environmental justice in Minority Populations and Low-Income Populations,” focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241 (Codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national programs in all programs or activities receiving federal financial assistance.

California law defines environmental justice as “the fair treatment of people of all races, cultures and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies” (Government Code Section 65040.12 and Public Resources Code Section 72000).

All Departments, Boards, Commissions, Conservancies and Special Programs of the Resources Agency must consider environmental justice in their decision-making

process if their actions have an impact on the environment, environmental laws, or policies. Such actions that require environmental justice consideration may include:

- Adopting regulations;
- Enforcing environmental laws or regulations;
- Making discretionary decisions of taking actions that affect the environment;
- Providing funding for activities affecting the environment; and
- Interacting with the public on environmental issues.

In considering environmental justice in energy siting cases, staff uses a demographic screening analysis to determine whether a low-income and/or minority population exists within the potentially affected area of the proposed site. The potentially affected area consists of a six-mile radius of the site and is consistent with air quality modeling of the range of a project's air quality impacts. The demographic screening is based on information contained in two documents: *Environmental Justice: Guidance Under the National Environmental Policy Act* (Council on Environmental Quality, December, 1997) and *Guidance for Incorporating Environmental Justice Concerns in EPA's Compliance Analyses* (U.S. Environmental Protection Agency, April, 1998). The screening process relies on Year 2000 U.S. Census data to determine the presence of minority and below-poverty-level populations.

In addition to the demographic screening analysis, staff follows the steps recommended by the U.S. EPA's guidance documents which are outreach and involvement, and if warranted, a detailed examination of the distribution of impacts on segments of the population.

Staff has followed each of the above steps for the following 11 sections in the RSA: Air Quality, Hazardous Materials, Land Use, Noise, Public Health, Socioeconomics, Soils and Water, Traffic and Transportation, Transmission Line Safety/Nuisance, Visual Resources, and Waste Management. Over the course of the analysis for each of the 11 areas, staff considered potential impacts and mitigation measures, significance, and whether there would be a significant impact on an environmental justice population.

Minority Populations

According to *Environmental Justice: Guidance Under the National Environmental Policy Act*, minority individuals are defined as members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. A minority population, for the purposes of environmental justice, is identified when the minority population of the potentially affected area is greater than 50% or meaningfully greater than the percentage of the minority population in the general population or other appropriate unit of geographical analysis.

For the BSPP, the total population within a six-mile radius of the proposed site is 1,758 persons **based on Year 2000 U.S. Census block group data**, and the total minority population is 946 persons or 53.8% of the total population (see **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Figure 1**). As the demographic screening area as a

whole exceeds 50.0%, as shown in **Figure 1,** staff in 11 technical areas identified in the Executive Summary has considered environmental justice in their environmental impact analyses.

Below-Poverty-Level Populations

Staff has also identified the current below-poverty-level population based on Year 2000 U.S. Census block group data within a six-mile radius of the project site.[1] The total population within a six-mile radius of the proposed site evaluated for low-income populations is 963 persons, and the total low-income population is 147 persons or 15.3% of the total population.

C.8.4.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

INDUCE SUBSTANTIAL POPULATION GROWTH

For the purpose of this analysis, staff defines "induce substantial population growth" as workers permanently moving into the project area because of project construction and operation, thereby encouraging construction of new homes or extension of roads or other infrastructure. To determine whether the project would induce population growth, staff analyzes the availability of the local workforce and the population within the region. Staff defines "local workforce" for the BSPP project to be the Riverside/San Bernardino/Ontario Metropolitan Statistical Area (MSA), which includes both Riverside and San Bernardino Counties.[2] As local workforce data is unavailable specifically for both La Paz and Maricopa Counties, data is presented for the State of Arizona as a whole as these counties contribute significantly to the entire State of Arizona. It should be noted that both local and regional study areas are contained within the statewide data and would contribute to the local workforce, as identified in detail below.

Construction

The applicant expects that construction of the proposed BSPP would last for 69 months, resulting in an average of approximately 604 daily construction workers peaking with a daily workforce of 1,001 workers during month 16 of construction (Solar Millennium2009a, p. 5.11-24). This peak employment number is used to analyze worst-case construction population and employment impacts. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4** shows Year 2006-2016 occupational employment projections for the Riverside/San Bernardino/Ontario MSA and State of

Arizona by construction labor skill as compared to the estimated number of total construction workers by craft needed during the peak month (month 16) as presented in the AFC (Solar Millennium2009a, p 5.11-26).

[1] Total below poverty level population reflects those persons for which poverty status is determined only.

[2] Metropolitan Statistical Areas are geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by Federal and State statistical agencies in collecting, tabulating, and publishing socioeconomic statistics.

As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**, there is more than adequate local availability of construction workforce within the Riverside/San Bernardino/Ontario MSA to serve the direct BSPP construction labor need.

When considering potential socioeconomic impacts of workers required for BSPP construction, staff considered information provided in the AFC and current California Department of Finance data for the Riverside/San Bernardino/Ontario MSA as presented in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**. Staff also utilized the findings of an Electric Power Research Institute report titled Socioeconomic Impacts of Power Plants, construction workers will commute as much as two hours to construction sites from their homes, rather than relocate (Solar Millennium2009a, p 5.11-24). During preparation of this analysis, staff consultation with the Building and Trades Council of San Bernardino and Riverside Counties also indicated that construction workers within San Bernardino and Riveriside counties regularly commute 2-hours each direction daily for work (CEC 2010b). Based on these data sources, staff concludes all construction workers will come from within this regional study area.

As stated in the AFC, it is anticipated that the vast majority of the construction workforce (a peak workforce of 1,004 workers and an average of 604 workers per day over the 69-month duration of BSPP construction) would commute to the project site rather than relocate (Solar Millennium2009a, p 5.11-25). Staff concurs with this AFC conclusion. However, to fully evaluate the potential for impacts, staff assumes that up to 15% of construction workers could seek local lodging in the BSPP local area during the workweek. It should be noted that this would be a temporary and fluctuating demand on local lodging. Staff assumes that because data indicates the workforce would likely come from within the regional study area, it is speculative to quantify if and in what numbers construction workers may permanently relocate from the regional study area to the BSPP local area for a limited duration construction job with the BSPP. Based on this assumption, it is possible that during the peak construction month (worst-case scenario) up to 150 workers could seek local lodging.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4
Total Labor by Skill in Riverside/San Bernardino/Ontario MSA and State of Arizona (2006 and 2016 Estimate) and BSPP Required Construction by Craft Peak Month

Trade	Total # of Workers for Project Construction by Craft – Peak Month	Riverside/San Bernardino/Ontario MSA 2006	State of Arizona 2006	Riverside/San Bernardino/Ontario MSA 2016	State of Arizona 2016
Surveyor	16	1,420	2,804	1,670	3,388
Operator	94	4,790	14,438	5,460	15,565
Laborer	229	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Truck Driver	28	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Oiler	4	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Carpenter	77	28,850	75,437	32,390	76,235
Boilermaker	9	4,630[2]	8,209[2]	5,330[2]	8,587[2]
Paving Crew	0	630	1,888	720	1,985
Pipe Fitter	290	4,630	8,209	5,330	8,587
Electrician	81	6,740	9,873	7,600	10,650
Cement Finisher	80	4,110	10,082	4,690	10,395
Ironworker	42	19,460	21,628	20,800	22,330
Millwright	18	2,630[3]	3,757[3]	2,960[3]	4,132[3]
Tradesman	8	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Project Manager	2	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Construction Manager	2	4,380	9,437	5,110	10,048
PM Assistant	2	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Support	2	120[5]	12,078[5]	130[5]	12,375[5]
Support Assistant	2	120[5]	12,078[5]	130[5]	12,375[5]
Engineer	7	1,370	5,422	1,600	6,166
Timekeeper	2	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Administrator	5	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Welder	1	3,960	6,561	4,640	7,261

Notes: [1] The "Construction Laborers" category was used, [2] the "Plumbers, Pipefitters, and Steamfitters" category was used, [3] the "Machinists" category was used, [4] the "Supervisors, Construction and Extraction Workers" category was used, [5] the "Helpers- Construction Trades" category was used; -- No workers of this type required during peak month construction.
Source: Solar Millennium2009a, Tables 5.11-8, 5.11-11, and 5.11-17.

Hotel/Motel. Data compiled by Smith Travel Research for hotels, motels, and bed and breakfast inns (B&Bs) with 15 or more rooms identified 19 hotels with a total of 878 rooms within the local study area in 2008, which presents the most current available data (GSEP2009a, p. 5.8-5). These hotels were all located in Blythe, which is the only community with hotels or motels with 15 or more rooms within one hour's driving distance. The average annual occupancy rate for hotels in Riverside and San Bernardino Counties in 2007 was 70.8% (GSEP2009a, p. 5.8-6). Applying this ratio (70.8%) to the total number of hotel rooms identified within one hour of the BSPP site suggests that, on average, a total of 256 unoccupied rooms were available for rent in Blythe in 2008.

Fifty-seven hotels with a total of 8,285 rooms were identified in communities located from 1 to 1.5 hours drive from the BSPP site (GSEP2009a, p. 5.8-6). These communities include Indio, Palm Desert, Indian Wells, and Rancho Mirage. Applying the 2008 average occupancy ratio (70.8%) suggests that, on average, 2,419 unoccupied rooms are available for rent within 1 to 1.5 hours drive of the BSPP site. A total of 129 hotels with 7,541 rooms were identified in communities within 1.5 to 2 hours drive from the BSPP site (GSEP2009a, p. 5.8-6). These communities include Desert Hot Springs, Palm Springs, and Needles. Assuming an annual average occupancy rate of 70.8%, 2,202 unoccupied motel and hotel rooms were available for rent within 1.5 to 2 hours drive from the BSPP site. It should be noted that data was unavailable for local study area hotel/motel rooms located within Arizona, but is certainly available to workers.

Housing Vacancy. As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, based on current vacancy rates for the city of Blythe approximately 876 vacant housing units were available in 2008. Furthermore, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, recent data indicates that approximately 1,594 local housing units were available within the cities of Ehrenburg and Quartzsite, AZ**.**

Campground/RV Parks. There are at least 10 Recreational Vehicle (RV) parks located in the vicinity of Blythe, with a combined total of about 800 spaces (GSEP2009a, p. 5.8-5). RV parks in Blythe tend to be located along the Colorado River and receive higher levels of use during the summer. Contact with a small sample of these RV parks suggests that while they have a large number of spaces, many of these are occupied by year-round residents or privately owned, and would not be available for use by construction workers (GSEP2009a, p. 5.8-6). Additional RV parks are located in Ehrenberg, Arizona, and Quartzsite, Arizona, approximately 4 miles and 20 miles east of Blythe, respectively. The town of Quartzsite web site states there are more than 70 RV parks in the vicinity of the community that are typically occupied between October and March, with visitors attracted to the gem, mineral, and swap meet shows which are popular tourist attractions in the area (GSEP2009a, p. 5.8-6).

BLM operates two primitive campgrounds in the general vicinity of the BSPP local study area: Wiley's Well Campground and Coon Hollow Campground, both located south of I-10 on Wiley's Well Road GSEP2009a, p. 5.8-6. Except for "special areas" with specific camping regulations, vehicle camping is allowed anywhere on BLM-administered land within 300 feet of any posted Open Route. There are, however, no facilities in these locations and there is a 14-day limit for camping in any one location. After 14 days,

campers wishing to stay in the area longer are required to move 25 miles from their original camp site (GSEP2009a, p. 5.8-6). Long-term camping is available by permit in Long-Term Visitor Areas (LTVAs) on BLM lands. There are two LTVAs located in the vicinity of Blythe and the Project site: Mule Mountain, which includes the Wiley's Well and Coon Hollow campgrounds, and Midland, located north of the city of Blythe. LTVAs are for recreation use only and workers would not be permitted to use these areas (GSEP2009a, p. 5.8-6).

Conclusion. Based on this available local study area data, staff concludes that any construction workers seeking RV and campground lodging would likely find limited availability in the local study area during the winter months. However, as discussed above, staff anticipates ample local housing would be available to any construction worker seeking local housing. Based on the availability of short-term housing in the local study area when compared to a maximum temporary peak demand of up to 150 workers potentially seeking local housing during the workweek, staff concludes that construction of the proposed project would not temporarily induce substantial growth or concentration of population in the local study area and construction of the BSPP would not encourage people to permanently relocate to the area due to temporary construction employment associated with the BSPP.

Operation

The proposed BSPP is expected to require a total of 221 permanent full-time employees (Solar Millennium2009a, p. 5.11-29). **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5** shows Year 2006-2016 occupational employment projections for the Riverside/San Bernardino/Ontario MSA and the State of Arizona (by operational labor skill as compared to the estimated number of total operational workers needed as presented in the AFC (Solar Millennium2009a, p. 5.11-29).

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5
Total Labor by Skill in Riverside/San Bernardino/Ontario MSA and State of Arizona (2006 and 2016 Estimate) and BSPP Required Operation

Trade	Total # of Workers for Project Operation	Riverside/San Bernardino/Ontario MSA 2006	State of Arizona 2006	Riverside/San Bernardino/Ontario MSA 2016	State of Arizona 2016
Plant and System Operators	--	2,030	2,797	2,380	3,221
Power Plant Operators	--	310	422	370	471
Total	*221*	*2,340*	*3,219*	*2,750*	*3,692*
Source: Solar Millennium2009a, Tables 5.11-8 and 5.11-11.					

As shown in **Table 5**, data for the Riverside/San Bernardino/Ontario MSA indicates that in the Year 2006, the "Plant and System Operators" and "Power Plant Operators" employment sector contained a total of 2,340 workers, with Year 2016 forecasts for these employment sectors to grow to a total of 2,750 employees. Furthermore, additional workforce will be available and could come from within La Paz and Mariposa counties (including local communities within such as Ehrenberg and Quartzsite) representing a portion of the State of Arizona workforce presented in **Table 5**.

As stated on p. 5.11-29 of the AFC, the applicant states that 75% of workers would come from within the regional study area workforce, resulting in a potential influx of approximately 55 workers in communities within the proposed BSPP regional and local study areas (Solar Millennium2009a). In the event these 55 permanent operational employees choose to live closer to the BSPP site, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3** the most current published local study area vacancy rates for the cities of Blythe, CA; Ehrenberg, AZ; and Quartzsite, AZ are 16.1, 34.9, and 41.9%, respectively. These vacancy rates indicate ample local housing is available should these operational employees choose to relocate to the local study area. Additionally, research shows that power plant workers may commute as much as two hours each direction from their communities rather than relocate (Solar Millennium2009a, p 5.11-24). Therefore, staff believes some of these 55 workers that may relocate to the area may choose to live outside of the local study area or will choose to commute from their current residence within the regional study area. As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 2**, the regional study area provides a high number of available housing opportunities. The addition of up to 55 workers to either the local or regional study area would not permanently induce substantial growth or concentration of population in excess of available housing or forecasted growth.

As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, staff agrees with the AFC data indicating that the BSPP will result in the generation of both indirect and induced employment. However, staff cannot speculate as to the type, potential hiring practice/requirements, and potential for employee relocation as a result of these indirect and induced jobs at the time of this publication. While it is possible that a portion of this indirect and induced employment would occur within the local study area (increase in food workers, etc.), a number of jobs could not (solar power plant equipment manufacturing, etc.). A number of induced and indirect employment could potentially occur outside of the local study area or California. Therefore, staff concludes it is speculative to quantify what if any numbers of indirect and induced employees may seek permanent housing in the BSPP local study area. However, based on the number of projected indirect and induced employment (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**), it is assumed that the vacancy rate of the local and regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLES 2** and **3**) could adequately provide housing for any potential portion of indirect and induced employment population that may permanently relocate to the BSPP local study area and this population would be within projections for the regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLE 2**).

Based on these conclusions, staff concludes that under CEQA, inducement of substantial population growth through permanent employment associated either directly or indirectly by the BSPP would be a less than significant impact.

DISPLACE EXISTING HOUSING AND SUBSTANTIAL NUMBERS OF PEOPLE

The proposed BSPP site is vacant undeveloped desert land with desert scrub located throughout, with no housing structures existing on the property (Solar Millennium2009a,

pp. 5.7-14 and 5.7-15). As such, no housing or persons would be displaced by the BSPP. Furthermore, staff has determined that no housing would be displaced from required transmission line and other infrastructure linear connections right-of-way (ROW) associated with the BSPP.

As discussed above, staff concludes that the required construction workforce of the BSPP would be found in the regional study area and an assumed 15% of workforce temporary inmigration that could occur would not trigger the need for new housing in the local study area based on available hotel/motel rooms and vacant housing units within the local study area. Furthermore, as discussed above, vacancy rates within the local study area offer operational employees (estimated at up to 55 workers), as well as potential indirect and induced employment workers, wishing to relocate within the local study area ample available housing. Therefore, staff concludes that no significant construction or operation-related impacts are expected for the regional and local study area housing supply, availability, or demand, and the BSPP would not displace any populations or existing housing, and it would not necessitate construction of replacement housing elsewhere.

RESULT IN SUBSTANTIAL PHYSICAL IMPACTS TO GOVERNMENT FACILITIES

Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. Public service providers serving the BSPP site are located within Riverside County only and represent the local study area. Therefore, the study area for the public services analysis is limited to Riverside County.

As discussed under the subject headings below, the BSPP would not cause significant impacts to service ratios, response times, or other performance objectives relating to law enforcement, schools, parks and recreation, or emergency medical service facilities.

As discussed in the **Worker Safety and Fire Protection** section of this report, staff proposes a new fire station required by **Worker Safety-7** to mitigate for the direct and cumulative impacts of the project on local fire protection services. It should be noted that this potentially significant impact to fire protection services was determined using the significant thresholds presented in the **Worker Safety and Fire Protection** section, which are independent and differ from those utilized within this **Socioeconomics** section to determine potential impacts to police, school, emergency services, and recreational public services. Please refer to the **Worker Safety and Fire Protection** section of this report for a detailed discussion of fire protection services. Please refer to the **Land Use, Recreation, and Wilderness** section of this document for further analysis of recreation impacts.

Police Protection

The BSPP site would be served by the Riverside County Sheriff's Department Colorado River Station at 260 North Spring Street in Blythe, which provides service to the unincorporated area from Red Cloud Road on the west, to the Arizona state line on the east, and county line to county line on the north and south (Solar Millennium2009a, p. 5.11-19). Communities included in this service area are Desert Center, Eagle Mountain,

East Blythe, Hayfield, Midland, Nicholls Warm Springs, Ripley, and the Colorado River. Currently, the Riverside County Sheriff's Department average response time of to the BSPP site depends on the severity of the incident and the location of the deputies on call; however, response time is estimated at 10 to 30 minutes (Solar Millennium2009a, p. 5.11-20).

Construction. During BSPP construction, the site would include security fencing (Solar Millennium2009a, p. 2-23). In addition, during construction on-site security would include trained, uniformed, unarmed personnel whose primary responsibility would be to control ingress and egress of personnel and vehicles, perform fire and security watch during off hours, and perform security badge administration (Solar Millennium2009a, p. 5.11-28), all of which would minimize the potential need for the Riverside County Sheriff's Department assistance. As discussed above, staff considered it is possible that during the peak construction month (worst-case scenario) up to 150 workers could seek local lodging. This number of potential local study area temporary population increase is considered less than significant as these workers are assumed to already live within the regional study area and are currently a part of the Riverside County Sheriff's Department population served. While the BSPP would increase the number of individuals within the local study area during construction, staff agrees with the AFC conclusion that current law enforcement capacity should be sufficient to handle emergencies at the site (Solar Millennium2009a, p. 5.11-28). Furthermore, there would be no permanent population in-migration occurring from BSPP construction that would increase the local population or would require the need for new or expanded law enforcement facilities or staff levels within the BSPP regional or local study areas.

Operation. Once operational, the proposed BSPP site would include security fencing, controlled access gates, and security lighting (Solar Millennium2009a, pp. 2-22 and 2-23), which would minimize the potential need for the Riverside County Sheriff's Department assistance. As discussed above, the operational workforce for the BSPP is expected to be hired from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local public safety funding. Additionally, as it is likely a number of these employees already reside within Riverside County, only relocating closer to the BSPP site, they would not result in an increase over the total population policed by the Riverside County Sheriff's Department. Based on these conclusions, staff concludes that operation of the proposed BSPP would not increase the local population or require the need for new or expanded law enforcement facilities or staff levels within the BSPP regional or local study areas.

Schools

The Palo Verde Unified School District (PVUSD), and the Desert Center Unified School District in Desert Center serve the proposed BSPP site area (Solar Millennium2009a, p. 5.11-22). **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6** identifies

the schools and year 2006-2007 student enrollments in each of the respective school districts. As shown in **Table 6**, the PVUSD, approximately 8 miles east of the BSPP site, offers a full range of educational opportunities with three elementary schools, one middle school, one high school, and a continuation high school, while the Desert Center Unified School District, approximately 35 miles west of the site consists of one elementary school.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6
Summaries of Schools and Enrollment in Palo Verde and Desert Center School Districts, Year 2006–2007

Palo Verde Unified School District			
School Name	**Community**	**Grades**	**Students**
Felis J. Appleby Elementary School	Blythe	K-5	527
Margaret White Elementary School	Blythe	K-5	666
Ruth Brown Elementary School	Blythe	K-5	652
Blythe Middle School	Blythe	6-8	841
Palo Verde High School	Blythe	9-12	952
Twin Palms Continuation School	Blythe	9-12	97
Desert Center Unified School District			
School Name	**Community**	**Grades**	**Students**
Eagle Mountain Elementary School	Desert Center	K-8	16
Source: Solar Millennium2009a, Tables 5.11-14 and 5.11-15.			

Construction. As discussed above, staff assumes the construction workforce for the BSPP will be hired from within the available regional workforce, with up to 15% of workers potentially seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent population in-migration occurring from BSPP construction into the PVUSD. Staff cannot speculate as to the possibility or quantify that any construction workers seeking local temporary housing may bring school aged children seeking enrollment within the PVUSD, as staff assumes workers would only seek local lodging during the workweek from their permanent homes within the regional study area. Therefore, staff concludes that construction of the BSPP would not require the need for new or expanded PVUSD school facilities or staff levels.

Operation. Like all school districts in the state, the PVUSD is entitled to collect school impact fees for new construction within their district under the California Education Code Section 17620. These fees are based on the project's square feet of industrial space. While the BSPP AFC indicates that a $116,000 school impact fee will be paid to the PVUSD (Solar Millennium2009a, p. 5.11-31), this estimated school impact fee was based on administrative and warehouse space related to each power block located off BLM land (CEC 2010a). At the time of AFC preparation, the applicant did not have complete information regarding facility location at the time of writing (CEC 2010a). Therefore, to be conservative, the AFC assumed that the project would pay the full fee (CEC 2010a). However, since publication of the AFC the applicant has indicated that all components of the BSPP would be constructed entirely on BLM land (CEC 2010a). Therefore, no private land or lands within the PVUSD's district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this

project, resulting in no school impact fee paid (CEC 2010a). Therefore, the BSPP would be in compliance with Education Code section 17620 (as described in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 1)**.

As discussed above, the operational workforce for the BSPP is expected to be hired from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. According to the PVUSD, the school district expects to have the necessary capacity to accommodate new students as a result of operation of the BSPP (Solar Millennium2009a, p. 5.11-22). Based on the volume of students within the PVUSD shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6**, staff concludes that any contribution of school aged children from 55 potentially permanent relocations to the local study area would account for a small increase in overall PVUSD student body. Staff also acknowledges that it is possible some population inmigration could occur from induced and indirect employment, but cannot speculate as to a quantity at the time of this publication. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND E JUSTICE Table 10**, the BSPP would pay substantial annual property tax. The payment of these property taxes would contribute to local education facility funding. Based on this, staff concludes that operation of the proposed BSPP would not require the need for new or expanded school facilities or staff levels within the BSPP regional or local study areas.

Parks and Recreation

The site is currently undeveloped, is not designated for active recreational use, and does not appear to be frequented as a regular recreational area (Solar Millennium2009a, p. 5.7-15). The nearest park facilities to the BSPP site are located within the city of Blythe, located approximately 8 miles east of the BSPP site. The city of Blythe Parks Department is responsible for the maintenance and upkeep of the area's seven parks and one pocket park (City of Blythe, 2009).

Construction. As discussed above, staff assumes the construction workforce for the BSPP will be hired from within the available regional workforce, with up to 15% of workers potentially seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent population in-migration occurring from BSPP construction onto either the local or regional study areas. As discussed above, staff concludes that camping and RV facility use would not be available for BSPP construction workers during the winter months seeking local area housing. Therefore, staff concludes that BSPP construction employment would not require the need for new or expanded recreational facilities or staff levels within the BSPP regional or local study areas.

Operation. As discussed above, the operational workforce for the BSPP is expected to come from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more

distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local recreational facility funding. Therefore, staff concludes that permanent employment associated with the BSPP would not require the need for new or expanded parks and recreational facilities or staff levels within the BSPP regional or local study areas.

Staff received a scoping letter dated December 22, 2009 from Off Road Business Association, Inc. (ORBA) requesting that the Staff Assessment/Draft Environmental Impact Statement consider impacts of the proposed BSPP on recreational uses in the area including, but not limited to, off-highway vehicles (OHV) use, camping, photography, hiking, wildlife viewing, and rockhounding (ORBA2009a). Furthermore, ORBA requested that the analysis of potential impacts to the local economy extend to businesses that sell OHV and OHV related equipment. As stated above, the site is currently undeveloped, is not designated for active recreational use, and only a few OHV tracks were observed within the site (Solar Millennium2009a, p. 5.7-15). While OHV tracks exist within the site showing passive recreational use, the site is not designated for OHV use (Solar Millennium2009a, p. 5.7-15). If not a designated OHV park, Riverside County Ordinance 10.12.010 states a person must have written permission from the property owner in their possession in order to ride their vehicles on the property they are on (Riverside County Sheriff's Department 2010). Therefore, the proposed BSPP would have no direct impacts to lands designated for OHV use and no direct or indirect economic impacts to existing OHV or OHV related equipment industries as a result of the BSPP. For additional discussion regarding potential BSPP related impacts to recreational resources, please refer to the **Land Use, Recreation, and Wilderness** section of this document.

Emergency Medical Services

The closest hospitals to the proposed BSPP site are the Palo Verde Hospital approximately 8 miles east in Blythe, the John F. Kennedy Memorial Hospital approximately 98 miles west in Indio, and the Desert Regional Medical Center approximately 120 miles west in Palm Springs. Palo Verde Hospital provides intensive care/critical/emergency care on site, including four adult intensive-care beds for critically ill patients, and contracts ambulance service to the hospital via private ambulance service providers within Blythe (Solar Millennium2009a, p. 5.11-21). **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 7** identifies the nearest emergency medical service facilities to the site and their respective available services.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 7
Hospitals and Services Serving the BSPP Site

Hospital/Address	Available Services
Palo Verde Hospital 251 First Street Blythe, CA	Hospital, blood bank, computerized tomography scan, intensive care unit, labor/delivery/recovery rooms, magnetic resonance imaging, nuclear medicine, outpatient services, ultrasound.
John F. Kennedy Memorial Hospital 47111 Monroe St. Indio, California	Hospital, cardiac and vascular, healthgrades, orthopedic and arthritis institute, outpatient rehabilitation, women and children, emergency department, free physician referral and community education, emergency and express care.
Desert Regional Medical Center 1150 N. Indian Canyon Dr. Palm Springs, California	Hospital, hematologists, pathologists, radiology, general surgeons, emergency medical and surgical service, anesthesiologists, physical therapists, obstetricians, and gynecologists, rehabilitation services.
Source: Solar Millennium2009a, Table 5.11-13.	

Construction. Construction of the proposed BSPP would last for 69 months, resulting in an average of approximately 604 daily construction workers peaking with a daily workforce of 1,004 workers during month 16 of construction (Solar Millennium2009a, p. 5.11-24). In the event an on-site accident occurred during project construction, both private ambulance service and Riverside County Fire Department firefighters would provide first responder emergency medical care. As discussed in the **WORKER SAFETY AND FIRE PROTECTION** section of this document, the nearest Riverside County Fire Department fire stations are staffed full-time, 24 hours/7 days a week, with a minimum 3-person crew, including paramedics. Once transported, as shown above in **Table 7**, a number of local area hospitals are available to provide emergency and express medical care. Therefore, while a high number of construction employees would be located on-site, local area emergency medical facilities are expected to adequately handle any worksite accidents requiring their attention. No additional constraints or physical impacts would occur to the local study area healthcare services or facilities identified in **Table 7** serving the BSPP site.

Operation. The proposed BSPP is expected to require a total of 221 permanent full-time employees (Solar Millennium2009a, p. 5.11-29). As discussed above for construction, the available emergency medical and hospital facilities identified in **Table 7** and serving the BSPP site and local study area are expected to adequately handle the permanent addition of 221 on-site staff and the long-term demands of the BSPP. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by the local area emergency medical facilities as these facilities are privately owned and expand based on a supply and demand basis. Therefore, staff concludes that operation of the BSPP is not expected to significantly impact the existing service levels, response times, or capacities of the hospitals serving the BSPP local study area.

PROJECT CLOSURE AND DECOMMISSIONING

As described in the **Project Description** section of the RSA, it is assumed the planned operational life of the Project is 30 years, but the facility conceivably could operate for a longer or shorter period depending on economic or other circumstances (Solar Millennium2009a, p. 3-2). If the BSPP remains economically viable, it could operate for

more than 30 years, which would defer environmental impacts associated with closure and with the development of replacement power generating facilities. However, if the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. In any case, a Decommissioning Plan would be prepared at BSPP closure and put into effect when permanent closure occurs (Solar Millennium2009a, p. 3-2). As in the case of a temporary closure, security for the BSPP will be maintained on a 24-hour basis during permanent closure (Solar Millennium2009a, p. 3-2). In general, the Project Decommissioning Plan will address: decommissioning measures for the BSPP and all associated facilities; activities necessary for site restoration/revegetation if removal of all equipment and facilities is needed; recycling of facility components, collection and disposal of hazardous wastes, and resale of unused chemicals to other parties; decommissioning alternatives other than full site restoration; costs associated with the planned decommissioning activities and where funding will come from for these activities; and conformance with applicable LORS (Solar Millennium2009a, p. 3-2).

It is assumed that the number and type of workers required for closure and decommissioning activities would be similar to that described above for construction of the BSPP. Also, it is assumed the closure and decommissioning workforce would be drawn from the regional and local study areas. As all workers are expected to reside within the study area, no impacts to existing population levels are expected to occur. As closure and decommissioning activities would be temporary in duration with the number of required workers expected to represent a small portion of the local available labor force, no significant impacts to the study area population would result from proposed project closure and decommissioning activities. Furthermore, it is assumed that the regional study area would continue to offer a high number of transient lodging opportunities to serve decommissioning construction employees. Therefore, closure and decommissioning of the proposed BSPP would not result in any direct population growth to the area that could generate a need for new or expanded housing or public service facilities.

Staff cannot speculate as to the long-term economic and fiscal effects that closure and decommissioning activities would have on the study area because future conditions are unknown. Upon permanent closure of the BSPP, the beneficial socioeconomic operational impacts such as worker payroll, project expenditures, and local economic stimulus through taxation would no longer occur. It should be noted that closure and decommissioning of the BSPP would likely require further environmental impact evaluation.

C.8.4.3 CEQA LEVEL OF SIGNIFICANCE

As discussed in the subject headings above, under CEQA, project-related socioeconomic impacts would be less than significant for population, housing, and public services including law enforcement, schools, parks and recreation, and emergency medical services.

C.8.5 RECONFIGURED ALTERNATIVE

The Reconfigured Alternative would be a 1,000 MW solar facility that would retain use of the proposed solar Units 1, 2, and 4 (the two northern solar fields, and the southeastern solar field) at their proposed locations as shown on **Alternatives Figure 1**. The proposed Unit 3 (the southwestern solar field) would be relocated approximately 0.8 miles south of its proposed location. This alternative is analyzed because (1) It would retain the 1,000 MW generation capacity defined for the proposed project and the engineering is defined by Solar Millennium as feasible, and (2) it minimizes impacts to state waters and to desert dry wash woodlands, a vegetation community classified as sensitive by the BLM and CDFG. Approximately 480 acres of the Reconfigured Alternative would be outside of the ROW application area but the alternative would remain entirely within BLM-managed lands.

C.8.5.1 SETTING AND EXISTING CONDITIONS

This alternative includes the Units 1, 2, and 4 as proposed for the Blythe Solar Power Project as well as a reconfigured Unit 3. The setting for Units 1, 2, and 4 would not change from that for the proposed project. Unit 3 would be relocated approximately 0.8 miles south of the proposed location. The relocated Unit 3 includes the use of 480 acres of BLM land immediately south of the proposed ROW. As only a minor change would occur to the project site, this alternative would have the identical socioeconomic regional and local study areas as the proposed BSPP, as discussed above in Section C.8.4.1.

C.8.5.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Induce Substantial Population Growth

The population impacts of the Reconfigured Alternative would be similar to those of the proposed BSPP, as described above in Section C.8.5.2. This alternative would relocate Unit 3, but result in identical construction activities as that described above for the proposed BSPP. Therefore, this alternative would result in identical socioeconomic impacts when compared to the proposed BSPP. As the regional study area provides a substantial number of construction workers by type that would adequately provide all required workers for the Reconfigured Alternative as well (refer to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**). Therefore, the Reconfigured Alternative is not considered to result in population inmigration to the local or regional study area from construction activities.

It is assumed that operation of this alternative would require the identical number of operational employees as the BSPP. Therefore it is possible that up to 55 operational employees could choose to relocate to the Reconfigured Alternative local area from more distant regional study area locations. As discussed above, in the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that operation of the Reconfigured Alternative would not induce substantial population growth in excess of available local study area housing.

Displace Existing Housing

The housing impacts of the Reconfigured Alternative would be identical to those of the proposed BSPP, as described in Section C.8.5.2. As discussed above, this alternative would require approximately 480 acres of the site be outside of the BSPP ROW application area, but the alternative would remain entirely within BLM managed lands. Therefore, because this additional site footprint would be within BLM managed lands, it is assumed that no housing would exist within the additional acreage and required infrastructure ROW. Therefore, the Reconfigured Alternative would not displace any housing during construction or operation. Furthermore, identical to that described for the proposed BSPP, any temporary inmigration from the required construction workforce of the Reconfigured Alternative seeking local housing during the workweek (assumed up to 15%) would not trigger the need for new housing in the local study area. Furthermore, it is assumed all workers would be found in the regional study area.

It is possible that up to 55 operational employees could choose to relocate to the Reconfigured Alternative local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that construction and operation of the Reconfigured Alternative would not induce substantial population growth in excess of available local and regional study area housing.

Result in Substantial Physical Impacts to Government Facilities

The public services impacts of the Reconfigured Alternative would be identical to those of the proposed BSPP, as described in Section C.8.5.2. Therefore, as discussed above for the BSPP it is assumed that all required construction workforce of the Reconfigured Alternative would be found in the regional study area and no permanent inmigration would occur. In the event construction workers choose to temporarily seek short-term housing during the workweek (assumed up to 15%), these workers would not impact local public service ratios or capacities similar to that analyzed for the BSPP. Therefore, no new population inmigration would occur from construction that could decrease existing public service provider service levels and ratios, response times, capacities, or require new or expanded facilities serving the Reconfigured Alternative regional or local study areas.

Regarding operations, as this alternative would also be located entirely within BLM lands, no private land or land within the PVUSD ’s district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this alternative (CEC 2010a). As discussed above, it is possible that up to 55 operational employees could choose to relocate to the Reconfigured Alternative local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to

local public safety, school, and recreational facility funding. Furthermore, operational employment impacts to emergency medical services would be identical for this alternative as those discussed above for the BSPP. Based on these conclusions, staff concludes that operation of the Reconfigured Alternative is not expected to significantly impact the existing service levels, response times, or capacities of the police, school, recreational facility, or hospitals serving the Reconfigured Alternative local study area. For a discussion regarding Reconfigured Alternative potential impacts to fire safety resources, please refer to the **Worker Safety and Fire Protection** section of this report.

Cumulative Socioeconomic Effects

The cumulative socioeconomic impacts of the Reconfigured Alternative would be identical to those of the proposed BSPP, as described below in Section C.8.8. As discussed for the BSPP, the regional and local study area provides adequate construction and operational employees for the Reconfigured Alternative and cumulative development projects. While cumulative projects could combine to increase the demand for localized transient lodging and potentially permanent housing in the local study area, staff concludes that local hotel/motel and vacancy rates indicated ample available housing for an assumed 15% of temporary workers who choose to stay locally during the workweek. Furthermore, local study area vacancy rates indicate ample permanent housing is available to those operational employees choosing to relocate locally to the site. In the event cumulative relocations occurred to the local study area from operational and indirect/induced employees, it is assumed that at some level the payment of property taxes from cumulative employment relocations purchasing homes would help serve to offset any potential increase in public service demands. Furthermore, the Reconfigured Alternative would likely pay property tax similar to that of the BSPP as provided in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**. Therefore, the Reconfigured Alternative would not contribute to adverse cumulative socioeconomic impacts.

C.8.5.3 CEQA LEVEL OF SIGNIFICANCE

As discussed above in subsection C.8.5.2, and identical to the proposed BSPP, impacts resulting from this alternative to socioeconomics would be less-than-significant**.**

C.8.6 REDUCED ACREAGE ALTERNATIVE

The Reduced Acreage Alternative would essentially be Units 1, 2, and 4 of the proposed project, and would be a 750 MW solar facility located within the boundaries of the proposed project as defined by Solar Millennium. This alternative is analyzed for two major reasons: (1) it eliminates about 25% of the proposed project area so all impacts are reduced, and (2) by removing the southwestern solar field, which is located on flowing desert washes, this alternative minimizes impacts to state waters and to desert dry wash woodlands, a vegetation community classified as sensitive by the BLM and CDFG, and to wildlife movement corridors. The boundaries of the Reduced Acreage Alternative are shown in **Alternatives Figure 2**.

C.8.6.1 SETTING AND EXISTING CONDITIONS

This alternative is located entirely within the boundaries of the proposed project. It simply eliminates effects to the southwestern 250 MW solar field (1,200 acres). As a result, the environmental setting consists of the northern and eastern portions of the proposed project, as well as the area affected by the linear project components. As the reduced project footprint would not result in a change to the overall site location, this alternative would have the identical socioeconomic regional and local study areas as the proposed BSPP, as discussed above in Section C.8.4.1.

C.8.6.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Induce Substantial Population Growth

The population impacts of the Reduced Acreage Alternative would be similar to those of the proposed BSPP, as described above in Section C.8.5.2. It is possible due to the smaller footprint of the site that construction activities could be decreased, resulting in a shorter overall construction schedule and a potential decrease to the number of construction workers. Therefore, any construction workers required for the Reduced Acreage Alternative that could seek temporary local housing during the workweek would be reduced as that compared to the proposed BSPP. As local hotel/motel and vacancy rates indicated ample temporary housing for these workers, and that all workers are expected to come from within the regional study area, the Reduced Acreage Alternative would not result in population inmigration to the local or regional study area.

It is assumed that operation of this alternative would require a reduced number of operational employees as compared to the BSPP due to the elimination of Unit 3. Therefore, it is likely that less than 55 operational employees could choose to relocate to the Reduced Acreage Alternative local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that operation of the Reduced Acreage Alternative would not induce substantial population growth in excess of available local study area housing.

Displace Existing Housing

The housing impacts of the Reduced Acreage Alternative would be identical to those of the proposed BSPP, as described in Section C.8.5.2. As discussed above, this alternative would simply reduce the footprint of the proposed BSPP site. Therefore, as discussed above for the BSPP, no housing would exist within the alternative site and required infrastructure ROW. Therefore, the Reduced Acreage Alternative would not displace any housing during construction or operation.

Local hotel/motel and vacancy rates indicated ample temporary housing for an assumed maximum of 15% of construction workers that may seek temporary local housing during the workweek. It is possible that some (less than 55) operational employees could choose to relocate to the Reduce Acreage Alternative local area from more distant regional study area locations. In the event any direct operational employees or

indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that construction and operation of the Reduced Acreage Alternative would not induce substantial population growth in excess of available local and regional study area housing.

Result in Substantial Physical Impacts to Government Facilities

The public services impacts of the Reduced Acreage Alternative would be similar to or less than those of the proposed BSPP, as described in Section C.8.5.2. As discussed for the BSPP, it is assumed that all required construction workforce of the Reduced Acreage Alternative would be found in the regional study area and no permanent inmigration would occur. In the event construction workers choose to temporarily seek short-term housing during the workweek (assumed up to 15%), these workers would not impact local public service ratios or capacities similar to that analyzed for the BSPP. Therefore, no new population inmigration would occur from construction that could decrease existing public service providers service levels and ratios, response times, capacities, or require new or expanded facilities serving the Reduced Acreage Alternative regional or local study areas.

Regarding operations, as this alternative would also be located entirely within BLM lands, no private land or land within the PVUSD 's district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this alternative (CEC 2010a). In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local public safety, school, and recreational facility funding. Any potential reduction in property tax paid by this alternative would be offset by the direct reduction in operational employees that could choose to relocate to the Reduced Acreage Alternative local area. Furthermore, operational employment impacts to emergency medical services would be similar or less for this alternative as those discussed above for the BSPP. Based on these conclusions, staff concludes that operation of the Reduced Acreage Alternative is not expected to significantly impact the existing service levels, response times, or capacities of the police, school, recreational facility, or hospitals serving the Reduced Acreage Alternative local study area. For a discussion regarding Reduced Acreage Alternative potential impacts to fire safety resources, please refer to the **Worker Safety and Fire Protection** section of this report.

Cumulative Socioeconomic Effects

The cumulative socioeconomic impacts of the Reduced Acreage Alternative would be similar or less than those of the proposed BSPP, as described below in Section C.8.8. While this alternative could result in a decrease in construction schedule and required workforce, the regional and local study area provides adequate construction and operational employees for the Reduced Acreage Alternative and cumulative development projects. While cumulative projects could combine to increase the demand

for localized transient lodging (during construction) and potentially permanent housing (from operations) in the local study area, local study area vacancy rates indicate ample temporary and permanent housing is available to those construction workers seeking temporary housing during the workweek and operational employees choosing to relocate locally to the site. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the Reduced Acreage Alternative would pay property taxes slightly reduced from those indicated for the BSPP in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**. Therefore, the Reduced Acreage Alternative would not contribute to adverse cumulative socioeconomic impacts.

C.8.6.3 CEQA LEVEL OF SIGNIFICANCE

As discussed above in subsection C.8.6.2, and similar to the proposed BSPP, impacts resulting from this alternative to socioeconomics would be less-than-significant**.**

C.8.7 NO ACTION ALTERNATIVE

The No Project Alternative under CEQA or the No Action Alternative under NEPA defines the scenario that would exist if the proposed BSPP were not constructed. The CEQA Guidelines state, “the purpose of describing and analyzing a ‘no project’ alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project” (Cal. Code Regs., tit. 14 § 15126.6(i)).

There are three No Project/No Action Alternatives evaluated in this section, as follows:

- No Project/No Action Alternative #1: No Action on BSPP application and on California Desert Conservation Area (CDCA) land use plan amendment
- No Project/No Action Alternative #2: No Action on BSPP and amend the CDCA land use plan to make the area available for future solar development
- No Project/No Action Alternative #3: No Action on BSPP application and amend the CDCA land use plan to make the area unavailable for future solar development

C.8.7.1 SETTING AND EXISTING CONDITIONS

The No Project analysis considers existing conditions and “what would be reasonably expected to occur in the foreseeable future if the project were not approved…” (Cal. Code Regs, tit. 14 § 15126.6(e)(2)). Under NEPA, the No Action Alternative is used as a benchmark of existing conditions by which the public and decision makers can compare the environmental effects of the proposed action and the alternatives. The socioeconomic setting for the No Project/No Action Alternative would be the same as those of the proposed project local and regional study areas, as described above in Subsection C.8.4.2.

C.8.7.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

There are three No Project/No Action Alternatives evaluated in this section, as follows:

No Project/No Action Alternative #1:

No Action on Blythe Solar Power Project application and on CDCA land use plan amendment

Under this alternative, the proposed BSPP would not be approved by the CEC and BLM and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. As a result, the socioeconomics impacts of the Blythe Solar Power project and the gross public benefits, including capital costs, construction and operation payroll and sales taxes, would not occur at the proposed site. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects may or may not have similar impacts in other locations.

No Project/No Action Alternative #2:

No Action on Blythe Solar Power Project and amend the CDCA land use plan to make the area available for future solar development

Under this alternative, the proposed BSPP would not be approved by the CEC and BLM and BLM would amend the CDCA Land Use Plan of 1980, as amended, to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site and have similar impacts as BSPP.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, it is expected that the socioeconomics impacts and the gross public benefits, including capital costs, construction and operation payroll and sales taxes, from the construction and operation of a different solar project would likely be similar to the socioeconomic impacts and benefits from the proposed project. As such, this No Project/No Action Alternative could result in socioeconomic impacts and benefits similar to the impacts under the proposed project.

No Project/No Action Alternative #3:

No Action on Blythe Solar Power Project application and amend the CDCA land use plan to make the area unavailable for future solar development

Under this alternative, the proposed BSPP would not be approved by the CEC and BLM and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar development. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because the CDCA Plan would be amended to make the area unavailable for future solar development, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. As such, this No Project/No Action Alternative would not result in socioeconomics impacts nor would it provide the gross public benefits, including capital costs, construction and operation payroll and sales taxes from the proposed project. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects may or may not have similar impacts in other locations.

C.8.7.3 CEQA LEVEL OF SIGNIFICANCE

Given that there would be no significant change over the existing conditions, impacts to socioeconomic resources of the No Project/No Action alternative would be less-than-significant. However, under the No Project/No Action alternative, the socioeconomic benefits to the local and regional study areas associated with the proposed project would not occur, and the development of other energy generating projects elsewhere could result in adverse socioeconomic impacts.

C.8.8 CUMULATIVE IMPACTS

A project may result in significant adverse cumulative impacts when its effects are "cumulatively considerable." Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, or the effects of probable future projects (Title 14, California Code of Regulations, section 15130). Cumulative socioeconomics impacts could occur when more than one project has an overlapping construction schedule that creates a demand for workers that cannot be met by the local labor force, resulting in an influx of non-local workers and their dependents. Operational cumulative socioeconomic impacts could occur when the development of multiple projects significantly impacts the population of an area thus resulting in a housing shortage, change in local employment conditions, and an increased demand on public services.

Section B.3, Cumulative Scenario, provides detailed information on the potential cumulative solar and other development projects in the project area. Together, these projects comprise the cumulative scenario, which form the basis of the cumulative impact analysis for the proposed project. In summary, these projects are:

- Renewable energy projects on BLM, State, and private lands, as shown on **Cumulative Figure 1** and in **Cumulative Tables 1A and 1B.** Although not all of those projects are expected to complete the environmental review processes, or be funded and constructed, the list is indicative of the large number of renewable projects currently proposed in California.
- Foreseeable future projects in the immediate Blythe area, as shown on **Cumulative Impacts Figure 2, I-10 Corridor Existing and Future/Foreseeable Projects, and Cumulative Tables 2 and 3**. Table 2 presents existing projects in this area and Table 3 presents future foreseeable projects in the I-10 Corridor Area. Both tables indicate project name and project type, its location and its status.

These projects are defined within a geographic area that has been identified by the CEC and BLM as covering an area large enough to provide a reasonable basis for evaluating cumulative impacts for all resource elements or environmental parameters. Most of these projects have, are, or will be required to undergo their own independent environmental review under CEQA and/or NEPA. Even if the cumulative projects described in Section B.3 have not yet completed the required environmental processes, they were considered in the cumulative impacts analyses in this staff assessment.

Geographic Extent of Cumulative Impact Analysis

The area of cumulative effect for socioeconomic resources is Riverside and San Bernardino Counties, CA and La Paz and Maricopa Counties, AZ. The analysis of cumulative effects considers a number of variables including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of cumulative impact analysis is based on the workforce boundaries of the cumulative development projects. While it is possible that the geographic scope of cumulative effects will extend beyond these four counties, with some workers potentially coming from adjacent counties beyond a two-hour commute radius of the proposed BSPP site, due to the similar nature of skill set required by the workforce during construction activities, as well as the number of proposed cumulative renewable energy projects, it is not anticipated that the geographic scope for cumulative impact analysis extends beyond the scope of the direct and indirect effects of the proposed action.

Effects of Past and Present Projects

A wide variety of past and present development projects contribute to the cumulative conditions for socioeconomics. As noted above in the “Setting and Existing Conditions” subsection, past development has further urbanized the area and increased population, housing, and employment conditions. As shown in the AFC, from 2000 to 2008 the populations of Riverside and San Bernardino Counties increased by 25.6 and 16.2%, respectively while the population within La Paz and Maricopa Counties increased by 8.5 and 23.0%, respectively during the same time frame (Solar Millennium2009a, p. 5.11-6). This is an example of the steady growth rate that has occurred throughout the regional study area. As a result, past and present residential, commercial, and industrial development has contributed to the overall socioeconomic growth within the study area.

Effects of Foreseeable Projects

Socioeconomics are expected to be affected by the following reasonably foreseeable future projects as follows: a number of large electrical generation and distribution infrastructure development projects are proposed along the I-10 corridor (as shown in **CUMULATIVE IMPACTS Figure 2** and **CUMULATIVE IMPACTS Table 3**); and solar and wind applications proposed on approximately 1,000,000 acres of BLM land in the California Desert District Planning Area as well as a large number of electrical generation and distribution infrastructure development projects proposed on non-federal land in the I-10 corridor (as shown in **CUMULATIVE IMPACTS Table 1b**, **CUMULATIVE IMPACTS Figure 1,** and **CUMULATIVE IMPACTS Table 1a**).

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8
Cumulative Project Construction Employment Needs

Trade	BSPP Total # of Workers for Project Construction by Craft – Peak Month (Month 16)	PSPP Total # of Workers for Project Construction by Craft – Peak Month (Month 17)	GSEP Total # of Workers for Project Construction by Craft – Peak Month (Month 16)	RSEP Total # of Workers for Project Construction by Craft – Peak Month (Month 12)	DSPV Total # of Workers for Project Construction by Craft – Peak Month (Months 6-8)	*TOTAL*	Riverside/San Bernardino/ Ontario MSA 2006	Riverside/San Bernardino/ Ontario MSA 2016
Surveyor	16	12	0	0	N/A	*28*	1,420	1,670
Operator	94	90	0	0	N/A	*184*	4,790	5,460
Laborer	229	185	96	52	N/A	*637*	27,930[1]	32,080[1]
Truck Driver	28	35	0	0	N/A	*63*	27,930[1]	32,080[1]
Oiler	4	4	0	0	N/A	*8*	27,930[1]	32,080[1]
Carpenter	77	100	44	50	N/A	*300*	28,850	32,390
Boilermaker	9	11	0	0	N/A	*20*	4,630[2]	5,330[2]
Paving Crew	0	0	0	0	N/A	*0*	630	720
Pipe Fitter	290	326	200	80	N/A	*968*	4,630	5,330
Electrician	81	150	105	56	N/A	*449*	6,740	7,600
Cement Finisher	80	100	4	6	N/A	*197*	4,110	4,690
Ironworker	42	59	70	32	N/A	*246*	19,460	20,800
Millwright	18	25	22	16	N/A	*153*	2,630[3]	2,960[3]
Tradesman	8	10	382[6]	105[7]	N/A	*544*	27,930[1]	32,080[1]
Project Manager	2	3	0	0	N/A	*5*	10,990[4]	12,380[4]
Construction Manager	2	3	0	5	N/A	*10*	4,380	5,110
PM Assistant	2	4	0	0	N/A	*6*	10,990[4]	12,380[4]
Support	2	4	0	0	N/A	*6*	120[5]	130[5]
Support Assistant	2	4	0	0	N/A	*6*	120[5]	130[5]
Engineer	7	10	60	36	N/A	*127*	1,370	1,600
Timekeeper	2	3	0	0	N/A	*5*	10,990[4]	12,380[4]
Administrator	5	6	0	0	N/A	*11*	10,990[4]	12,380[4]
Welder	1	1	0	0	N/A	*2*	3,960	4,640
Total Peak Month	*1,001*	*1,145*	*983*	*438*	*622*	*4,189*	--	--
Local Housing Need[10]	*150*	*172*	*147*	*0*[11]	*93*	*562*	--	--

Notes: [1] The "Construction Laborers" category was used; [2] The "Plumbers, Pipefitters, and Steamfitters" category was used; [3] The "Machinists" category was used; [4] The "Supervisors, Construction and Extraction Workers" category was used; [5] The "Helpers-Construction Trades" category was used; [6] Includes: insulators, painters, teamsters, and 'Solar Field Craft". The solar field craft workers include an estimated five solar field installation crews, with each crew including a Foreman, Equipment Operators, Laborers, Electricians, Ironworkers, Carpenters, Masons, and Pipefitter/Welders; [7] Includes Teamesters, Heliostat Assembly Craft, Construction Staff, Subcontractors, and Technical Advisors; [8] Includes Insulators; [9] Includes Painters, Sheetmetal Workers, and Teamsters; [10] Assumes 15% of peak month workforce may seek temporary local housing during workweek; [11] On-site worker camp is provided for RSEP, providing housing for up to 300 trailers, eliminating local housing need; N/A: labor by craft data not available from BLM.
Source: Solar Millennium 2009a and b, GSEP 2009a, SR 2009a, and BLM 2010c.

Contribution of the Blythe Solar Power Project to Cumulative Impacts

Construction. Foreseeable development in the project area includes primarily renewable energy electrical generation and transmission infrastructure projects. With the large number of renewable energy projects occurring within the BSPP regional study area, it is possible that some overlap of construction phasing could occur between the BSPP and the cumulative development projects. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** presents the most recently published data (Year 2006-2016 projections) on labor force characteristics for the cumulative regional study area pertaining to electrical energy project construction labor skill sets and compares those to major cumulative projects located near the BSPP along the I-10 corridor, including the Palen Solar Power Project (PSPP), Genesis Solar Energy Project (GSEP), Rice Solar Energy Project (RSEP), and the Desert Sunlight PV Project (DSPV).

All cumulative projects identified in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** would be expected to draw on the large regional construction workforce in and Riverside/San Bernardino/Ontario MSA, and as shown the MSA offers sufficient regional labor by skill set to staff all projects from within the regional study area. As indicated by **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8**, cumulative development of these projects in a worst-case scenario of overlapping peak period months could result in the influx of 562 construction workers seeking local lodging within the area as a result of the large renewable energy projects being constructed. Staff concludes this scenario unlikely due to construction scheduling and peak months shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8**, and notes that this assumption does not account for workers doubling up in local lodging situations. While this number could impact the amount of local hotel/motel rooms within the local and regional study area, as discussed above for the proposed BSPP a high number of short-term housing units are available within increasing radii commute sheds from the local study area. Furthermore, local housing is available within the cities of Ehrenburg and Quartzsite, AZ. While staff acknowledges that cumulatively workers seeking short-term temporary housing during the workweek to avoid commuting from their homes in the regional study area could increase housing demand and population in the local area, the extent and quantification of these impacts is unknown and speculative. Staff also concludes that like the BSPP, workers seeking RV and campsite lodging from cumulative projects will likely find no availability within the winter months.

Based on the availability of local temporary housing within a one-hour commute shed (as discussed above for the BSPP), it is assumed that ample temporary short-term housing is available for any workers seeking short-term local lodging from a cumulative perspective. Therefore, staff concludes that cumulative project construction within the BSPP local study area would not significantly impact the population projections or require the need for new or expanded housing within the local study area.

Furthermore, as staff concludes that all workers associated with the cumulative projects identified within **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** will come from within the regional study area, with up to 15% of these workers potentially seeking short-term temporary housing during the workweek locally, cumulative construction activities would not require the need for new or expanded public services

(police, schools, recreation, hospitals) serving the local study area as no permanent population increase would occur. While **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** indicates that cumulative development based on staff assumptions could result in up to 562 workers staying within the local study area, as staff concludes this number would fluctuate it is speculative to quantify any potential impacts this could have on local area public services. Therefore, staff concludes construction of the BSPP would not contribute to adverse cumulative socioeconomic impacts.

In addition, short-term construction-related spending activities of the BSPP project are expected to have cumulative economic benefits for the study area (refer below to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**). The cumulative benefits would increase when revenues accrued as a result of the proposed BSPP are combined with spending, and any local revenues accrued as a result of current and future reasonably foreseeable cumulative development projects.

Operation. Operation of the BSPP is expected to result in the potential permanent relocation of up to 55 workers into the local study area. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 9** presents the most recently published data (Year 2006-2016 projections) on labor force characteristics for the cumulative regional study area pertaining to electrical energy project operational labor skill sets and compares those to major cumulative projects located near the BSPP along the I-10 corridor, including the PSPP, GSEP, RSEP, and the DSPV. As shown in **Table 9**, these cumulative projects are expected to result in a total of 138 workers permanently relocating to the local study area. Staff acknowledges that indirect and induced employment from all cumulative projects identified in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 9** could result in limited demand for permanent housing in the local study area. However, staff cannot speculate or quantify this potential at the time of publication. However, it is assumed that the vacancy rate of the local and regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLES 2** and **3**) could adequately provide housing for any potential portion of indirect and induced employment population that may permanently relocate to the local study area from cumulative development and this population would be within projections for the regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLE 2**).

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 9
Cumulative Project Operational Employment Needs

Trade	BSPP Total # of Workers for Project Operation	PSPP Total # of Workers for Project Operation	GSEP Total # of Workers for Project Operation	RSEP Total # of Workers for Project Operation	DSPV Total # of Workers for Project Operation	*TOTAL*	Riverside/San Bernardino/Ontario MSA 2006	Riverside/San Bernardino/Ontario MSA 2016
Plant and System Operators	--	--	--	--	--	--	2,030	2,380
Power Plant Operators	--	--	--	--	--	--	310	370
Total	*221*	*134*	*50*	*47*	*15*	*467*	*2,340*	*2,750*
Local Housing Need[1]	*55*	*34*	*33*	*12*	*4*	*138*	--	--

[1] BSPP and PSPP use a 25% relocation assumption in their respective AFC's. As no assumed percentage was included in the RSEP AFC and DSPV information provided by BLM, this table assumes 25% of operational employees will permanently relocate to the cumulative project area. GSEP AFC specifically indicates that up to 33 workers would relocate.
Source: Solar Millennium 2009a and b, GSEP 2009a, SR 2009a, and BLM 2010c.

Based on the most recently published vacancy rates for the local study area (refer to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**), adequate permanent housing units are available to these operational employees who may choose to relocate locally to proposed cumulative development projects. Therefore, the BSPP is not expected to contribute cumulatively to a required need for new housing in the area. While the BSPP, PSPP, and RSEP would not pay a school impact fee, the SVEP would as well as all cumulative development not contained within BLM land. Staff assumes that any new cumulative demand on schools by permanent relocations to the local study area would help to be met on some level through the payment of property taxes by the cumulative projects themselves as well as any relocations that purchase homes. The payment of these property taxes contribute to local public safety, school, and recreational facility funding. As hospitals are private supply and demand based facilities, it is assumed that the cumulative increase in local population can be adequately served by local study area emergency medical facilities. Based on these conclusions, staff concludes that operation of the proposed BSPP would not contribute cumulatively to an increase in the local population or require the need for new or expanded law enforcement, school, recreational, or emergency medical facilities or staff levels within the BSPP regional or local study areas. Please refer to the **Worker Safety and Fire Protection** section of this report for a detailed discussion of cumulative impacts to fire protection services. Please refer to the **Land Use, Recreation, and Wilderness** section of this document for further analysis of cumulative recreation impacts.

In addition, the long-term operation-related spending activities of the BSPP project are expected to have cumulative economic benefits for the study area (refer below to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**). The cumulative benefits would increase when revenues accrued as a result of the proposed BSPP are combined with spending, and any local revenues accrued as a result of current and future reasonably foreseeable cumulative development projects.

Decommissioning. The decommissioning of the BSPP is expected to result in similar cumulative impacts related to Socioeconomics as BSPP construction impacts, as described above. It is unknown if the construction or decommissioning of any of the cumulative projects would occur concurrently with the decommissioning of this project, because the decommissioning is not expected to occur for approximately 30 years. As a result, it is unknown if any cumulative impacts related to Socioeconomics could occur during decommissioning of the BSPP. However, based on the cumulative impact analysis above for BSPP construction activities, it is likely the impacts of the decommissioning of the BSPP would not be expected to contribute to cumulative impacts related to Socioeconomics because it is assumed the closure and decommissioning workforce would be drawn from the regional and local study areas. However, impacts to existing population levels, housing, or public services are unknowable at this time that would occur from short-term decommissioning construction activities 30 years in the future.

C.8.9 COMPLIANCE WITH LORS

As the BSPP and all proposed alternatives would be located entirely within BLM lands, no private land would be affected and therefore, the provisions of Education Code

Section 17620 would not apply (CEC 2010a). Therefore, the BSPP and all proposed alternatives, as proposed, are consistent with applicable Socioeconomic LORS, as identified in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 1**.

C.8.10 NOTEWORTHY PUBLIC BENEFITS

Important public benefits include both the short-term construction and long-term operational related increases in local expenditures and payrolls, as well as sales tax revenues. Estimated gross public benefits from the BSPP include increases in sales taxes and employment payrolls. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10** provides a summary of economic and employment benefits of the BSPP.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10
BSPP Economic Benefits (2009 dollars)

Fiscal Benefits	
Estimated annual property taxes	$400,000[1]
State and local sales taxes: Construction	$910,000
State and local sales taxes: Operation	$840,000
School Impact Fee	$0 (CEC 2010a)
Non-Fiscal Benefits	
Construction materials and supplies	$60.0 million
Operations and maintenance supplies	$9.6 million
Direct, Indirect, and Induced Benefits	
Estimated Direct Employment	
Construction	604 jobs (monthly average)
Income	$67.0 million
Operation	221 jobs
Income	$9.4 million
Estimated Indirect Employment	
Construction	309 jobs
Income	$15.0 million
Operation	71 jobs
Income	$5.0 million
Estimated Induced Employment	
Construction	209 jobs
Income	$14.0 million
Operation	68 jobs
Income	$4.0 million

Notes: [1] At present, there is no property tax assessed on solar components (mirrors, solar boiler, heat exchangers) improvements by law (Section 73 of the California Taxation and Revenue Code). Components included under the exemption include storage devices, power conditioning equipment, transfer equipment, and parts. The first operational year would generate an estimated $400,000 in annual property taxes.
Source: Solar Millennium, 2009a.

C.8.11 RESPONSE TO AGENCY AND PUBLIC COMMENTS

Comments were received both verbally and in writing on the contents of the SA/DEIS from agencies, organizations and members of the public. During the SA/DEIS comment period, no comments related to issues presented in the **Socioeconomics and Environmental Justice** section of the SA/DEIS were provided to staff.

C.8.12 PROPOSED CONDITIONS OF CERTIFICATION/MITIGATION MEASURES

No conditions of certification/mitigation measures are required as all potential socioeconomic impacts associated with the proposed BSPP and alternatives would be less than significant.

C.8.13 CONCLUSIONS

No significant adverse socioeconomics impacts would occur as result of the construction or operation of the proposed BSPP project. Staff believes the BSPP would not cause a significant adverse direct, indirect, or cumulative impact on population, housing, or public services. In addition, because there would be no adverse project-related socioeconomic impacts, minority and low-income populations would not be disproportionately impacted. The proposed BSPP would benefit the local and regional study areas in terms of an increase in local expenditures and payrolls during construction and operation of the facility, as well as a benefit to public finance and local economies through taxation. These activities would have a positive effect on the local, regional, and statewide economy.

C.8.14 REFERENCES

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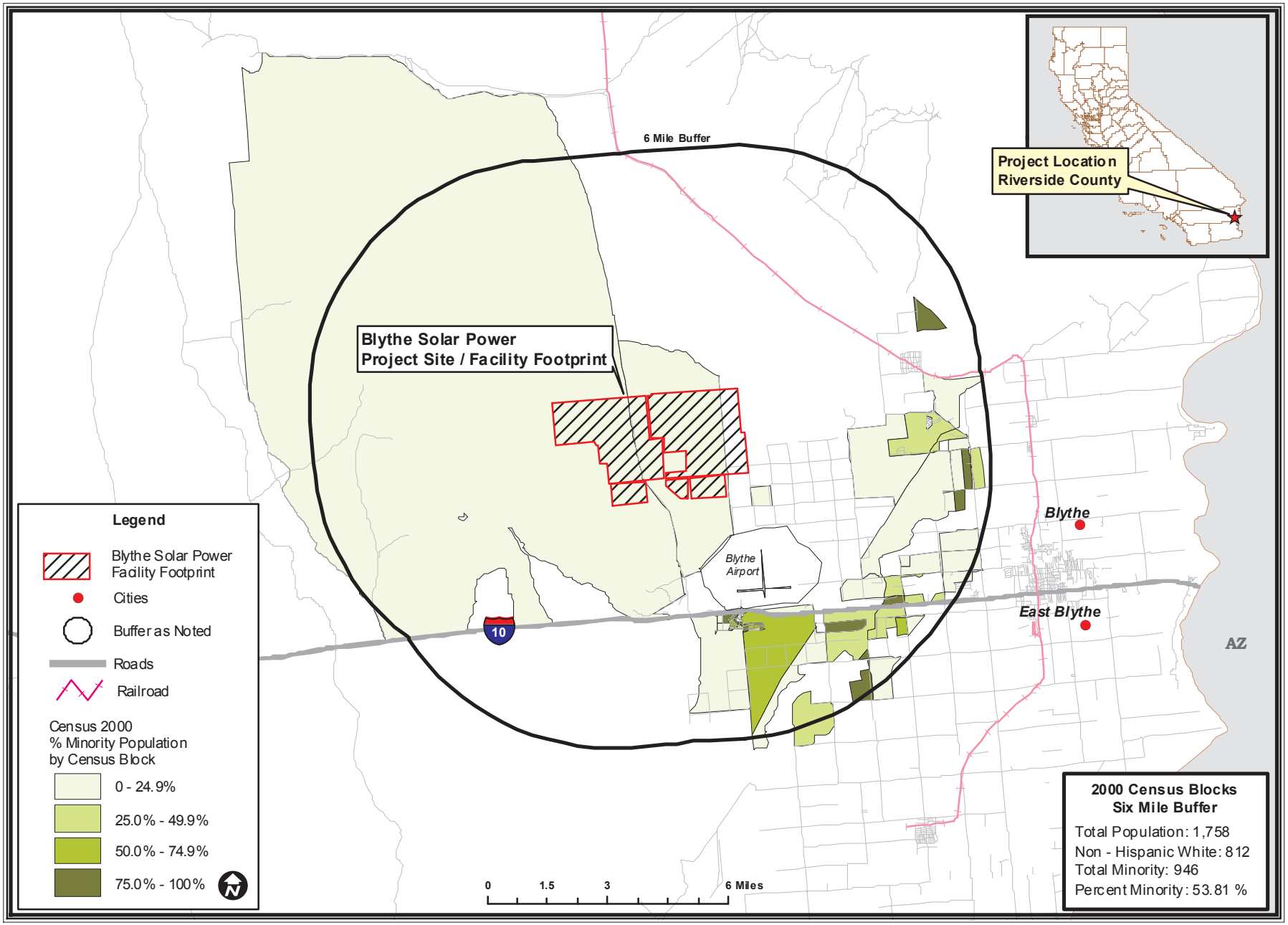
SOCIOECONOMICS - FIGURE 1

Blythe Solar Power Project - Census 2000 Minority Population by Census Block - Six Mile Buffer



SOCIOECONOMICS

CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: California Energy Commission Statewide Power Plant Maps 2009 - Census 2000 PL 94-171 Data - Matrix PL2

C.8 SOCIOECONOMICS~~SOCIOECONOMICS~~ AND ENVIRONMENTAL JUSTICE

Testimony of Scott Debauche

C.8.1 ~~_____~~SUMMARY OF CONCLUSIONS

~~The U.S. Bureau of Land Management and~~ Energy Commission staff ~~((hereafter referred to as~~ "staff") ~~has~~have reviewed the Blythe Solar Power Project (BSPP or proposed project) in accordance with the requirements of the ~~National Environmental Policy Act (NEPA) and the~~ California Environmental Quality Act (CEQA). ~~Staff With respect to CEQA and NEPA, staff~~ concludes that the BSPP would not ~~under CEQA~~ cause a significant adverse direct or indirect impact or contribute to a cumulative socioeconomic impact on the area's housing, schools, parks and recreation, police, or hospitals. ~~emergency medical services, or hospitals, because the project's construction and operation workforce currently resides in the regional or local labor market area. Staff also concludes that the project would not require the construction of new or altered public facilities.~~

The construction and operation of the proposed project would not result in any disproportionate socioeconomic impacts to low-income or minority populations. Gross public benefits from the project include capital costs, construction and operation payroll, and sales tax from construction and operation spending.

Staff has concluded in the **Worker Safety and Fire Protection** section of this report that the project would cause a significant direct and cumulative impact on local fire protection services. As discussed in the **Worker Safety and Fire Protection** section of this report, staff proposes a new fire station required by **Worker Safety-7** to mitigate for the direct and cumulative impacts of the project on local fire protection services. It should be noted that this potentially significant impact to fire protection services was determined using the significance thresholds presented in the **Worker Safety and Fire Protection** section, which are independent and differ from those utilized within this **Socioeconomics** section to determine potential impacts to police, school, emergency services, and recreational public services. Please refer to the **Worker Safety and Fire Protection** section of this report for a detailed discussion of fire protection services. Please refer to the **Land Use, Recreation, and Wilderness** section of this document for further analysis of recreation impacts.

C.8.2 INTRODUCTION

The socioeconomics impact analysis evaluates project-related changes on existing population and housing patterns, and community services. In addition, this section provides demographic information related to environmental justice. A discussion of the estimated beneficial economic impacts of the construction and operation of the BSPP and other related socioeconomic impacts are provided.

C.8.3 METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

~~The analysis of proposed project effects must comply with both California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements given the respective power plant licensing and land jurisdictions of the California Energy Commission and U.S. Bureau of Land Management (BLM). CEQA requires that the significance of individual effects be determined by the Lead Agency; however, the use of specific significance criteria is not required under NEPA.~~

~~Because this document is intended to meet the requirements of both NEPA and CEQA, the methodology used for determining environmental impacts of the proposed project includes a consideration of guidance provided by both laws.~~

~~The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR Part 1500 - 1508) provides no specific thresholds of significance for socioeconomics impact assessment. Significance varies, depending on the setting of the proposed action (40 CFR 1508.27[a]), but 40 CFR 1508.8 states that indirect effects may include those that are growth inducing and others related to induced changes in the pattern of land use, population density, or growth rate.~~ With respect to CEQA, socioeconomic impacts are limited to those that could be considered direct effects on the environment, such as changes to population and housing, and that are separate from strictly economic impacts, such as a loss of revenue.

~~Based on a review of recent environmental assessment documents prepared for the BLM and the CEQA Guidelines, Appendix G, staff has determined the list of thresholds below to be appropriate for analysis of socioeconomics impacts under both NEPA and CEQA.~~ A project may have a significant effect on socioeconomics if the project would:

- induce substantial population growth in an area, either directly or indirectly;
- displace substantial numbers of people and/or existing housing, necessitating the construction of replacement housing elsewhere; or
- adversely impact acceptable levels of service for public services, including: police protection, schools, parks and recreation, and emergency medical services.

In addition to the above, the BSPP socioeconomics analysis identifies beneficial fiscal and economic effects, including impacts on local finances from ~~property and~~ sales taxes as well as the creation of employment, employment revenue, and the purchases of goods and services during both BSPP construction and operation.

To satisfy the requirements of Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” this section identifies any disproportionate minority and low-income populations within the BSPP study area. Any disproportionate significant impacts to minority and low-income populations are discussed within applicable~~each~~ environmental issue area section of this document.

Criteria for subject areas such as utilities, fire protection, water supply, and wastewater disposal are analyzed in the **Reliability, Worker Safety and Fire Protection,** and **Soils and Water Resources** sections of this document. Impacts on population, housing, parks and recreation, schools, medical services, law enforcement, and cumulative impacts are based on subjective judgments and data from local and state agencies. Typically, long-term employment of people from regions outside the study area could potentially result in significant adverse socioeconomic impacts.

C.8.4 PROPOSED PROJECT

C.8.4.1 SETTING AND EXISTING CONDITIONS

Laws, Ordinances, Regulations, and Standards

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 1 contains socioeconomics and environmental justice laws, ordinances, regulations, and standards (LORS) applicable to the proposed BSPP.

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable Law	Description
~~**Federal**~~	
~~**Emergency Economic Stabilization Act of 2008 (P.L. 110-343) Business Solar Investment Tax Credit (IR Code §48)**~~	~~Extends the 30% investment tax credit (ITC) for solar energy property for eight years through December 31, 2016. The bill allows the ITC to be used to offset both regular and alternative minimum tax (AMT) and waives the public utility exception of current law (i.e., permits utilities to directly invest in solar facilities and claim the ITC). The five-year accelerated depreciation allowance for solar property is permanent and unaffected by passage of the eight-year extension of the solar ITC.~~
State	
~~**California Taxation and Revenue Code Section 73**~~	~~Allows property tax exclusion for certain types of solar energy systems.~~
California Education Code, Section 17620	The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.
California Government Code, Sections 65996-65997	Except for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities.

REGIONAL STUDY AREA

The proposed project includes the construction and operation of a solar generating facility located in the Southern California inland desert, approximately 8 miles west of the city of Blythe, in eastern Riverside County, CA. ~~Research shows that workers may commute as much as two hours each direction from their communities rather than relocate (EPRI 1982).~~ AFC Figure 5.11-1 (Estimated Travel Time for Project Workers) visually depicts contours from the BSPP site up to a two-hour commute shed (Solar Millennium2009a, Figure 5.11-1). Based on staff's independent review of these contours, which focus on the I-10 freeway corridor, staff disagrees with the AFC conclusion that the proposed project regional study area includes San Diego County, CA; Imperial County,~~County;~~ CA; or Yuma County, AZ; (Solar Millennium2009a, pp 5.11-4 and 5.11-5). As shown in AFC Figure 5.11-1, while the two-hour commute shed contour contains small portions of these counties, there are no populated urban centers located within the two-hour commute area. Therefore, for purposes of presenting demographic data of this commute shed,~~this analysis,~~ the socioeconomics regional study area is Riverside County, CA; San Bernardino County, CA; La Paz County, AZ; and Maricopa County, AZ.

In order to characterize the population and housing profile of the regional study area, current and forecasted population trends as well as current housing trends for the study area are summarized in **SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 2**. As shown in **Table 2**, the regional study area contains a high total population and is expecting a large population increase. Also shown in **Table 2**, the regional study contains a high number of housing units, with La Paz County having the highest vacancy rate.

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 2
Population and Housing Profile of the Regional Study Area

Population				
Area	Year			
	2008 Population	2010 Projected Population	2020 Projected Population	2030 Projected Population
Riverside County, CA	2,078,601	2,239,053	2,904,848	3,507,498
San Bernardino County, CA	2,055,766	2,177,596	2,582,777	2,957,744
La Paz County, AZ	21,544	22,632	25,487	28,074
Maricopa County, AZ	3,987,942	4,217,427	5,276,074	6,207,980

Housing		
Area	2008 Total Housing Units	2008 Vacancy Rate Percentage (%)
Riverside County, CA	773,402	13.2
San Bernardino County, CA	612,801	11.6
La Paz County, AZ	15,577[1]	42.7[1]
Maricopa County, AZ	1,318,623[1]	11.7[1]

Notes: [1] Data from 2007.
Source: Solar Millennium2009a, Tables 5.11-3 and 5.11-5.

LOCAL STUDY AREA

As required by the Bureau of Land Management (BLM) Land Use Planning Handbook, Appendix D requirements (BLM 2009), a project analysis of this type needs to consider existing socioeconomic conditions and impacts on several geographic scales. An analysis at a local level presents a challenge because the proposed project is in a sparsely populated area, with the largest urban center being the city of Riverside located approximately 100 miles west of the site. Based on BLM requirements, a reasonable study area for localized socioeconomic impacts would include the three nearest communities: the city of Blythe, CA (approximately 8 miles east of the BSPP site); the city of Ehrenburg, AZ (approximately 12 miles east of the BSPP site); and the city of Quartzsite, AZ (approximately 25 miles east of the BSPP site). The most recently published population and housing data for these communities is presented below in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**.

SOCIOECONOMICS AND ENVIRONMENAL JUSTICE Table 3
Population and Housing Profile of the Local Study Area

Area	Year		
	2008 Population	2008 Total Housing Units	2008 Vacancy Rate Percentage (%)
Blythe, CA	21,627	5,444	16.1
Ehrenburg, AZ	1,409	824[1]	34.9[1]
Quartzsite, AZ	3,745	3,186[1]	41.9[1]

Notes: [1] Data from 2000.
Source: Solar Millennium2009a, Tables 5.11-4 and 5.11-5.

Based on STAFF~~Staff~~ research, the economic structure of these local study area communities that may be affected by the management of BLM lands includes primarily a tourism, mining, and infrastructure related economic base, with THE THREE~~both~~ communities being rural suburban locations closely tied to the Interstate 10 travel route between the cities of Los Angeles, CA and Phoenix, AZ.

ENVIRONMENTAL JUSTICE/DEMOGRAPHIC SCREENING

Executive Order 12898, "Federal Actions to address environmental justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the US Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

Civil Rights Act of 1964, Public Law 88-352, 78 Stat.241 (Codified as amended in scattered sections of 42 U.S.C.) Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national programs in all programs or activities receiving federal financial assistance.

California law defines environmental justice as "the fair treatment of people of all races, cultures and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Government Code Section 65040.12 and Public Resources Code Section 72000).

All Departments, Boards, Commissions, Conservancies and Special Programs of the Resources Agency must consider environmental justice in their decision-making process if their actions have an impact on the environment, environmental laws, or policies. Such actions that require environmental justice consideration may include:

- Adopting regulations;
- Enforcing environmental laws or regulations;
- Making discretionary decisions of taking actions that affect the environment;
- Providing funding for activities affecting the environment; and
- Interacting with the public on environmental issues.

In considering environmental justice in energy siting cases, staff uses a demographic screening analysis to determine whether a low-income and/or minority population exists within the potentially affected area of the proposed site. The potentially affected area consists of a six-mile radius of the site and is consistent with air quality modeling of the range of a project's air quality impacts. The demographic screening is based on information contained in two documents: *Environmental Justice: Guidance Under the*

National Environmental Policy Act (Council on Environmental Quality, December, 1997) and *Guidance for Incorporating Environmental Justice Concerns in EPA's Compliance*

Analyses (U.S. Environmental Protection Agency, April, 1998). The screening process relies on Year 2000 U.S. Census data to determine the presence of minority and below-poverty-level populations.

In addition to the demographic screening analysis, staff follows the steps recommended by the U.S. EPA's guidance documents which are outreach and involvement, and if warranted, a detailed examination of the distribution of impacts on segments of the population.

Staff has followed each of the above steps for the following 11 sections in the RSA:~~FSA:~~ Air Quality, Hazardous Materials, Land Use, Noise, Public Health, Socioeconomics, Soils and Water, Traffic and Transportation, Transmission Line Safety/Nuisance, Visual Resources, and Waste Management. Over the course of the analysis for each of the 11 areas, staff considered potential impacts and mitigation measures, significance, and whether there would be a significant impact on an environmental justice population.

Minority Populations

According to *Environmental Justice: Guidance Under the National Environmental Policy Act*, minority individuals are defined as members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. A minority population, for the purposes of environmental justice, is identified when the minority population of the potentially affected area is greater than 50% or meaningfully greater than the percentage of the minority population in the general population or other appropriate unit of geographical analysis.

For the BSPP, the total population within a six-mile radius of the proposed site is 1,758 persons **based on Year 2000 U.S. Census block group data**,~~,~~ and the total minority population is 946 persons or 53.8% of the total population (see **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Figure 1**). As the demographic screening area as a

whole exceeds 50.0%, as shown in **Figure 1,** staff in 11~~several~~ technical areas identified in the Executive Summary has considered environmental justice in their environmental impact analyses.

Below-Poverty-Level Populations

Staff has also identified the current below-poverty-level population based on Year 2000 U.S. Census block group data within a six-mile radius of the project site.[1] The total population within a six-mile radius of the proposed site evaluated for low-income populations is 963 persons, and the total low-income population is 147 persons or 15.3% ~~percent~~ of the total population.

C.8.4.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

INDUCE SUBSTANTIAL POPULATION GROWTH

For the purpose of this analysis, staff defines "induce substantial population growth" as workers permanently moving into the project area because of project construction and operation, thereby encouraging construction of new homes or extension of roads or other infrastructure. To determine whether the project would induce population growth, staff analyzes the availability of the local workforce and the population within the region. Staff defines "local workforce" for the BSPP project to be the Riverside/San Bernardino/Ontario Metropolitan Statistical Area (MSA), which includes both Riverside and San Bernardino Counties.[2] As local workforce data is unavailable specifically for both La Paz and Maricopa Counties, data is presented for the State of Arizona as a whole as these counties contribute significantly to the entire State of Arizona. It should be noted that both local and regional study areas are contained within the statewide data and would contribute to the local workforce, as identified in detail below.

Construction

The applicant expects that construction of the proposed BSPP would last for 69 months, resulting in an average of approximately 604 daily construction workers peaking with a daily workforce of 1,0011~~,004~~ workers during month 16 of construction (Solar Millennium2009a, p. 5.11-24). This peak employment number is used to analyze worst-case construction population and employment impacts. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4** shows Year 2006-2016 occupational employment projections for the Riverside/San Bernardino/Ontario MSA and State of

Arizona by construction labor skill as compared to the estimated number of total construction workers by craft needed during the peak month (month 16)~~14)~~ as presented in the AFC (Solar Millennium2009a, p 5.11-26).

[1] Total below poverty level population reflects those persons for which poverty status is determined only.

[2] Metropolitan Statistical Areas are geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by Federal and State statistical agencies in collecting, tabulating, and publishing socioeconomic statistics.

As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**, there is more than adequate local availability of construction workforce within the Riverside/San Bernardino/Ontario MSA to serve the direct BSPP construction labor need.~~alone for the BSPP. Furthermore, additional workforce will be available and likely come from within La Paz and Mariposa Counties (including local communities within such as Ehrenberg and Quartzsite) representing a portion of the state of Arizona workforce presented in **Table 4**. Should some construction workers from within the study area choose to stay temporarily at a local area motel or hotel close to the BSPP site, there is ample transient housing available. There are approximately 630 hotel/motel rooms and suites among 11 different establishments in the city of Blythe area (AS2009a, p. 5.11-27). As such, staff finds that the proposed project would not induce substantial growth or concentration of population in either the regional or local study areas and construction of the BSPP would not encourage people to permanently relocate to the area.~~

When considering potential socioeconomic impacts of workers required for BSPP construction, staff considered information provided in the AFC and current California Department of Finance data for the Riverside/San Bernardino/Ontario MSA as presented in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**. Staff also utilized the findings of an Electric Power Research Institute report titled Socioeconomic Impacts of Power Plants, construction workers will commute as much as two hours to construction sites from their homes, rather than relocate (Solar Millennium2009a, p 5.11-24). During preparation of this analysis, staff consultation with the Building and Trades Council of San Bernardino and Riverside Counties also indicated that construction workers within San Bernardino and Riveriside counties regularly commute 2-hours each direction daily for work (CEC 2010b). Based on these data sources, staff concludes all construction workers will come from within this regional study area.

As stated in the AFC, it is anticipated that the vast majority of the construction workforce (a peak workforce of 1,004 workers and an average of 604 workers per day over the 69-month duration of BSPP construction) would commute to the project site rather than relocate (Solar Millennium2009a, p 5.11-25). Staff concurs with this AFC conclusion. However, to fully evaluate the potential for impacts, staff assumes that up to 15% of construction workers could seek local lodging in the BSPP local area during the workweek. It should be noted that this would be a temporary and fluctuating demand on local lodging. Staff assumes that because data indicates the workforce would likely come from within the regional study area, it is speculative to quantify if and in what numbers construction workers may permanently relocate from the regional study area to the BSPP local area for a limited duration construction job with the BSPP. Based on this assumption, it is possible that during the peak construction month (worst-case scenario) up to 150 workers could seek local lodging.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4
Total Labor by Skill in Riverside/San Bernardino/Ontario MSA and State of Arizona (2006 and 2016 Estimate) and BSPP Required Construction by Craft Peak Month

Trade	Total # of Workers for Project Construction by Craft – Peak Month	Riverside/San Bernardino/Ontario MSA 2006	State of Arizona 2006	Riverside/San Bernardino/Ontario MSA 2016	State of Arizona 2016
Surveyor	16	1,420	2,804	1,670	3,388
Operator	94	4,790	14,438	5,460	15,565
Laborer	229	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Truck Driver	28	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Oiler	4	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Carpenter	77	28,850	75,437	32,390	76,235
Boilermaker	9	4,630[2]	8,209[2]	5,330[2]	8,587[2]
Paving Crew	0	630	1,888	720	1,985
Pipe Fitter	290	4,630	8,209	5,330	8,587
Electrician	81	6,740	9,873	7,600	10,650
Cement Finisher	80	4,110	10,082	4,690	10,395
Ironworker	42	19,460	21,628	20,800	22,330
Millwright	18	2,630[3]	3,757[3]	2,960[3]	4,132[3]
Tradesman	8	27,930[1]	38,390[1]	32,080[1]	40,080[1]
Project Manager	2	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Construction Manager	2	4,380	9,437	5,110	10,048
PM Assistant	2	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Support	2	120[5]	12,078[5]	130[5]	12,375[5]
Support Assistant	2	120[5]	12,078[5]	130[5]	12,375[5]
Engineer	7	1,370	5,422	1,600	6,166
Timekeeper	2	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Administrator	5	10,990[4]	14,999[4]	12,380[4]	15,540[4]
Welder	1	3,960	6,561	4,640	7,261

Notes: [1] The "Construction Laborers" category was used, [2] the "Plumbers, Pipefitters, and Steamfitters" category was used, [3] the "Machinists" category was used, [4] the "Supervisors, Construction and Extraction Workers" category was used, [5] the "Helpers- Construction Trades" category was used; -- No workers of this type required during peak month construction.
Source: Solar Millennium2009a, Tables 5.11-8, 5.11-11, and 5.11-17.

Hotel/Motel. Data compiled by Smith Travel Research for hotels, motels, and bed and breakfast inns (B&Bs) with 15 or more rooms identified 19 hotels with a total of 878 rooms within the local study area in 2008, which presents the most current available data (GSEP2009a, p. 5.8-5). These hotels were all located in Blythe, which is the only community with hotels or motels with 15 or more rooms within one hour's driving distance. The average annual occupancy rate for hotels in Riverside and San Bernardino Counties in 2007 was 70.8% (GSEP2009a, p. 5.8-6). Applying this ratio (70.8%) to the total number of hotel rooms identified within one hour of the BSPP site suggests that, on average, a total of 256 unoccupied rooms were available for rent in Blythe in 2008.

Fifty-seven hotels with a total of 8,285 rooms were identified in communities located from 1 to 1.5 hours drive from the BSPP site (GSEP2009a, p. 5.8-6). These communities include Indio, Palm Desert, Indian Wells, and Rancho Mirage. Applying the 2008 average occupancy ratio (70.8%) suggests that, on average, 2,419 unoccupied rooms are available for rent within 1 to 1.5 hours drive of the BSPP site. A total of 129 hotels with 7,541 rooms were identified in communities within 1.5 to 2 hours drive from the BSPP site (GSEP2009a, p. 5.8-6). These communities include Desert Hot Springs, Palm Springs, and Needles. Assuming an annual average occupancy rate of 70.8%, 2,202 unoccupied motel and hotel rooms were available for rent within 1.5 to 2 hours drive from the BSPP site. It should be noted that data was unavailable for local study area hotel/motel rooms located within Arizona, but is certainly available to workers.

Housing Vacancy. As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, based on current vacancy rates for the city of Blythe approximately 876 vacant housing units were available in 2008. Furthermore, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, recent data indicates that approximately 1,594 local housing units were available within the cities of Ehrenburg and Quartzsite, AZ.

Campground/RV Parks. There are at least 10 Recreational Vehicle (RV) parks located in the vicinity of Blythe, with a combined total of about 800 spaces (GSEP2009a, p. 5.8-5). RV parks in Blythe tend to be located along the Colorado River and receive higher levels of use during the summer. Contact with a small sample of these RV parks suggests that while they have a large number of spaces, many of these are occupied by year-round residents or privately owned, and would not be available for use by construction workers (GSEP2009a, p. 5.8-6). Additional RV parks are located in Ehrenberg, Arizona, and Quartzsite, Arizona, approximately 4 miles and 20 miles east of Blythe, respectively. The town of Quartzsite web site states there are more than 70 RV parks in the vicinity of the community that are typically occupied between October and March, with visitors attracted to the gem, mineral, and swap meet shows which are popular tourist attractions in the area (GSEP2009a, p. 5.8-6).

BLM operates two primitive campgrounds in the general vicinity of the BSPP local study area: Wiley's Well Campground and Coon Hollow Campground, both located south of I-10 on Wiley's Well Road GSEP2009a, p. 5.8-6. Except for "special areas" with specific camping regulations, vehicle camping is allowed anywhere on BLM-administered land within 300 feet of any posted Open Route. There are, however, no facilities in these locations and there is a 14-day limit for camping in any one location. After 14 days,

campers wishing to stay in the area longer are required to move 25 miles from their original camp site (GSEP2009a, p. 5.8-6). Long-term camping is available by permit in Long-Term Visitor Areas (LTVAs) on BLM lands. There are two LTVAs located in the vicinity of Blythe and the Project site: Mule Mountain, which includes the Wiley's Well and Coon Hollow campgrounds, and Midland, located north of the city of Blythe. LTVAs are for recreation use only and workers would not be permitted to use these areas (GSEP2009a, p. 5.8-6).

Conclusion. Based on this available local study area data, staff concludes that any construction workers seeking RV and campground lodging would likely find limited availability in the local study area during the winter months. However, as discussed above, staff anticipates ample local housing would be available to any construction worker seeking local housing. Based on the availability of short-term housing in the local study area when compared to a maximum temporary peak demand of up to 150 workers potentially seeking local housing during the workweek, staff concludes that construction of the proposed project would not temporarily induce substantial growth or concentration of population in the local study area and construction of the BSPP would not encourage people to permanently relocate to the area due to temporary construction employment associated with the BSPP.

Operation

The proposed BSPP is expected to require a total of 221 permanent full-time employees (Solar Millennium2009a, p. 5.11-29). **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5** shows Year 2006-2016 occupational employment projections for the Riverside/San Bernardino/Ontario MSA and the State of Arizona (by operational labor skill as compared to the estimated number of total operational workers needed as presented in the AFC (Solar Millennium2009a, p. 5.11-29).

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5
Total Labor by Skill in Riverside/San Bernardino/Ontario MSA and State of Arizona (2006 and 2016 Estimate) and BSPP Required Operation

Trade	Total # of Workers for Project Operation	Riverside/San Bernardino/Ontario MSA 2006	State of Arizona 2006	Riverside/San Bernardino/Ontario MSA 2016	State of Arizona 2016
Plant and System Operators	--	2,030	2,797	2,380	3,221
Power Plant Operators	--	310	422	370	471
Total	*221*	*2,340*	*3,219*	*2,750*	*3,692*

Source: Solar Millennium2009a, Tables 5.11-8 and 5.11-11.

As shown in **Table 5**, data for the Riverside/San Bernardino/Ontario MSA ~~and~~ indicates that in the Year 2006, the "Plant and System Operators" and "Power Plant Operators" employment sector contained a total of 2,340~~2,350~~ workers, with Year 2016 forecasts for these employment sectors to grow to a total of 2,750 employees. Furthermore, additional workforce will be available and could come from within La Paz and Mariposa counties~~Counties~~ (including local communities within such as Ehrenberg and Quartzsite) representing a portion of the State of Arizona workforce presented in **Table**

5.

As stated on p. 5.11-29 of the AFC, the applicant states that 75% of workers would come from within the regional study area workforce, resulting in a potential influx of approximately 55 workers in communities within the proposed BSPP regional and local study areas (Solar Millennium2009a). However, Staff's independent analysis (based on **Table 5**) shows that there is more than an adequate local workforce for project operation regardless of the specialized nature of the proposed project. Therefore, due to the available operational labor force located in proximity of the BSPP site, particularly within the Riverside/San Bernardino/Ontario MSA, Staff concludes that the new operational employees required for the BSPP would be found locally.

In the event these 55any permanent operational employees choose to live closer to the BSPP site, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, the most current published local study area vacancy rates for the cities of Blythe, CA; Ehrenberg, AZ; and Quartzsite, AZ are 16.1, 34.9, and 41.9%, respectively. These vacancy rates indicate ample local housing is available should these operational employees choose to relocate to the local study area. Additionally, research shows that power plant workers may commute as much as two hours each direction from their communities rather than relocate (Solar Millennium2009a, p 5.11-24). Therefore, staff believes some of these 55 workers that may relocate to the area may choose to live outside of the local study area or will choose to commute from their current residence within the regional study area. As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 2**, the regional study area provides a high number of available housing opportunities. The addition of up to 55 workers to either the local or regional study area would not permanently induce substantial growth or concentration of population in excess of available housing or forecasted growth.

As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, staff agrees with the AFC data indicating that the BSPP will result in the generation of both indirect and induced employment. However, staff cannot speculate as to the type, potential hiring practice/requirements, and potential for employee relocation as a result of these indirect and induced jobs at the time of this publication. While it is possible that a portion of this indirect and induced employment would occur within the local study area (increase in food workers, etc.), a number of jobs could not (solar power plant equipment manufacturing, etc.). A number of induced and indirect employment could potentially occur outside of the local study area or California. Therefore, staff concludes it is speculative to quantify what if any numbers of indirect and induced employees may seek permanent housing in the BSPP local study area. However, based on the number of projected indirect and induced employment (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**), it is assumed that the vacancy rate of the local and regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLES 2** and **3**) could adequately provide housing for any potential portion of indirect and induced employment population that may permanently relocate to the BSPP local study area and this population would be within projections for the regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLE 2**).

Based on these conclusions, staff. Staff concludes that under CEQA, inducement of

substantial population growth through permanent employment associated either directly or indirectly by the BSPP would ~~not~~ be a less than significant impact.~~or adverse.~~

DISPLACE EXISTING HOUSING AND SUBSTANTIAL NUMBERS OF PEOPLE

The proposed BSPP site is vacant undeveloped desert land with desert scrub located throughout, with no housing structures existing on the property (Solar Millennium2009a, pp. 5.7-14 and 5.7-15). As such, no housing or persons would be displaced by the BSPP. Furthermore, staff has determined that no housing would be displaced from required transmission line and other infrastructure linear connections right-of-way (ROW) associated with the BSPP.

As discussed above, staff concludes that ~~finds~~ the required construction ~~and operational~~ workforce of the BSPP would be found in the regional study area and an assumed 15% of workforce temporary~~locally and no~~ inmigration that could ~~would~~ occur ~~that~~ would not trigger the need for new housing in the local study area based on available hotel/motel rooms and vacant housing units within the local study area.~~.~~ Furthermore, as discussed above, vacancy rates within the local study area offer operational employees (estimated at up to 55 workers), as well as potential indirect and induced employment workers, wishing to relocate within the local study area ample available housing. ~~A high number of transient lodging opportunities exist within the regional study area to serve construction employees.~~ Therefore, staff concludes that no significant construction or operation-related impacts are expected for the regional and local study area housing supply, availability, or demand, and the BSPP would not displace any populations or existing housing, and it would not necessitate construction of replacement housing elsewhere.

RESULT IN SUBSTANTIAL PHYSICAL IMPACTS TO GOVERNMENT FACILITIES

Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. Public service providers serving the BSPP site are located within Riverside County only and represent the local study area. Therefore, the study area for the public services analysis is limited to Riverside County.

As discussed under the subject headings below, the BSPP would not cause significant impacts to service ratios, response times, or other performance objectives relating to law enforcement, schools, parks and recreation, or emergency medical service facilities. ~~Fire protection is analyzed in the **Worker Safety and Fire Protection** section of this document.~~

As discussed in the **Worker Safety and Fire Protection** section of this report, staff proposes a new fire station required by **Worker Safety-7** to mitigate for the direct and cumulative impacts of the project on local fire protection services. It should be noted that this potentially significant impact to fire protection services was determined using the significant thresholds presented in the **Worker Safety and Fire Protection** section, which are independent and differ from those utilized within this **Socioeconomics** section to determine potential impacts to police, school, emergency services, and

recreational public services. Please refer to the **Worker Safety and Fire Protection** section of this report for a detailed discussion of fire protection services. Please refer to the **Land Use, Recreation, and Wilderness** section of this document for further analysis of recreation impacts.

Police Protection

The BSPP site would be served by the Riverside County Sheriff's Department Colorado River Station at 260 North Spring Street in Blythe, which provides service to the unincorporated area from Red Cloud Road on the west, to the Arizona state line on the east, and county line to county line on the north and south (Solar Millennium2009a,(AFC, p. 5.11-19). Communities included in this service area are Desert Center, Eagle Mountain, East Blythe, Hayfield, Midland, Nicholls Warm Springs, Ripley, and the Colorado River. Currently, the Riverside County Sheriff's Department average response time of to the BSPP site depends on the severity of the incident and the location of the deputies on call; however, response time is estimated at 10 to 30 minutes (Solar Millennium2009a,(AFC, p. 5.11-20).

Construction. During BSPP construction, the site would include security fencing (Solar Millennium2009a, p. 2-23). In addition, during construction on-site security would include trained, uniformed, unarmed personnel whose primary responsibility would be to control ingress and egress and exit of personnel and vehicles, perform fire and security watch during off hours, and perform security badge administration (Solar Millennium2009a, p. 5.11-28), all of which would minimize the potential need for the Riverside County Sheriff's Department assistance. As discussed above, staff considered it is possible that during the peak construction month (worst-case scenario) up to 150 workers could seek local lodging. This number of potential local study area temporary population increase is considered less than significant as these workers are assumed to already live within the regional study area and are currently a part of the Riverside County Sheriff's Department population served. While the BSPP would increase the number of individuals within the local study area during construction, staff agrees with the AFC conclusion that current law enforcement capacity should be sufficient to handle emergencies at the site (Solar Millennium2009a, p. 5.11-28). Furthermore, there would be no permanentAs discussed above, the construction workforce for the BSPP would be hired from within the available regional workforce. There would be no population in-migration occurring from BSPP construction that would increase the local population or would require the need for new or expanded law enforcement facilities or staff levels within the BSPP regional or local study areas.

Operation. Once operational, the proposed BSPP site would include security fencing, controlled access gates, and security lighting (Solar Millennium2009a, pp. 2-22 and 2-23), which would minimize the potential need for the Riverside County Sheriff's Department assistance. As discussed above, the operational workforce for the BSPP is expected to be hired from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore,

as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local public safety funding. Additionally, as it is likely a number of these employees already reside within Riverside County, only relocating closer to the BSPP site, they would not result in an increase over the total population policed by the Riverside County Sheriff's Department. Based on these conclusions, staff~~As discussed above, the operational workforce for the BSPP would be hired from the available regional workforce and no population in-migration would occur. Staff~~ concludes that operation of the proposed BSPP would not increase the local population or require the need for new or expanded law enforcement facilities or staff levels within the BSPP regional or local study areas.

Schools

The Palo Verde Unified School District (PVUSD), and the Desert Center Unified School District in Desert Center serve the proposed BSPP site area (Solar Millennium2009a, p. 5.11-22). **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6** identifies the schools and year 2006-2007 student enrollments in each of the respective school districts. As shown in **Table 6**, the PVUSD, approximately 8 miles east of the BSPP site, offers a full range of educational opportunities with three elementary schools, one middle school, one high school, and a continuation high school, while the Desert Center Unified School District, approximately 35 miles west of the site consists of one elementary school.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6
Summaries of Schools and Enrollment in Palo Verde and Desert Center School Districts, Year 2006–2007

Palo Verde Unified School District			
School Name	**Community**	**Grades**	**Students**
Felis J. Appleby Elementary School	Blythe	K-5	527
Margaret White Elementary School	Blythe	K-5	666
Ruth Brown Elementary School	Blythe	K-5	652
Blythe Middle School	Blythe	6-8	841
Palo Verde High School	Blythe	9-12	952
Twin Palms Continuation School	Blythe	9-12	97
Desert Center Unified School District			
School Name	**Community**	**Grades**	**Students**
Eagle Mountain Elementary School	Desert Center	K-8	16
Source: Solar Millennium2009a, Tables 5.11-14 and 5.11-15.			

Construction. As discussed above, staff assumes the ~~required~~ construction workforce for ~~of~~ the BSPP will ~~would~~ be hired from within the available regional workforce, with up to 15% of workers potentially seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent~~workforce. There would be no~~ population in-migration occurring from BSPP construction into the PVUSD. Staff cannot speculate as to the possibility or quantify that any construction workers seeking local temporary housing may bring school aged children seeking enrollment within the PVUSD, as staff assumes workers would only seek local lodging during the workweek from their permanent homes within the regional study area. Therefore, staff concludes that construction of the BSPP would not~~increase the local population or would~~ require the need for new or expanded PVUSD school facilities or staff levels~~. within the BSPP regional or local study areas.~~

Operation. Like all school districts in the state, the PVUSD is entitled to collect school impact fees for new construction within their district under the California Education Code Section 17620. These fees are based on the project's square feet of industrial space. WhileBecause the main services complex of the BSPP AFC indicates that a $116,000 school impact fee will be paid to the PVUSD (Solar Millennium2009a, p. 5.11-31), this estimated school impact fee was based on administrative and warehouse(considered "industrial space related to each power block located off BLM land (CEC 2010a). At the time of AFC preparation, the applicant did not have complete information regarding facility location at the time of writing (CEC 2010a). Therefore, to be conservative, the AFC assumed that the project would pay the full fee (CEC 2010a). However, since publication of the AFC the applicant has indicated that all components of the BSPP") would be constructed entirely on BLM land (CEC 2010a). Therefore,, no private land or lands within the PVUSD's district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this

project, resulting in no school impact fee paid (CEC 2010a).~~project.~~ Therefore, the BSPP would be in compliance with Education Code section 17620 (as described in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 1)**.

As discussed above, the operational workforce for the BSPP is expected to be hired from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. According to the PVUSD, the school district expects to have the necessary capacity to accommodate new students as a result of operation of the BSPP (Solar Millennium2009a, p. 5.11-22). Based on the volume of students within the PVUSD shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6**, staff concludes that any contribution of school aged children from 55 potentially permanent relocations to the local study area would account for a small increase in overall PVUSD student body. Staff also acknowledges that it is possible some population inmigration could occur from induced and indirect employment, but cannot speculate as to a quantity at the time of this publication. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax. The payment of these property taxes would contribute to local education facility funding. Based on this, staff concludes that operation of the proposed BSPP would not~~Additionally, as discussed above, the required operational workforce of the BSPP would be found locally with no population in-migration occurring that would increase the local population or would~~ require the need for new or expanded school facilities or staff levels within the BSPP regional or local study areas.

Parks and Recreation

The site is currently undeveloped, is not designated for active recreational use, and does not appear to be frequented as a regular recreational area (Solar Millennium2009a, p. 5.7-15). The nearest park facilities to the BSPP site are located within the city of Blythe, located approximately 8 miles east of the BSPP site. The city of Blythe Parks Department is responsible for the maintenance and upkeep of the area's~~areas~~ seven parks and one pocket park (City of Blythe, 2009).

Construction. As discussed above, staff assumes the ~~required~~ construction workforce for ~~of~~ the BSPP will ~~would~~ be hired from within the available regional workforce, with up to 15% of workers potentially seeking temporary local area housing during the workweek to avoid commuting. This temporary local housing need would not result in permanent~~workforce. There would be no~~ population in-migration occurring from BSPP construction onto either the local or regional study areas. As discussed above, staff concludes that camping and RV facility use would not be available for BSPP construction workers during the winter months seeking local area housing. Therefore, staff concludes that BSPP construction employment would not~~increase the local population or would~~ require the need for new or expanded ~~parks and~~ recreational facilities or staff levels within the BSPP regional or local study areas.

Operation. As discussed above, the operational workforce for the BSPP is expected to come from within the available regional workforce. It is possible that up to 55 operational employees could choose to relocate to the BSPP local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local recreational facility funding. Therefore, staff concludes that permanent employment associated with the BSPP would not~~As discussed above, the proposed BSPP would not eliminate any lands designated for recreational use. Furthermore, as the required operational workforce of the BSPP would be found locally, there would be no population in-migration occurring that would increase the local population or would~~ require the need for new or expanded parks and recreational facilities or staff levels within the BSPP regional or local study areas.

Staff received a scoping letter dated December 22, 2009 from Off Road Business Association, Inc. (ORBA) requesting that the Staff Assessment/Draft Environmental Impact Statement consider impacts of the proposed BSPP on recreational uses in the area including, but not limited to, off-highway vehicles (OHV) use, camping, photography, hiking, wildlife viewing, and rockhounding (ORBA2009a). Furthermore, ORBA requested that the analysis of potential impacts to the local economy extend to businesses that sell OHV and OHV related equipment. As stated above, the site is currently undeveloped, is not designated for active recreational use, and only a few OHV tracks were observed within the site (Solar Millennium2009a, p. 5.7-15). While OHV tracks exist within the site showing passive recreational use, the site is not designated for OHV use (Solar Millennium2009a, p. 5.7-15). If not a designated OHV park, Riverside County Ordinance 10.12.010 states a person must have written permission from the property owner in their possession in order to ride their vehicles on the property they are on (Riverside County Sheriff's Department 2010). Therefore, the proposed BSPP would have no direct impacts to lands designated for OHV use and no direct or indirect economic impacts to existing OHV or OHV related equipment industries as a result of the BSPP. For additional discussion regarding potential BSPP related impacts to recreational resources, please refer to the **Land Use, Recreation, and Wilderness** section of this document.

Emergency Medical Services

The closest hospitals to the proposed BSPP site are the Palo Verde Hospital approximately 8 miles east in Blythe, the John F. Kennedy Memorial Hospital approximately 98 miles west in Indio, and the Desert Regional Medical Center approximately 120 miles west in Palm Springs. Palo Verde Hospital provides intensive care/critical/emergency care on site, including four adult intensive-care beds for critically ill patients, and contracts ambulance service to the hospital via private ambulance service providers within Blythe (Solar Millennium2009a, p. 5.11-21). **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 7** identifies the nearest emergency medical service facilities to the site and their respective available services.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 7
Hospitals and Services Serving the BSPP Site

~~Palo Verde School District~~	
Hospital/Address	**Available Services**
Palo Verde Hospital 251 First Street Blythe, CA	Hospital, blood bank, computerized tomography scan, intensive care unit, labor/delivery/recovery rooms, magnetic resonance imaging, nuclear medicine, outpatient services, ultrasound.
John F. Kennedy Memorial Hospital 47111 Monroe St. Indio, California	Hospital, cardiac and vascular, healthgrades, orthopedic and arthritis institute, outpatient rehabilitation, women and children, emergency department, free physician referral and community education, emergency and express care.
Desert Regional Medical Center 1150 N. Indian Canyon Dr. Palm Springs, California	Hospital, hematologists, pathologists, radiology, general surgeons, emergency medical and surgical service, anesthesiologists, physical therapists, obstetricians, and gynecologists, rehabilitation services.
Source: Solar Millennium2009a, Table 5.11-13.	

Construction. Construction of the proposed BSPP would last for 69 months, resulting in an average of approximately 604 daily construction workers peaking with a daily workforce of 1,004 workers during month 16 of construction (Solar Millennium2009a, p. 5.11-24). In the event an on-site accident occurred during project construction, both private ambulance service and Riverside County Fire Department firefighters would provide first responder emergency medical care. As discussed in the **WORKER SAFETY AND FIRE PROTECTION** section of this document, the nearest Riverside County Fire Department fire stations are staffed full-time, 24 hours/7 days a week, with a minimum 3-person crew, including paramedics. Once transported, as shown above in **Table 7**, a number of local area hospitals are available to provide emergency and express medical care. Therefore, while a high number of construction employees would be located on-site, local area emergency medical facilities are expected to adequately handle any worksite accidents requiring their attention. No additional constraints or physical impacts would occur to the local study area healthcare services or facilities identified in **Table 7** serving the BSPP site.

Operation. The proposed BSPP is expected to require a total of 221 permanent full-time employees (Solar Millennium2009a, p. 5.11-29). As discussed above for construction, the available emergency medical and hospital facilities identified in **Table 7** and serving the BSPP site and local study area are expected to adequately handle the permanent addition of 221 on-site staff and the long-term demands of the BSPP. It is possible that up to 55~~Furthermore, as all~~ operational employees could choose to relocate to the BSPP local area~~are expected to come~~ from more distant ~~within the~~ regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this~~, no new~~ population ~~inmigration~~ would be adequately served by the local area ~~occur that could decrease existing~~ emergency medical facilities as these facilities are privately owned and expand based on a supply and demand basis. Therefore, staff concludes that operation~~care providers existing service ratios. Operation~~ of the BSPP is not expected to significantly impact the existing service levels, response times, or capacities of the hospitals serving the BSPP local study area.~~.~~

PROJECT CLOSURE AND DECOMMISSIONING

As described in the **Project Description** section of the RSA,~~SA/DEIS,~~ it is assumed the planned operational life of the Project is 30 years, but the facility conceivably could operate for a longer or shorter period depending on economic or other circumstances (Solar Millennium2009a, p. 3-2). If the BSPP remains economically viable, it could operate for more than 30 years, which would defer environmental impacts associated with closure and with the development of replacement power generating facilities. However, if the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. In any case, a Decommissioning Plan would be prepared at BSPP closure and put into effect when permanent closure occurs (Solar Millennium2009a, p. 3-2). As in the case of a temporary closure, security for the BSPP will be maintained on a 24-hour basis during permanent closure (Solar Millennium2009a, p. 3-2). In general, the Project Decommissioning Plan will address: decommissioning measures for the BSPP and all associated facilities; activities necessary for site restoration/revegetation if removal of all equipment and facilities is needed; recycling of facility components, collection and disposal of hazardous wastes, and resale of unused chemicals to other parties; decommissioning alternatives other than full site restoration; costs associated with the planned decommissioning activities and where funding will come from for these activities; and conformance with applicable LORS (Solar Millennium2009a, p. 3-2).

It is assumed that the number and type of workers required for closure and decommissioning activities would be similar to that described above for construction of the BSPP. Also, it is assumed the closure and decommissioning workforce would be drawn from the regional and local study areas. As all workers are expected to reside within the study area, no impacts to existing population levels are expected to occur. As closure and decommissioning activities would be temporary in duration with the number of required workers expected to represent a small portion of the local available labor force, no significant impacts to the study area population would result from proposed project closure and decommissioning activities. Furthermore, it is assumed that the regional study area would continue to offer a high number of transient lodging opportunities to serve decommissioning construction employees. Therefore, closure and decommissioning of the proposed BSPP would not result in any direct population growth to the area that could generate a need for new or expanded housing or public service facilities.

Staff cannot speculate as to the long-term economic and fiscal effects that closure and decommissioning activities would have on the study area because future conditions are unknown. Upon permanent closure of the BSPP, the beneficial socioeconomic operational impacts such as worker payroll, project expenditures, and local economic stimulus through taxation would no longer occur. It should be noted that closure and decommissioning of the BSPP would likely require further environmental impact evaluation.~~evaluation, and most likely would have some beneficial fiscal and non-fiscal impacts to the area.~~

C.8.4.3 CEQA LEVEL OF SIGNIFICANCE

As discussed in the subject headings above, under CEQA, project-related socioeconomic impacts would be less than significant for population, housing, and

public services including law enforcement, schools, parks and recreation, and emergency medical services.

C.8.5 RECONFIGURED ALTERNATIVE~~ALTERANTIVE~~

The Reconfigured Alternative would be a 1,000 MW solar facility that would retain use of the proposed solar Units 1, 2, and 4 (the two northern solar fields, and the southeastern solar field) at their proposed locations as shown on **Alternatives Figure 1**. The proposed Unit 3 (the southwestern solar field) would be relocated approximately 0.8 miles south of its proposed location. This alternative is analyzed because (1) It would retain the 1,000 MW generation capacity defined for the proposed project and the engineering is defined by Solar Millennium as feasible, and (2) it minimizes impacts to state waters and to desert dry wash woodlands, a vegetation community classified as sensitive by the BLM and CDFG. Approximately 480 acres of the Reconfigured Alternative would be outside of the ROW application area but the alternative would remain entirely within BLM-managed lands.

C.8.5.1 SETTING AND EXISTING CONDITIONS

This alternative includes the Units 1, 2, and 4 as proposed for the Blythe Solar Power Project as well as a reconfigured Unit 3. The setting for Units 1, 2, and 4 would not change from that for the proposed project. Unit 3 would be relocated approximately 0.8 miles south of the proposed location. The relocated Unit 3 includes the use of 480 acres of BLM land immediately south of the proposed ROW. As only a minor change would occur to the project site, this alternative~~alterative~~ would have the identical socioeconomic regional and local study areas as the proposed BSPP, as discussed above in Section C.8.4.1.

C.8.5.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Induce Substantial Population Growth

The population impacts of the Reconfigured Alternative would be similar to those of the proposed BSPP, as described above in Section C.8.5.2. This alternative would relocate~~It is possible due to the larger footprint of~~ Unit 3, but result in identical ~~that~~ construction activities as that described above for the proposed BSPP. Therefore,~~could be increased, resulting in a longer overall construction schedule and a potential increase to the number of construction workers. However,~~ this alternative would result~~potential change~~ in identical~~construction activities would not result in greater~~ socioeconomic impacts when compared to the proposed BSPP. As ~~as~~ the regional study area provides a substantial number of construction workers by type that would adequately provide all required workers for the Reconfigured Alternative as well (refer to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**). Therefore, ~~all construction workers required for~~ the Reconfigured Alternative is~~are expected to come from within the regional study area and would~~ not considered to result in population inmigration to the local or regional study area from construction activities.~~.~~

It is assumed that operation of this alternative would require the identical number of operational employees as the BSPP. Therefore it is possible that up to 55~~As discussed~~

above in Section C.8.5.2 (refer to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5**), operational employees could chooseare expected to relocate to the Reconfigured Alternative local areacome from more distant within the regional study area locations. As discussed above, in the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this and not result in population would be adequately served by local area availableinmigration.

Displace Existing Housing

The housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that operation impacts of the Reconfigured Alternative would not induce substantial population growthbe similar to those of the proposed BSPP, as described in excess of available local study area housing.

Displace Existing Housing

The housing impacts of the Reconfigured Alternative would be identical to those of the proposed BSPP, as described in Section C.8.5.2. Section C.8.5.2. As discussed above, this alternative would require approximately 480 acres of the site be outside of the BSPP ROW application area, but the alternative would remain entirely within BLM managed lands. Therefore, because this additional site footprint would be within BLM managed lands, it is assumed that no housing would exist within the additional acreage and required infrastructure ROW. Therefore, the Reconfigured Alternative would not displace any housing during construction or operation. Furthermore, identicalsimilar to that described forof the proposed BSPP, any temporary inmigration from the requiredboth construction workforce of the and operational employment associated with the Reconfigured Alternative seeking local housing during the workweek (assumed up to 15%) would not triggerresult in the needdemand for new housing in the local study area. Furthermore, it is assumed all workers would be found ineither the regional study area.or local study areas (refer above to Section C.8.5.2).

It is possible that up to 55 operational employees could choose to relocate to the Reconfigured Alternative local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that construction and operation of the Reconfigured Alternative would not induce substantial population growth in excess of available local and regional study area housing.

Result in Substantial Physical Impacts to Government Facilities

The public services impacts of the Reconfigured Alternative would be identicalsimilar to those of the proposed BSPP, as described in Section C.8.5.2. Therefore, asAs discussed above for the BSPP it is assumed that , all required construction workforce ofand operational employees associated with the Reconfigured Alternative would be found in are expected to come from within the regional study area and no permanent

inmigration would occur. In the event construction workers choose to temporarily seek short-term housing during the workweek (assumed up to 15%), these workers would not impact local public service ratios or capacities similar to that analyzed for the BSPP.~~.~~ Therefore, no new population inmigration would occur from construction that could decrease existing public service provider~~s~~ service levels and ratios, response times, capacities, or require new or expanded facilities serving the Reconfigured Alternative~~BSPP~~ regional or local study areas.

Regarding operations, as ~~As~~ this alternative would also be located entirely within BLM lands, no private land or land within the PVUSD 's district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this alternative~~.~~

~~Cumulative Socioeconomic Effects~~

~~The cumulative socioeconomic impacts of the Reconfigured Alternative would be~~ (CEC 2010a). As discussed above, it is possible that up to 55 operational employees could choose to relocate to the Reconfigured Alternative local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local public safety, school, and recreational facility funding. Furthermore, operational employment impacts to emergency medical services would be identical for this alternative as those discussed above for the BSPP. Based on these conclusions, staff concludes that operation of the Reconfigured Alternative is not expected to significantly impact the existing service levels, response times, or capacities of the police, school, recreational facility, or hospitals serving the Reconfigured Alternative local study area. For a discussion regarding Reconfigured Alternative potential impacts to fire safety resources, please refer to the **Worker Safety and Fire Protection** section of this report.

Cumulative Socioeconomic Effects

The cumulative socioeconomic impacts of the Reconfigured Alternative would be identical~~similar~~ to those of the proposed BSPP, as described below in Section C.8.8. As discussed for the BSPP, ~~While this alternative could result in an increase in construction schedule and required workforce,~~ the regional and local study area provides adequate construction and operational employees for the Reconfigured Alternative and cumulative development projects. While cumulative ~~these~~ projects could~~will~~ combine to increase the demand for localized transient lodging and potentially permanent housing in the local study area, staff concludes that local ~~a large number of~~ hotel/motel and vacancy rates indicated ample~~rooms are~~ available housing for an assumed 15% of temporary workers who choose to stay locally during the workweek. Furthermore,~~and~~ local study area vacancy rates indicate ample permanent housing is available to those operational employees choosing to relocate locally to the site. In the event cumulative relocations occurred to the local study area from operational and indirect/induced employees, it is assumed that at some level the payment of property taxes from

cumulative employment relocations purchasing homes would help serve to offset any potential increase in public service demands. Furthermore, the Reconfigured Alternative would likely pay property tax similar to that of the BSPP as provided in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**. Therefore, the Reconfigured Alternative would not contribute to adverse cumulative socioeconomic impacts. ~~It should be noted that any increase in construction activities and site footprint associated with this alternative would likely result in an increase in tax benefits to local governments and construction expenditures compared to those provided below in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** for the proposed BSPP.~~

C.8.5.3 CEQA LEVEL OF SIGNIFICANCE

As discussed above in subsection C.8.5.2, and identical~~similar~~ to the proposed BSPP, impacts resulting from this alternative to socioeconomics would be less-than-significant**.**

C.8.6 REDUCED ACREAGE ALTERNATIVE

The Reduced Acreage Alternative would essentially be Units 1, 2, and 4 of the proposed project, and would be a 750 MW solar facility located within the boundaries of the proposed project as defined by Solar Millennium. This alternative is analyzed for two major reasons: (1) it eliminates about 25% of the proposed project area so all impacts are reduced, and (2) by removing the southwestern solar field, which is located on flowing desert washes, this alternative minimizes impacts to state waters and to desert dry wash woodlands, a vegetation community classified as sensitive by the BLM and CDFG, and to wildlife movement corridors. The boundaries of the Reduced Acreage Alternative are shown in **Alternatives Figure 2**.

C.8.6.1 SETTING AND EXISTING CONDITIONS

This alternative is located entirely within the boundaries of the proposed project. It simply eliminates effects to the southwestern 250 MW solar field (1,200 acres). As a result, the environmental setting consists of the northern and eastern portions of the proposed project, as well as the area affected by the linear project components. As the reduced project footprint would not result in a change to the overall site location, this alternative~~alterative~~ would have the identical socioeconomic regional and local study areas as the proposed BSPP, as discussed above in Section C.8.4.1.

C.8.6.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Induce Substantial Population Growth

The population impacts of the Reduced Acreage Alternative would be similar to those of the proposed BSPP, as described above in Section C.8.5.2. It is possible due to the smaller footprint of the site that construction activities could be decreased, resulting in a shorter overall construction schedule and a potential decrease to the number of construction workers. ~~However, this potential reduction in construction activities would not result in a change to socioeconomic impacts when compared to the proposed BSPP as the regional study area provides a substantial number of construction workers by type to serve the Reduced Acreage Alternative as well as the BSPP (refer to~~

~~**SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**~~). ~~Therefore, any~~all construction workers required for the Reduced Acreage Alternative that could seek temporary local housing during the workweek would be reduced as that compared to the proposed BSPP. As local hotel/motel and vacancy rates indicated ample temporary housing for these workers, and that all workers are expected to come from within the regional study area, the Reduced Acreage Alternative ~~and~~ would not result in population inmigration to the local or regional study area.~~.~~

It is assumed that operation of this alternative would require a reduced~~similar~~ number of operational employees as compared to the BSPP due to the elimination of Unit 3. Therefore, it is likely that less than 55~~. As discussed above in Section C.8.5.2 (refer to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5**),~~ operational employees could choose to relocate to the Reduced Acreage Alternative local area~~are expected to come~~ from more distant ~~within the~~ regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this ~~and not result in~~ population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that operation of the Reduced Acreage Alternative would not induce substantial population growth in excess of available local study area housing.~~inmigration.~~

~~Displace Existing Housing~~

~~The housing impacts of the Reconfigured Alternative would be identical to those of the proposed BSPP, as described in Section C.8.5.2.~~ Displace Existing Housing

The housing impacts of the Reduced Acreage Alternative would be identical to those of the proposed BSPP, as described in Section C.8.5.2. As discussed above, this alternative would simply reduce the footprint of the proposed BSPP site. Therefore, as discussed above for the BSPP, no housing would exist within the alternative site and required infrastructure ROW. Therefore, the Reduced Acreage Alternative would not displace any housing during construction or operation. ~~Furthermore, similar to that of the BSPP, both construction and operational employment associated with the Reconfigured Alternative would not result in the demand for new housing in either the regional or local study areas (refer above to Section C.8.5.2).~~

Local hotel/motel and vacancy rates indicated ample temporary housing for an assumed maximum of 15% of construction workers that may seek temporary local housing during the workweek. It is possible that some (less than 55) operational employees could choose to relocate to the Reduce Acreage Alternative local area from more distant regional study area locations. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, staff assumes this population would be adequately served by local area available housing, as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. Based on these conclusions, staff concludes that construction and operation of the Reduced Acreage Alternative would not induce substantial population growth in excess of available local and regional study area housing.

Result in Substantial Physical Impacts to Government Facilities

The public services impacts of the Reduced AcreageReconfigured Alternative would be similar to or less than those of the proposed BSPP, as described in Section C.8.5.2. As discussed for the BSPP, it is assumed thatabove, all required construction workforce ofand operational employees associated with the Reduced Acreage Alternative would be found in are expected to come from within the regional study area and no permanent inmigration would occur. In the event construction workers choose to temporarily seek short-term housing during the workweek (assumed up to 15%), these workers would not impact local public service ratios or capacities similar to that analyzed for the BSPP.. Therefore, no new population inmigration would occur from construction that could decrease existing public service providers service levels and ratios, response times, capacities, or require new or expanded facilities serving the Reduced Acreage AlternativeBSPP regional or local study areas.

Regarding operations, asAs this alternative would also be located entirely within BLM lands, no private land or land within the PVUSD 's district would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this alternative (CEC 2010a). In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, as indicated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**, the BSPP would pay substantial annual property tax, which contributes to local public safety, school, and recreational facility funding. Any potential reduction in property tax paid by this alternative would be offset by the direct reduction in operational employees that could choose to relocate to the Reduced Acreage Alternative local area. Furthermore, operational employment impacts to emergency medical services would be similar or less for this alternative as those discussed above for the BSPP. Based on these conclusions, staff concludes that operation of the Reduced Acreage Alternative is not expected to significantly impact the existing service levels, response times, or capacities of the police, school, recreational facility, or hospitals serving the Reduced Acreage Alternative local study area. For a discussion regarding Reduced Acreage Alternative potential impacts to fire safety resources, please refer to the **Worker Safety and Fire Protection** section of this report..

Cumulative Socioeconomic Effects

The cumulative socioeconomic impacts of the Reduced Acreage Alternative would be similar or less thanto those of the proposed BSPP, as described below in Section C.8.8. While this alternative could result in a decrease in construction schedule and required workforce, the regional and local study area provideswould continue to provide adequate construction and operational employees for the Reduced Acreage Alternative and cumulative development projects. While cumulativethese projects couldwill combine to increase the demand for localized transient lodging (during construction) and potentially permanent housing (from operations) in the local study area, a large number of hotel/motel rooms are available and local study area vacancy rates indicate ample temporary and permanent housing is available to those construction workers seeking temporary housing during the workweek and operational employees choosing to

relocate locally to the site. In the event any direct operational employees or indirect/induced employees were to permanently relocate to the local study area, it is assumed that some percentage of this population would purchase homes and contribute to the local community through the payment of property taxes. Furthermore, the Reduced Acreage Alternative would pay property taxes slightly reduced from those indicated for the BSPP in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**. Therefore, the Reduced Acreage Alternative would not contribute to adverse cumulative socioeconomic impacts. ~~It should be noted that any decrease in construction activities and site footprint associated with this alternative would likely result in a decrease in tax benefits to local governments and construction expenditures compared to those provided below in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** for the proposed BSPP.~~

C.8.6.3 CEQA LEVEL OF SIGNIFICANCE

As discussed above in subsection C.8.6.2, and similar to the proposed BSPP, impacts resulting from this alternative to socioeconomics would be less-than-significant**.**

C.8.7 NO ACTION ALTERNATIVE

The No Project Alternative under CEQA or the No Action Alternative under NEPA defines the scenario that would exist if the proposed BSPP were not constructed. The CEQA Guidelines state, "the purpose of describing and analyzing a 'no project' alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project" (Cal. Code Regs., tit. 14 § 15126.6(i)).

There are three No Project/No Action Alternatives evaluated in this section, as follows:

- No Project/No Action Alternative #1: No Action on BSPP application and on California Desert Conservation Area (CDCA) land use plan amendment
- No Project/No Action Alternative #2: No Action on BSPP and amend the CDCA land use plan to make the area available for future solar development
- No Project/No Action Alternative #3: No Action on BSPP application and amend the CDCA land use plan to make the area unavailable for future solar development

C.8.7.1 SETTING AND EXISTING CONDITIONS

The No Project analysis ~~in this SA/EIR~~ considers existing conditions and "what would be reasonably expected to occur in the foreseeable future if the project were not approved…" (Cal. Code Regs, tit. 14 § 15126.6(e)(2)). Under NEPA, the No Action Alternative is used as a benchmark of existing conditions by which the public and decision makers can compare the environmental effects of the proposed action and the alternatives. The socioeconomic setting for the No Project/No Action Alternative would be the same as those of the proposed project local and regional study areas, as described above in Subsection C.8.4.2.

C.8.7.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

There are three No Project/No Action Alternatives evaluated in this section, as follows:

No Project/No Action Alternative #1:

No Action on Blythe Solar Power Project application and on CDCA land use plan amendment

Under this alternative, the proposed BSPP would not be approved by the CEC and BLM and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. As a result, the socioeconomics impacts of the Blythe Solar Power project and the gross public benefits, including capital costs, construction and operation payroll and sales taxes, would not occur at the proposed site. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects may or may notwould have similar impacts in other locations.

No Project/No Action Alternative #2:

No Action on Blythe Solar Power Project and amend the CDCA land use plan to make the area available for future solar development

Under this alternative, the proposed BSPP would not be approved by the CEC and BLM and BLM would amend the CDCA Land Use Plan of 1980, as amended, to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site and have similar impacts as BSPP.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, it is expected that the socioeconomics impacts and the gross public benefits, including capital costs, construction and operation payroll and sales taxes, from the construction and operation of a different solar project would likely be similar to the socioeconomic impacts and benefits from the proposed project. As such, this No Project/No Action Alternative could result in socioeconomic impacts and benefits similar to the impacts under the proposed project.

No Project/No Action Alternative #3:

No Action on Blythe Solar Power Project application and amend the CDCA land use plan to make the area unavailable for future solar development

Under this alternative, the proposed BSPP would not be approved by the CEC and BLM and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar development. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because the CDCA Plan would be amended to make the area unavailable for future solar development, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. As such, this No Project/No Action Alternative would not result in socioeconomics impacts nor would it provide the gross public benefits, including capital costs, construction and operation payroll and sales taxes from the proposed project. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects may or may notwould have similar impacts in other locations.

C.8.7.3 CEQA LEVEL OF SIGNIFICANCE

Given that there would be no significant change over the existing conditions, impacts to socioeconomic resources of the No Project/No Action alternative would be less-than-significant. However, under the No Project/No Action alternative, the socioeconomic benefits to the local and regional study areas associated with the proposed project would not occur, and the development of other energy generating projects elsewhere could result in adverse socioeconomic impacts.

C.8.8 CUMULATIVE IMPACTS

A project may result in significant adverse cumulative impacts when its effects are "cumulatively considerable." Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, or the effects of probable future projects (Title 14, California Code of Regulations, section 15130). Cumulative socioeconomics impacts could occur when more than one project has an overlapping construction schedule that creates a demand for workers that cannot be met by the local labor force, resulting in an influx of non-local workers and their dependents. Operational cumulative socioeconomic impacts could occur when the development of multiple projects significantly impacts the population of an area thus resulting in a housing shortage, change in local employment conditions, and an increased demand on public services.

Section B.3, Cumulative Scenario, provides detailed information on the potential cumulative solar and other development projects in the project area. Together, these projects comprise the cumulative scenario, which forms the basis of the cumulative impact analysis for the proposed project. In summary, these projects are:

- Renewable energy projects on BLM, State, and private lands, as shown on **Cumulative Figure 1** and in **Cumulative Tables 1A and 1B.** Although not all of those projects are expected to complete the environmental review processes, or be funded and constructed, the list is indicative of the large number of renewable projects currently proposed in California.
- Foreseeable future projects in the immediate BlythePlaster City area, as shown on **Cumulative Impacts Figure 2, I-10 Corridor Existing and Future/Foreseeable Projects, and Cumulative Tables 2 and 3**. Table 2 presents existing projects in this area and Table 3 presents future foreseeable projects in the I-10 Corridor Area. Both tables indicate project name and project type, its location and its status.

These projects are defined within a geographic area that has been identified by the CEC and BLM as covering an area large enough to provide a reasonable basis for evaluating cumulative impacts for all resource elements or environmental parameters. Most of these projects have, are, or will be required to undergo their own independent environmental review under CEQA and/or NEPA. Even if the cumulative projects described in Section B.3 have not yet completed the required environmental processes, they were considered in the cumulative impacts analyses in this staff assessment.SA/Draft EIS.

Geographic Extent of Cumulative Impact Analysis

The area of cumulative effect for socioeconomic resources is Riverside and San Bernardino Counties, CA and La Paz and Maricopa Counties, AZ. The analysis of cumulative effects considers a number of variables including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of cumulative impact analysis is based on the workforce boundaries of the cumulative development projects. While it is possible that the geographic scope of cumulative effects will extend beyond these fourthree counties, with some workers potentially coming from adjacent counties beyond a two-hour commute radius of the proposed BSPP site, due to the similar nature of skill set required by the workforce during construction activities, as well as the number of proposed cumulative renewable energy projects, it is not anticipated that the geographic scope for cumulative impact analysis extendsextent beyond the scope of the direct and indirect effects of the proposed action.

Effects of Past and Present Projects

A wide variety of past and present development projects contribute to the cumulative conditions for socioeconomics. As noted above in the "Setting and Existing Conditions" subsection, past development has further urbanized the area and increased population, housing, and employment conditions. As shown in the AFC, from 2000 to 2008 the populations of Riverside and San Bernardino Counties increased by 25.6 and 16.2%, respectively while the population within La Paz and Maricopa Counties increased by 8.5 and 23.0%, respectively during the same time frame (Solar Millennium2009a, p. 5.11-6). This is an example of the steady growth rate that has occurred throughout the regional study area. As a result, past and present residential, commercial, and industrial development has contributed to the overall socioeconomic growth within the study area.

Effects of Foreseeable Projects

Socioeconomics are expected to be affected by the following reasonably foreseeable future projects as follows: a number of large electrical generation and distribution infrastructure development projects are proposed along the I-10 corridor (as shown in **CUMULATIVE IMPACTS Figure 2** and **CUMULATIVE IMPACTS Table 3**); and solar and wind applications proposed on approximately 1,000,000 acres of BLM land in the California Desert District Planning Area as well as a large number of electrical generation and distribution infrastructure development projects proposed on non-federal land in the I-10 corridor (as shown in **CUMULATIVE IMPACTS Table 1b**, **CUMULATIVE IMPACTS Figure 1,** and **CUMULATIVE IMPACTS Table 1a**).

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8
Cumulative Project Construction Employment Needs

Trade	BSPP Total # of Workers for Project Construction by Craft – Peak Month (Month 16)	PSPP Total # of Workers for Project Construction by Craft – Peak Month (Month 17)	GSEP Total # of Workers for Project Construction by Craft – Peak Month (Month 16)	RSEP Total # of Workers for Project Construction by Craft – Peak Month (Month 12)	DSPV Total # of Workers for Project Construction by Craft – Peak Month (Months 6-8)	*TOTAL*	Riverside/San Bernardino/ Ontario MSA 2006	Riverside/San Bernardino/ Ontario MSA 2016
Surveyor	16	12	0	0	N/A	*28*	1,420	1,670
Operator	94	90	0	0	N/A	*184*	4,790	5,460
Laborer	229	185	96	52	N/A	*637*	27,930[1]	32,080[1]
Truck Driver	28	35	0	0	N/A	*63*	27,930[1]	32,080[1]
Oiler	4	4	0	0	N/A	*8*	27,930[1]	32,080[1]
Carpenter	77	100	44	50	N/A	*300*	28,850	32,390
Boilermaker	9	11	0	0	N/A	*20*	4,630[2]	5,330[2]
Paving Crew	0	0	0	0	N/A	*0*	630	720
Pipe Fitter	290	326	200	80	N/A	*968*	4,630	5,330
Electrician	81	150	105	56	N/A	*449*	6,740	7,600
Cement Finisher	80	100	4	6	N/A	*197*	4,110	4,690
Ironworker	42	59	70	32	N/A	*246*	19,460	20,800
Millwright	18	25	22	16	N/A	*153*	2,630[3]	2,960[3]
Tradesman	8	10	382[6]	105[7]	N/A	*544*	27,930[1]	32,080[1]
Project Manager	2	3	0	0	N/A	*5*	10,990[4]	12,380[4]
Construction Manager	2	3	0	5	N/A	*10*	4,380	5,110
PM Assistant	2	4	0	0	N/A	*6*	10,990[4]	12,380[4]
Support	2	4	0	0	N/A	*6*	120[5]	130[5]
Support Assistant	2	4	0	0	N/A	*6*	120[5]	130[5]
Engineer	7	10	60	36	N/A	*127*	1,370	1,600
Timekeeper	2	3	0	0	N/A	*5*	10,990[4]	12,380[4]
Administrator	5	6	0	0	N/A	*11*	10,990[4]	12,380[4]
Welder	1	1	0	0	N/A	*2*	3,960	4,640
Total Peak Month	*1,001*	*1,145*	*983*	*438*	*622*	*4,189*	--	--
Local Housing Need[10]	*150*	*172*	*147*	*0[11]*	*93*	*562*	--	--

Notes: [1] The "Construction Laborers" category was used; [2] The "Plumbers, Pipefitters, and Steamfitters" category was used; [3] The "Machinists" category was used; [4] The "Supervisors, Construction and Extraction Workers" category was used; [5] The "Helpers-Construction Trades" category was used; [6] Includes: insulators, painters, teamsters, and 'Solar Field Craft". The solar field craft workers include an estimated five solar field installation crews, with each crew including a Foreman, Equipment Operators, Laborers, Electricians, Ironworkers, Carpenters, Masons, and Pipefitter/Welders; [7] Includes Teamesters, Heliostat Assembly Craft, Construction Staff, Subcontractors, and Technical Advisors; [8] Includes Insulators; [9] Includes Painters, Sheetmetal Workers, and Teamsters; [10] Assumes 15% of peak month workforce may seek temporary local housing during workweek; [11] On-site worker camp is provided for RSEP, providing housing for up to 300 trailers, eliminating local housing need; N/A: labor by craft data not available from BLM. Source: Solar Millennium 2009a and b, GSEP 2009a, SR 2009a, and BLM 2010c.

Contribution of the Blythe Solar Power Project to Cumulative Impacts

Construction. ~~**Construction**. The construction of the BSPP is expected to result in short term adverse impacts related to construction activities. It is expected that some of the cumulative projects described above which are not yet built may be under construction the same time as the BSPP. As a result, there may be substantial short-term impacts during construction of those cumulative projects related to socioeconomics.~~

~~The BSPP would be expected to contribute only a small amount to the possible short-term cumulative impacts related to socioeconomics.~~ Foreseeable development in the project area includes primarily renewable energy electrical generation and transmission infrastructure projects. With the large number of renewable energy projects occurring within the BSPP regional study area, it is possible that some overlap of construction phasing could occur between the BSPP and the cumulative development projects. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** presents~~**4** present~~ the most recently published data (Year 2006-2016 projections) on labor force characteristics for the cumulative ~~BSPP~~ regional study area pertaining to electrical energy project construction labor skill sets~~. As discussed above, Staff concludes that the required construction workforce of the proposed BSPP would be found locally, with no cumulative contribution to population inmigration occurring that would increase the local population. Therefore, because the local labor force will adequately serve construction~~ and compares those to major~~operation of the BSPP, it would not contribute to~~ cumulative projects located near the BSPP along the I-10 corridor, including the Palen Solar Power Project (PSPP), Genesis Solar Energy Project (GSEP), Rice Solar Energy Project (RSEP),~~permanent increases in population that would generate an increase in demand for local housing~~ and the Desert Sunlight PV Project (DSPV).~~public services. However, a large influx in construction labor to the area could create demand for temporary housing that is greater than the existing supply.~~

All cumulative projects identified in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8**~~**CUMULATIVE IMPACTS Tables 1a, 1b,** and **3**~~ would be expected to draw on the large regional construction workforce in and Riverside/San Bernardino/Ontario MSA, and as shown the MSA offers sufficient regional labor by skill set to staff all projects from within the regional study area. As indicated by **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8**, cumulative development ~~the State~~ of these projects in a worst-case scenario of overlapping peak period months could result in the influx of 562 ~~Arizona, and likely extending to the Los Angeles County MSA. In the event an influx of~~ construction workers seeking local lodging~~occurred~~ within the area as a result of the large renewable energy projects being constructed. Staff concludes this scenario unlikely~~constructed,~~ due to construction scheduling and peak months shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8**, and notes that this assumption does not account for workers doubling up in local lodging situations. While this number could impact the amount of local hotel/motel rooms within the local and regional study area, as discussed above for the proposed BSPP a high number of short-term housing units are available within increasing radii commute sheds from the local study area. Furthermore, local housing is

available within the cities of Ehrenburg and Quartzsite, AZ. While staff acknowledges that cumulatively workers seeking short-term temporary housing during the workweek to avoid commuting from their homes in the regional study area could increase housing demand and population in the local area, the extent and quantification of these impacts is unknown and speculative. Staff also concludes that like the BSPP, workers seeking RV and campsite lodging from cumulative projects will likely find no availability within the winter months.

Based on the availability of local temporary housing within a one-hour commute shed (as discussed above for the BSPP), it is assumed that ample temporary short-term housing is available for any workers seeking short-term local lodging from a cumulative perspective. Therefore, staff concludes that cumulative project construction within the BSPP local study area would not significantly impact the population projections or require the need for new or expanded housing within the local study area. Furthermore, as staff concludes that all workers associated with the cumulative projects identified within **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** will come from within the regional study area, with up to 15% of these workers potentially seeking short-term temporary housing during the workweek locally, cumulative ~~duration of~~ construction activities would not require the need for new or expanded public services (police, schools, recreation, hospitals)~~it is assumed these construction workers would choose to stay at a local area motel or hotel and not permanently relocate to the area. There are approximately 630 hotel/motel rooms and suites among 11 different establishments in the city of Blythe area~~ serving the local study area as no ~~BSPP site and local study area, with extensive additional available temporary housing in the communities within 2 hours of the proposed project site serving the regional study area (AS2009a, p. 5.11-27). Therefore, due to the availability of temporary and~~ permanent population increase would occur. While **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 8** indicates that cumulative development based on staff assumptions could result in up to 562 workers staying within the local study area, as staff concludes this number would fluctuate it is speculative ~~housing~~ to quantify any ~~both the regional and local labor force associated with both the BSPP and cumulative development within the BSPP geographic extent for cumulative impacts, the BSPP would not contribute to cumulative increases in demand for local housing. Despite the~~ potential impacts this could have on local~~for construction schedule overlaps with known projects within the proposed BSPP study~~ area public services. Therefore, staff~~, Staff~~ concludes construction of the BSPP would not contribute to adverse cumulative socioeconomic impacts.

In addition, short-term construction-related spending activities of the BSPP project are expected to have cumulative economic benefits for the study area (refer below to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**~~**8**~~). The cumulative benefits would increase when revenues accrued as a result of the proposed BSPP are combined with spending, and any local revenues accrued as a result of current and future reasonably foreseeable cumulative development projects.

Operation. Operation~~The operation~~ of the BSPP is ~~not~~ expected to result in the potential permanent relocation~~long-term adverse impacts during operation~~ of up~~the project related~~ to 55 workers into the local study area.~~socioeconomics. It is expected that some of the cumulative projects described above may be operational at the same~~

~~time as the BSPP. However, the BSPP would be expected to contribute only a small amount to these possible long-term operational cumulative impacts related to socioeconomics.~~ **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 9** presents~~5~~ present the most recently published data (Year 2006-2016 projections) on labor force characteristics for the cumulative ~~BSPP~~ regional study area pertaining to electrical energy project operational labor skill sets and compares those to major cumulative projects located near the BSPP along the I-10 corridor, including the PSPP, GSEP, RSEP, and the DSPV.~~:~~ As shown in **Table 9**, these ~~discussed above, Staff concludes that the required operational workforce of the proposed BSPP would be found locally, with no~~ cumulative projects are expected to result in a total of 138 workers permanently relocating to~~contribution to population inmigration occurring that would increase the local population. Therefore, because~~ the local study area. Staff acknowledges that indirect and induced employment from all ~~labor force will adequately serve construction and operation of the BSPP, it would not contribute to~~ cumulative projects identified in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 9** could result in limited ~~increases in population that would generate an increase in~~ demand for permanent ~~local~~ housing in the local study area. However, staff cannot speculate or quantify this potential at the time of publication. However, it is assumed that the vacancy rate of the local and regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLES 2** and **3**) could adequately provide housing for any potential portion of indirect and induced employment population that may permanently relocate to the local study area from cumulative development and this population would be within projections for the regional study area (as shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE TABLE 2**).~~and public services.~~

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 9
Cumulative Project Operational Employment Needs

Trade	BSPP Total # of Workers for Project Operation	PSPP Total # of Workers for Project Operation	GSEP Total # of Workers for Project Operation	RSEP Total # of Workers for Project Operation	DSPV Total # of Workers for Project Operation	*TOTAL*	Riverside/San Bernardino/Ontario MSA 2006	Riverside/San Bernardino/Ontario MSA 2016
Plant and System Operators	--	--	--	--	--	--	2,030	2,380
Power Plant Operators	--	--	--	--	--	--	310	370
Total	*221*	*134*	*50*	*47*	*15*	*467*	*2,340*	*2,750*
Local Housing Need[1]	*55*	*34*	*33*	*12*	*4*	*138*	--	--

[1] BSPP and PSPP use a 25% relocation assumption in their respective AFC's. As no assumed percentage was included in the RSEP AFC and DSPV information provided by BLM, this table assumes 25% of operational employees will permanently relocate to the cumulative project area. GSEP AFC specifically indicates that up to 33 workers would relocate.
Source: Solar Millennium 2009a and b, GSEP 2009a, SR 2009a, and BLM 2010c.

Based on the most recently published vacancy rates for ~~both~~ the ~~regional and~~ local study area~~s~~ (refer to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table~~s 2 and~~ 3**), a~~dequate large number of~~ permanent housing units are available to these~~any~~ operational employees who may choose to relocate locally ~~and regionally~~ to proposed cumulative development projects. Therefore, the BSPP is not expected to contribute cumulatively to a required need for new housing in the area. While the BSPP, PSPP, and RSEP would not pay a school impact fee, the SVEP would as well as all cumulative development not contained within BLM land. Staff assumes that any new cumulative demand on schools by permanent relocations to the local study area would help to be met on some level through the payment of property taxes by the cumulative~~Despite the potential for construction schedule overlaps with known~~ projects themselves as well as any relocations that purchase homes. The payment of these property taxes contribute to local public safety, school, and recreational facility funding. As hospitals are private supply and demand based facilities, it is assumed that the cumulative increase in local population can be adequately served by local study area emergency medical facilities. Based on these conclusions, staff concludes that ~~within the proposed BSPP study area, Staff concludes~~ operation of the proposed BSPP would not contribute cumulatively to an increase in the local population or require the need for new or expanded law enforcement, school, recreational, or emergency medical facilities or staff levels within the BSPP regional or local study areas. Please refer to the **Worker Safety and Fire Protection** section of this report for a detailed discussion of cumulative~~BSPP would not contribute to adverse cumulative socioeconomic~~ impacts to fire protection services. Please refer to the **Land Use, Recreation, and Wilderness** section of this document for further analysis of cumulative recreation impacts.~~.~~

In addition, the long-term operation-related spending activities of the BSPP project are expected to have cumulative economic benefits for the study area (refer below to **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10**).~~8).~~ The cumulative benefits would increase when revenues accrued as a result of the proposed BSPP are combined with spending, and any local revenues accrued as a result of current and future reasonably foreseeable cumulative development projects.

Decommissioning. The decommissioning of the BSPP~~Blythe Solar Power Project~~ is expected to result in similar cumulative impacts related to Socioeconomics as BSPP construction impacts, as described above. It is unknown if~~unlikely that~~ the construction or decommissioning of any of the cumulative projects would occur concurrently with the decommissioning of this project, because the decommissioning is not expected to occur for approximately 30~~40~~ years. As a result, it is unknown if any cumulative impacts related to Socioeconomics could occur during decommissioning of the BSPP.~~Blythe Solar Power Project.~~ However, based on the cumulative impact analysis above for BSPP construction activities, it is likely the impacts of the decommissioning of the BSPP would not be expected to contribute to cumulative impacts related to Socioeconomics because it is assumed the closure and decommissioning workforce would be drawn from the regional and local study areas. However,~~As all workers are expected to reside within the study area, no~~ impacts to existing population levels, housing, or public services are unknowable at this time that would~~expected to~~ occur from short-term decommissioning construction activities 30 years in the future.~~.~~

C.8.9 COMPLIANCE WITH LORS

As the BSPP and all proposed alternatives would be located entirely within BLM lands, no private land would be affected and therefore, the provisions of Education Code Section 17620 would not apply (CEC 2010a).~~to this alternative.~~ Therefore, the BSPP and all proposed alternatives, as proposed, are consistent with applicable Socioeconomic LORS, as identified in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 1**.

C.8.10 NOTEWORTHY PUBLIC BENEFITS

Important public benefits include both the short-term construction and long-term operational related increases in local expenditures and payrolls, as well as sales tax revenues. Estimated gross public benefits from the BSPP include increases in sales taxes and employment payrolls. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10~~8~~** provides a summary of economic and employment benefits of the BSPP.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 10~~8~~
BSPP Economic Benefits (2009 dollars)

Fiscal Benefits	
Estimated annual property taxes	$400,000[1]
State and local sales taxes: Construction	$910,000
State and local sales taxes: Operation	$840,000
School Impact Fee	$0 (CEC 2010a)
Non-Fiscal Benefits	
Construction materials and supplies	$60.0 million
Operations and maintenance supplies	$9.6 million
Direct, Indirect, and Induced Benefits	
Estimated Direct Employment	
Construction	604 jobs (monthly average)
Income	$67.0~~$406.0~~ million
Operation	221 jobs
Income	$9.4 million
Estimated Indirect Employment	
Construction	309 jobs
Income	$15.0 million
Operation	71 jobs
Income	$5.0 million
Estimated Induced Employment	
Construction	209 jobs
Income	$14.0 million
Operation	68 jobs
Income	$4.0 million

Notes: [1] At present, there is no property tax assessed on solar components (mirrors, solar boiler, heat exchangers) improvements by law (Section 73 of the California Taxation and Revenue Code). Components included under the exemption include storage devices, power conditioning equipment, transfer equipment, and parts. The first operational year would generate an estimated $400,000 in annual property taxes.
Source: Solar Millennium, 2009a.

C.8.11 RESPONSE TO AGENCY AND PUBLIC COMMENTS

Comments were received both verbally and in writing on the contents of the SA/DEIS from agencies, organizations and members of the public. During the SA/DEIS comment period, no comments related to issues presented in the **Socioeconomics and Environmental Justice** section of the SA/DEIS were provided to staff.

C.8.12 PROPOSED CONDITIONS OF CERTIFICATION/MITIGATION MEASURES

No conditions of certification/mitigation measures are required as all potential socioeconomic impacts associated with the proposed BSPP and alternatives would be less than significant.

C.8.13

~~C.8.12~~ CONCLUSIONS

No significant adverse socioeconomics impacts would occur as result of the construction or operation of the proposed BSPP project. Staff believes the BSPP would not cause a significant adverse direct, indirect, or cumulative impact on population, housing, or public services. In addition, because there would be no adverse project-related socioeconomic impacts, minority and low-income populations would not be disproportionately impacted. The proposed BSPP would benefit the local and regional study areas in terms of an increase in local expenditures and payrolls during construction and operation of the facility, as well as a benefit to public finance and local economies through taxation. These activities would have a positive effect on the local, regional, and statewide economy.

C.8.14~~C.8.13~~ REFERENCES

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F. LIST OF PREPARERS

BLYTHE SOLAR POWER PROJECT
LIST OF PREPARERS

Cultural Resources..... Beverly Bastian

Socioeconomics and Environmental Justice.....Scott Debuche

G. WITNESS QUALIFICATIONS AND DECLARATIONS

DECLARATION OF

I, **Beverly E. Bastian** declare as follows:

1. I am presently employed by the California Energy Commission in the **Siting, Transmission, and Environmental Protection Division** as a **Planner II**.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the staff testimony on **Cultural Resources** for the **Blythe Solar Power Revised Staff Assessment**, **Part 2** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony and errata is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and errata and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: June 25, 2010 Signed: Original Signed

At: Sacramento, California

Beverly E. Bastian
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Sacramento, CA 95814-5504
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Education

School	Field	Degree	Year
University of California, Davis	Anthropology	B.A	1967
University of California, Davis	Anthropology	M.A	1969
Tulane University	Anthropology	A.B.D.	1975
University of Mississippi	American History	(courses only)	1989
University of California, Santa Barbara	Public (American) History and Historic Preservation	A.B.D.	1996

Experience

State of California, California Energy Commission *2005 to present*
Planner II, Energy Facilities Siting Division, Environmental Office, Biological and Cultural Unit,
All tasks related to the production of the cultural resources sections of CEQA-equivalent (California Environmental Quality Act) documents for the environmental review of proposed power plants in California, including: Evaluating data in applications; writing data requests to applicants and doing independent research to compile an inventory of and evaluate the historical/cultural significance of cultural resources subject to significant impacts from proposed projects; providing and receiving information in public hearings on applications; analyzing all pertinent data; writing Staff Assessments of impacts; developing mitigation measures to reduce to insignificant any impacts to significant cultural resources; providing expert testimony on my analyses and findings in public hearings; and reviewing compliance with mitigation measures during the construction, operation, and decommissioning of certified power plants. Additional tasks include: providing prefiling assistance to applicants, reviewing the CEQA documents of sister state agencies; consulting and advising cultural resources specialists in sister state agencies; coordinating and reviewing the work of Commission cultural resources consultants; and developing internal procedures and guidelines to improve cultural resources review of applications.

State of California, Department of Parks and Recreation *2001 to 2005*
Historian II, Cultural Resources Division, Cultural Resources Support Unit
Major and complex historical and historic architectural investigations and studies dealing with the significance, integrity, and management of historic buildings, structures, and landscapes in California's state parks; participation in interdisciplinary teams and project assignments; preparation of technical reports and correspondence; inventorying and evaluating historic properties; coordinating the statewide registration of historical properties; assessing the eligibility of historic properties to the National Register of Historic Places and the California Register of Historical Resources; reviewing environmental documents and providing technical analyses of major Departmental projects to determine impacts to cultural resources under State and federal laws; identifying resource issues and constraints; establishing allowable use and development guidelines; developing approaches to protect, enhance, and perpetuate cultural resources under relevant State and federal laws, regulations, and standards; proposing and developing programs, policies, and budgets to meet Department's historic preservation missions.

Department of Social Sciences, American River College *2000 to 2002*
Instructor (part-time), American History
Creation and presentation of classroom lectures, selection of assigned texts and readings, creation and administration of quizzes and examinations, assignment and supervision of student research papers, student consultation in office hours, grading of all quizzes, tests, and papers, and assigning final student grades. These research, organizing, and teaching skills demonstrate ability to organize information, to speak effectively to the public, and to train and direct other personnel.

Department of Sociology and Anthropology, University of Mississippi *1987 to 1989*
Archaeologist, Center for Archaeological Research
All tasks for the completion of the historical archaeological part of an archaeological survey and testing program final report related to a U. S. Army Corps of Engineers erosion control project in twelve north-central Mississippi counties, including: Coordinating the activities of a field crew and the research of historians working in archives; setting up an artifact database using survey data to generate statistical summaries for discovered historical archaeological sites; gathering historical settlement and land-use data for twelve counties; conducting a special statistical analysis and synthesis of historical data only, focusing on pre-and post-Civil War land tenure and agricultural production for plantations in two counties where soil fertility contrasted; synthesizing data from all sources, collaborating on the final cultural resources management report with archaeologists specializing in prehistory and survey and sampling methodology; presenting findings at the annual meeting of the Society for Historical Archaeology in 1989.

Gilbert Commonwealth, Inc. *1984 to 1987*
Historical Archaeologist and Project Manager, Environmental Unit
All tasks as Principal Investigator for six major historical archaeological and/or historical architectural cultural resources management projects done under contract to federal, state, and local governments, including: Writing winning proposals for these projects; negotiating and managing project budgets; gathering/supervising the gathering of historical, oral historical, and archaeological data; analyzing/supervising the analysis of gathered data; and writing/supervising the writing of reports of findings, along with the creation of maps, illustrations, and data tables for these reports; serving as the historian and historical preservationist on several multidisciplinary teams tasked with siting the routes for several major power lines in east Texas.

Tennessee Valley Authority (personal services contract) *1979 to 1981, 1983-1984*
Historical Archaeologist (self-employed)
All tasks as Principal Investigator for various cultural resources management projects in areas affected by TVA construction, the most significant of which were: the complete excavation of and report on seven nineteenth-century log-cabin sites in Cedar Creek Reservoir in northwestern Alabama; and all historical research, the field work, and the report for the underwater remote-sensing reconnaissance and underwater videotaping of sunken Civil War cargo boats and gunboats at Johnsonville, Tennessee, in the western part of the Tennessee River.

Other Archaeological Projects *1966 to 1981*

Professional Societies

Register of Professional Archaeologists, #10683
Society for Historical Archaeology
National Council on Public History
Vernacular Architecture Forum
Society for California Archeology
California Council for the Promotion of History

DECLARATION OF

I, Scott Debauche declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Office of the Siting, Transmission, and Environmental Protection Division as a Socioeconomics Specialist.

2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the staff testimony on **Socioeconomics** for the **Blythe Solar Power Project Revised Staff Assessment** based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony and errata is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and errata and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated:_____ Signed: Original Signed

At: Agoura Hills, California

SCOTT DEBAUCHE

Environmental Planner

ACADEMIC BACKGROUND

B.S., Urban & Regional Planning, University of Minnesota, 1994

PROFESSIONAL EXPERIENCE

Mr. Debauche is an environmental planner with over 14 years of experience preparing a variety of federal and State of California environmental, planning, and analytical documents for large-scale infrastructure and development projects. Mr. Debauche brings the experience of specializing in the integration and completion of NEPA and CEQA documentation joint documentation evaluating Transportation/Traffic, Noise, Socioeconomics and Environmental Justice, Air Quality, and Alternatives analyses.

Aspen Environmental Group — 2001 to present

- **TANC Transmission Project (TTP) EIR/EIS, several Northern California Counties.** Mr. Debauche is currently serving as the Technical Specialist in charge of preparation of the EIR/EIS Transportation/Traffic and Socioeconomics CEQA/NEPA analyses. The Transmission Agency of Northern California (TANC) and Western Area Power Administration (Western), an agency of the U.S. Department of Energy (DOE), are the CEQA lead agency and NEPA lead agency, respectively. The TTP generally would consist of new and upgraded 500 kilovolt (kV) and 230 kV transmission lines, substations, and related facilities generally extending from northeastern California near Ravendale in Lassen County to the California Central Valley through Sacramento and Contra Costa Counties and westward into the San Francisco Bay Area.
- **Littlerock Reservoir Sediment Removal Project EIS/EIR, Palmdale, CA.** Mr. Debauche is the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, and Socioeconomics analyses for this joint EIS/EIR evaluating the impacts of sediment removal alternatives for the Littlerock Reservoir and Dam on USFS Angeles National Forest (NEPA Lead Agency) lands in Los Angeles County. The project involves impacts to the arroyo toad, extensive coordination with USFWS for a Section 7 consultation, incorporation of new Forest Service Plan updates and requirements into the analysis, preparation of the Forest Service required BE/BA, and analysis of compliance with federal conformity requirements. Aspen is currently working on the Administrative Draft EIR/EIS and assisting the PWD with portions of their Proposition 50 grant application to the DWR.
- **Alta Wind Project EIR, Kern County, CA.** Mr. Debauche is the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, and Air Quality analyses for this EIR. The applicant, Alta Windpower Development, LLC, proposes to develop the Alta-Oak Creek Mojave Project (proposed project or project) for the commercial production of up to 800 Megawatts (MW) of electricity from wind turbines. The proposed project would result in construction of up to 350 wind turbine generators, their ancillary facilities and supporting infrastructure located on three distinct land areas comprising a total of approximately 10,750 acres located approximately 3 miles west of State Route (SR) 14 (Antelope Valley Freeway) and 3 miles south of SR-58 in the Willow Springs area of eastern Kern County.

- **Baldwin Hills Oil Field Community Standards District EIR Review and Ordinance Preparation, Culver City, CA.** Mr. Debauche served as the Technical Specialist for the City of Culver City reviewing the Los Angeles County Baldwin Hills Oils Field Community Standards District EIR Noise analysis evaluating the impacts of expanding the existing Baldwin Hills oil field. Once completed, Mr. Debauche then prepared the Noise section of the newly enacted City of Culver City Community Standards District overlay zone restricting noise generation by the Baldwin Hills Oil Field on the residents of Culver City.
- **Topaz Solar Project EIR, San Luis Obispo County, CA.** Mr. Debauche is the Technical Specialist in charge of preparation of the Transportation/Traffic and Air Quality sections of this EIR for this 500 MW solar photovoltaic project in the Carrizo Plain area. This project requires the conversion of approximately 6,000 acres of open space (60 percent of which are under land preservation contracts) to an industrial use.
- **California Valley Solar Ranch EIR, San Luis Obispo County, CA.** Mr. Debauche is the technical specialist in charge of preparation of the Air Quality analysis of this EIR for this 250 MW solar photovoltaic project in the Carrizo Plain area. This project requires the conversion of approximately 4,000 acres of open space to an industrial use.
- **Long Beach LNG Import Project EIR/EIS, Long Beach, CA.** Under contract to the City of Long Beach, Aspen was tasked to review the Draft EIS/EIR for the proposed construction and operation of this onshore LNG facility to be located at the Port of Long Beach. Mr. Debauche reviewed the document for technical adequacy and assisted the City in preparing written comments for the following sections of the EIS/EIR: Transportation/Traffic and Noise.
- **Sunset Substation and Transmission and Distribution Project EIR, Banning, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for this EIR. The City of Banning proposes to construct the Sunset Substation and supporting 33-kilovolt (kV) transmission line that would interconnect with the City's existing distribution system. The purpose of this new substation and transmission is to relieve the existing overloads that are occurring within the City's electric system and to accommodate projected growth in the City.
- **MARS EIR/EIS, Monterey, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Environmental Justice analysis for this EIR/EIS, which would evaluate the effects associated with the installation and operation of the proposed Monterey Accelerated Research System (MARS) Cabled Observatory Project (Project) proposed by Monterey Bay Aquarium Research Institute (MBARI)[NEPA Lead Agency]. The goal of the Project was to install and operate, in State and Federal waters, an advanced cabled observatory in Monterey Bay that would provide a continuous monitoring presence in the Monterey Bay National Marine Sanctuary (MBNMS) as well as serve as the test bed for a state-of-the-art regional ocean observatory, currently one component of the National Science Foundation (NSF) Ocean Observatories Initiative (OOI). The Environmental Justice analysis evaluated the potential for any disproportionate project impacts to both land-based populations and fisheries workers.
- **Diablo Canyon Power Plant (DCPP) Steam Generator Replacement Project EIR, San Luis Obispo County, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Socioeconomics and Alternatives analyses sections of this EIR. The EIR addressed impacts associated with the replacement of the eight original steam generators (OSGs) at DCPP Units 1 and 2 due to degradation from stress and corrosion cracking, and other maintenance difficulties. The Proposed Project would be located at the DCPP facility, which occupies 760 acres within PG&E's 12,000-acre owner-controlled land on the California coast in central San Luis Obispo County. Land use issues of concern include impacts to agricultural lands, recreational resources, and potential Coastal Act inconsistencies.

- **Lake Canyon Dam and Detention Basin Project EIR, Ventura County, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Air Quality, and Hazardous Materials analyses for this CEQA document. The proposed project would include an earthfill dam and detention basin located in an unincorporated area of Ventura County, California. It would operate in conjunction with the existing Arundell Dam and Detention Basin, which is located an estimated 600 feet south-southwest and downstream of the proposed project site, to detain peak storm flows and capture the associated debris expected from a 100-year storm event.
- **Colton Substation Project IS/MND, Colton, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Air Quality, and Hazardous Materials analyses for this CEQA document. The City of Colton proposes to construct the 1.9 acrea North Substation and supporting 1.7 miles of 69 kV subtransmission and distribution facilities necessary to interconnect with the existing city-owned subtransmission and distribution systems.
- **San Antonio Creek Giant Reed Removal Project IS/MND, Ventura County, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of a number of technical issues area analyses for this CEQA document including: Transportation/Traffic, Noise, Air Quality, and Hazardous Materials. The purpose of the project is to remove giant reed within the upper reaches of the San Antonio Creek watershed and several tributaries to support other existing efforts to remove this invasive plant species along the main stem of the Ventura River and its watershed.

California Public Utilities Commission (CPUC). Under Aspen's environmental services contract with the CPUC, Mr. Debauche has prepared environmental analysis sections of environmental reports analyzing large-scale infrastructure projects. His project experience with the CPUC includes the following:

- **Tehachapi Renewable Transmission Project (TRTP) EIR/EIS, Kern, Los Angeles, and San Bernardino Counties, CA.** For this EIR/EIS prepared by USFS, Angeles National Forest and CPUC, Mr. Debauche is currently serving as the Technical Specialist for Noise and Alternatives evaluation for SCE's proposal to construct, use, and maintain a series of new and upgraded high-voltage electric transmission lines and substations to deliver electricity generated from new wind energy projects in eastern Kern County. Approximately 46 miles of the project would be located in a 200- to 400-foot right-of-way on National Forest System land (managed by the Angeles National Forest) and approximately three miles would require expanded right-of-way within the Angeles National Forest. The proposed transmission system upgrades of TRTP are separated into eight distinct segments: Segments 4 through 11. Segments 1 (Antelope-Pardee) and Segments 2 and 3 (Antelope Transmission Project) were evaluated in separate CEQA and NEPA documents as described below.
- **Devers–Palo Verde 500 kV Transmission Line Project EIS/EIR, southern California/western Arizona.** For this EIR/EIS prepared by U.S. Bureau of Land Management and CPUC, Mr. Debauche served as the Technical Specialist for Transportation/Traffic, Noise, Socioeconomics, and Alternatives evaluation for SCE's proposed 250-mile transmission line project from the Palo Verde Nuclear power plant in Arizona to the northern Palm Springs area in California. Major issues of concern include EMF and visual impacts on property values, impacts on the area's vast recreational resources and tribal lands, and the development and evaluation of several route alternatives, including the Devers-Valley No. 2 Route Alternative, which eventually was approved by the CPUC.
- **Antelope-Pardee 500 kV Transmission Line Project EIS/EIR, Los Angeles County, CA.** For this EIR/EIS prepared by USFS, Angeles National Forest and CPUC, Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives evaluation for SCE's proposed 25-mile transmission line project from the Antelope Substation in the City of Lancaster, through the ANF, and terminating at SCE's Pardee Substation in Santa Clarita. Major issues of concern included impacts to biological, recreational, and cultural resources within Forest lands, EMF and visual impacts on property values, impacts on residences in the urbanized southern regions of the route, and the development and evaluation of several route alternatives.

- **El Casco System Project EIR, Riverside, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for this EIR prepared for the CPUC to evaluate SCE's application for a Permit to Construct (PTC) the El Casco System Project. The Proposed Project would be located in a rapidly growing area of northern Riverside County, which includes the Cities of Beaumont, Banning, and Calimesa. A 115 kV subtransmission line begins at Banning Substation and extends westward toward the proposed El Casco Substation site within the existing Banning to Maraschino 115 kV subtransmission line and Maraschino–El Casco 115 kV subtransmission line ROWs. Major issues of concern include impacts to existing and residential land uses, which have led to the development of a partial underground alternative and a route alternative different than the project route proposed by SCE (the Applicant). The 1,200-page Draft EIR was released for a 45-day public review and comment on December 12, 2007, and evaluates project alternatives at the same level of detail as the Proposed Project analysis.
- **Antelope Transmission Project, Segments 2 & 3 EIR, Los Angeles and Kern Counties, CA.** For this EIR prepared by the CPUC, Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives evaluation. The proposed Project includes both Segment 2 and Segment 3 of the Antelope Transmission Project, and involves construction of new transmission line infrastructure from the Tehachapi Wind Resource Area in southern Kern County, California, to SCE's existing Vincent Substation in Los Angeles County, California. The Tehachapi Wind Resource Area is one of the State's greatest potential sources for the generation of wind energy. A variety of wind energy projects are currently in development for this region. Major issues of concern include EMF and visual impacts on property values, impacts on residences and agricultural resources, and the development and evaluation of several substation and route alternatives.
- **SDG&E Miguel Mission Substation Draft EIR.** The major part of the Proposed Project would include the installation of a new, bundled 230 kV circuit between Miguel and Mission Substations, which would be located entirely within SDG&E's existing 35-mile ROW. Mr. Debauche prepared social science analysis for the Initial Study, as well as the Draft EIR Project Description and several key environmental sections.
- **PG&E's Proposed Divestiture of Hydroelectric Assets Project EIR.** Mr. Debauche prepared several key sections of the Draft EIR, including Socioeconomics and Hazardous Materials analysis. PG&E owns and operates the largest private hydroelectric power system in the nation. Situated in the Sierra Nevada, Southern Cascade, and Coastal mountain ranges of California, this system is strung along 16 different river basins and annually generates approximately five percent of the power consumed each year in California. The proposed sale of assets also includes approximately 140,000 acres of land proposed for sale with the hydroelectric system. The EIR analyzes the range of operational changes that could occur under new ownership, including complex integrated models that analyze power generation and water management.
- **Viejo System Project IS/MND, Orange County, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives evaluation for the project's CEQA documentation, including and Initial Study, prepared on behalf of the CPUC to evaluate Southern California Edison's (SCE) Application for a Permit to Construct the Viejo System Project, which was in SCE's forecasted demand of electricity and goal of providing reliable electric service in southern Orange County. The Viejo System Project would serve Lake Forest, Mission Viejo, and the surrounding areas. Components of the project included, construction of the new 220/66/12 kilovolt (kV) Viejo Substation, installation of a new 66 kV subtransmission line within an existing SCE right-of-way, replacement of 19 double-circuit tubular steel poles with 13 H-frames structures, and minor modification to other transmission lines. Major issues of concern include visual impacts of transmission towers, EMF effects, and project impacts on property values.
- **Looking Glass Networks Fiber Optic Cable Project IS/MND, northern and southern California.** As part of Aspen's ongoing contract with the CPUC for review of Telecommunications projects, this document encompasses and evaluation of project impacts and network upgrades in the San Francisco Bay Area and the Los Angeles Basin Area. Prepared the socioeconomic analysis for this comprehensive CEQA document reviewing the potential impacts of hundreds of miles of newly proposed fiber optic lines throughout northern and southern California, including Los Angeles and Orange Counties. Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives evaluation for the project's CEQA documentation.

California Energy Commission (CEC), Technical Assistance in Application for Certification Review. In response to California's power shortage, Aspen is assisting the California Energy Commission in evaluating the environmental and engineering aspects of new power plant applications throughout the State. As part of this effort, Mr. Debauche works as a technical specialist for Transportation/Traffic, Socioeconomics and Environmental Justice, and Alternatives analyses for the following power plant projects:

- **Carlsbad Energy Center Project, Carlsbad, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic and Alternatives Staff Assessments for Carlsbad Energy Center, LLC's Application for Certification (AFC) to build the Carlsbad Energy Center Project (CECP), which will consist of a 558 MW gross combined-cycle generating facility configured using two units with one natural-gas-fired combustion turbine and one steam turbine per or unit. Issues of concern include major incompatibilities with local LORS, and cumulative impacts from widening of I-5.
- **Hydrogen Energy California Power Plant Project, Kern County CA.** Technical Specialist in charge of preparation of the Transportation/Traffic and Socioconomics/Environmental Justice Staff Assessments for Hydrogen Energy International, LLC integrated gasification combined cycle (IGCC) power generating facility called Hydrogen Energy California (HECA) in Kern County, California. The proposed project will gasify petroleum coke (or blends of petroleum coke and coal, as needed) to produce hydrogen to fuel a combustion turbine operating in combined cycle mode. The gasification component would produce 180 million standard cubic feet per day (MMSCFD) of hydrogen to feed a 390 megawatt (MW) gross combined cycle plant providing California with low-carbon baseload power to the grid.
- **CPV Vaca Station Power Plant Project, Vacaville, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic Staff Assessment prepared for the CPV Vaca Station (CPVV) project, a natural gas-fired, combined-cycle electrical generating facility rated at a nominal generating capacity of 660 megawatts (MW). The CPVV is proposed for a 24-acre site located at the intersection of Lewis and Fry roads in a rural area within the city limits of Vacaville, Solano County.
- **Ivanpah Solar Electric Generating System Project, San Bernardino County, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessment/BLM EIS for a 400-megawatt solar thermal electric power generating system. The project's technology would include heliostat mirror fields focusing solar energy on power tower receivers producing steam for running turbine generators. Related facilities would include administrative buildings, transmission lines, a substation, gas lines, water lines, steam lines, and well water pumps. The proposed project would be developed entirely in the Mojave Desert region of San Bernardino County, California.
- **Abengoa Mojave Solar Power Project, San Bernardino County, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessment for a nominal 250 megawatt (MW) solar electric generating facility to be located near Harper Dry Lake in an unincorporated area of San Bernardino County. The project will implement well-established parabolic trough technology to solar heat a heat transfer fluid (HTF) technology.
- **Rice Solar Energy Generating System Project, Riverside County, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic Staff Assessment/BLM EIS for a 50,000 megawatt hours (MWh) of renewable energy annually, with a nominal net generating capacity of 150 megawatts (MW) located in an unincorporated area of eastern Riverside County, California. The proposed facility will use concentrating solar power (CSP) technology, with a central receiver tower and an integrated thermal storage system.
- **Blythe Solar Power Project, Riverside County, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessment/BLM EIS for a 1,000 MW solar thermal electric generating facility in Riverside County. The project will utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola.
- **GWF Henrietta Peaker Project, Kings County, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic Staff Assessment for GWF's proposal to modify the existing Henrietta Power Plant. New once-through steam generators (OTSGs) will be installed to allow the plant to be operated in its current simple-cycle configuration with no steam generation but with the selective catalytic reduction

(SCR) and oxidation catalyst in operation, or to operate as a combined-cycle power plant generating an additional 25 MW of power with new proposed emission limits.

- **Palen Solar Power Project, Riverside County, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessment/BLM EIS for a 500 MW solar thermal electric generating facility in Riverside County. The Project will utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola.
- **Watson Cogeneration Steam and Electric Reliability Project, Carson, CA**. Technical Specialist for the Transportation/Traffic Staff Assessment for a nominal 85 MW combustion turbine generator (CTG), with a single-pressure heat recovery steam generator (HRSG) to provide additional process steam to the BP Carson refinery, to the existing cogeneration facility owned by Watson. The project site is a 2.5-acre brown field site located within the boundary of the existing Watson Cogeneration Facility, which is a 21.7-acre area within BP's existing Carson Refinery (BP Refinery), in the City of Carson, Los Angeles County.
- **Oakley Generating Station Project, Oakley, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic Staff Assessment for a natural gas-fired, combined-cycle electrical generating facility rated at a nominal generating capacity of 624 megawatts (MW). The proposed project would be located in the City of Oakley, in Contra Costa County.
- **Canyon Power Plant Project, Anaheim, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for a nominal 200 megawatt (MW) simple-cycle plant, using four natural gas-fired combustion turbines and associated infrastructure proposed by Southern California Public Power Authority (SCPPA). This project is a peaking power plant project located within the City of Anaheim, California.
- **GWF Tracy Combined Cycle Power Plant Project, San Joaquin County, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic Staff Assessment for GWF's proposal to modify the existing TPP, a nominal 169-megawatt (MW) simple-cycle power plant, by converting the facility into a combined-cycle power plant with a nominal 145 MW, net, of additional generating capacity.
- **Lodi Energy Center Project, Lodi, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessment for a natural gas-fired, combined-cycle electrical generating facility rated at a nominal 225-megawatt (MW). The Lodi Energy Center is proposed for a site parcel of approximately 4.4 acres adjacent to the City of Lodi's White Slough Water Pollution Control Facility (WPCF)
- **Kings River Conservation District Community Peaker Power Plant Project, Fresno County, CA.** Technical Specialist in charge of preparation of the Transportation/Traffic Staff Assessment for the Kings Rivers Conservation District, who filed a Small Power Plant Exemption for the King River Conservation District Peaking Power Plant. The proposed 97-megawatt natural gas-fired plant will be located south of the City of Fresno and near the community of Malaga in Fresno County.
- **Valero Cogeneration Project, Benicia, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for a proposed cogeneration facility at the Valero Refinery in Benicia. Issues addressed included impacts on public services and other project-related population impacts such as school impact fees.
- **Rio Linda/Elverta Power Project, Sacramento, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for a 560-megawatt natural gas power plant in the northern Sacramento County. Issues of importance included environmental justice and impacts on property values.
- **Magnolia Power Project, Burbank, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for this nominal 250-megawatt natural gas combined-cycle fired electrical generating facility to be located at the site of the existing City of Burbank power plant. Environmental justice issues and potential impacts on local economy and employment were evaluated.
- **Avenal Energy Project, Kings County, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for a 600-megawatt combined cycle electrical generating facility, and associated linear facilities.

- **Inland Empire Energy Center Project, Riverside County, CA.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for a 670-megawatt natural gas-fired, combined-cycle electric generating facility and associated linear facilities including, a new 18-inch, 4.7-mile pipeline for the disposal of non-reclaimable wastewater, and a new 20-inch natural gas pipeline. The project would be located on approximately 46-acres near Romoland, within Riverside County.
- **Coastal Plant Study.** Technical Specialist in charge of preparation of the Socioeconomics/Environmental Justice Staff Assessments for a possible modernization, re-tooling, or expansion of California's 25 coastal power plants including the Encina Power Plant and the San Onofre Nuclear Power Plant.

Los Angeles Department of Water and Power (LADWP). Responsible for conducting the analyses of the technical and social science issue areas for a variety of EISs and EAs as part of two environmental services contracts. Delivery orders have included:

- **River Supply Conduit (RSC) Upper Reach Project EIR, Los Angeles and Burbank, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for the CEQA document for this project. The RSC is a major transmission pipeline in the LADWP water distribution system. The existing RSC pipeline's purpose is to transport large amounts of water from the Los Angeles Reservoir Complex and local ground water wells to reservoirs and distribution facilities located in the central areas within of the City of Los Angeles. The LADWP proposed a new larger RSC pipeline to replace and realign the Upper and Lower Reaches of the existing RSC pipeline, which would involve the construction of approximately 69,600 linear feet (about 13.2 miles) of 42-, 48-, 60-, 66-, 72-, 84-, and 96-inch diameter welded steel underground pipeline.
- **Mulholland Pumping Station and Lower Hollywood Reservoir Outlet Chlorination Station Project IS/MND, Los Angeles, CA.** Under Aspen's on-going environmental services contract with the City of Los Angeles Department of Water and Power (LADWP), Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for this project. LADWP proposed to replace the existing historic pumping/chlorination station building as well as the existing lavatory and unoccupied Water Quality Laboratory buildings with a new single structure pumping/chlorination station within the LADWP's Hollywood Reservoir Complex located in the Hollywood Hills section of the City Los Angeles. These improvements were required due to the age and deterioration of the facility and the potential risk of seismic damage to existing structures. An Initial Study was prepared in support of a City of Los Angeles General Exemption.
- **Taylor Yard Water Recycling Project (TYWRP) IS/MND, Los Angeles and Glendale, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for this project. LADWP proposed to construct the TYWRP in order to provide recycled water produced by the Los Angeles–Glendale Water Reclamation Plant (LAGWRP) to the Taylor Yard. An important part of the City of Los Angeles' expanding emphasis on water conservation is the concept that water is a resource that can be used more than once. Because all uses of water do not require the same quality of supply, the City has been developing programs to use recycled water for suitable landscaping and industrial uses. The project is located in the southernmost part of the City of Glendale and northeastern part of the City of Los Angeles. The IS/MND was adopted in the Summer of 2007.
- **DC Electrode Project IS/MND, Los Angeles, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for this project. LADWP proposed to construct a new electrode distribution line from West Los Angeles to the Pacific Ocean stopping point in Malibu, CA up the Pacific Coast Highway.
- **District Cooling Plant Project, Los Angeles IS/MND, CA.** Mr. Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for this project. LADWP proposed to construct a District Cooling Plant and Distribution System (proposed project) in order to provide a centralized system for producing chilled water for use by area users, which are generally large commercial, governmental, industrial and institutional buildings who generate their own chilled water utilizing individual chiller plants for space cooling and air-conditioning.

U.S. Army Corps of Engineers, Los Angeles District. Responsible for conducting the analyses of the social science issue areas for a variety of EISs and EAs as part of two environmental services contracts. Delivery orders have included:

- **Prado Basin/Norco Bluffs/Reach 9 of the Santa Ana River Dikes Supplemental EAs, Riverside County, CA.** Debauche served as the Technical Specialist in charge of preparation of the Transportation/Traffic analysis of two structural alternatives for the Norco Bluffs Toe Stabilization project as well as the No Action/No Project Alternative. Aspen developed the alternatives analyzed in this Supplemental NEPA Environmental Assessment document, a description of the alternatives' physical, construction, and operational characteristics, and a discussion of the potential environmental impacts.
- **Northeast Phoenix Drainage Area Alternatives Analysis Report, Phoenix and Scottsdale, AZ.** Mr. Debauche served as a Technical Specialist in charge of preparation of the Alternatives analysis report that evaluated the potential environmental impacts associated with channel and detention basin alternatives to control flooding problems resulting from fast rate of development in the northeast Phoenix area.
- **Murrieta Creek Flood Control and Environmental Restoration Project**. Mr. Debauche served as a Technical Specialist in charge of preparation of the Environmental Assessment and Mitigation Monitoring plan for Phase 1 of a flood control and restoration project in Riverside County.

California Department of Water Resources. Responsible for conducting the environmental analyses for CEQA compliance as part of two environmental services contracts. Delivery orders have included:

- **Piru Creek Stabilization and Restoration Project IS/MND, northern Los Angeles County.** The California Department of Water Resources (CDWR) proposes to repair erosion damage at a series of three locations downstream of Pyramid Dam and seismically retrofit the Pyramid Dam access bridge that crosses Piru Creek. Mr Debauche served as Technical Specialist in charge of preparation of the Initial Study Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for the proposed project.
- **Pyramid Lake Repairs and Improvements Project IS/MND and EA, northern Los Angeles County.** Mr Debauche served as Technical Specialist in charge of preparation of the Initial Study Transportation/Traffic, Noise, Socioeconomics, and Alternatives analyses for the proposed project, which DWR and the Department of Boating and Waterways (DBW) conducted repairs and improvements at various recreational sites at Pyramid Lake, which is located on the border between Los Padres National Forest and Angeles National Forest; recreation is managed by Angeles National Forest. In addition to the CEQA documentation and preparation of permit applications, Aspen coordinated DWR and DBW's efforts with the USFS, and the permitting agencies (i.e., CDFG, RWQCB, and USACE). Through coordination with the USAC, Aspen prepared the NEPA EA for Corps 404 permit process, and reviewed and coordinated revisions to the 1602 with CDFG.

Los Angeles Unified School District (LAUSD), Los Angeles County, CA. Deputy Program manager and Technical writer for several CEQA documents (EIRs and IS/MNDs) being prepared as part of Aspen's ongoing services contract with the LAUSD to help approve school projects that would meet existing overcrowded conditions in the greater Los Angeles area. Projects have included:

- **New School Construction Program EIR.** Served as a Technical Specialist in charge of preparation of the social science issues, including Socioeconomics, Noise, Transportation/Traffic, and Alternatives analyses for this Program EIR being prepared for the LAUSD. The LAUSD 2020 Program would provide student seats throughout the LAUSD via a combination of the addition of portable classrooms to existing campuses, modernization and reconfiguration of existing campuses, and the construction of new schools.
- **East Valley Middle School No. 2 EIR.** Served as a Technical Specialist for this middle school project proposed to be located at the previous Van Nuys Drive-In site, preparing the Transportation/Traffic and Noise analyses. The EIR focused on impacts associated with air quality, hazards and hazardous materials, noise, land use and planning, and traffic and transportation. Major issues of concern included traffic and noise generated by school operation activities. The EIR included LAUSD design standards and measures employed to minimize environmental impacts.
- **Mt. Washington Elementary School Multi-Purpose Room Addition Project IS/MND.** Served as the Technical Specialist in charge of preparation of the IS/MND for the development of a multi-purpose room facility, including a library, auditorium, and theater, to the existing Mt. Washington Elementary School

campus located in Los Angeles. The surrounding residential community had concerns regarding the proposed project's impacts on aesthetics, traffic, air quality, and noise. Of particular concern, was impacts generated due to the after-hours use of the multi-purpose room facility by civic and community groups.

- **Canoga Park New Elementary School IS/MND.** Served as Served as the Technical Specialist in charge of preparation of the IS/MND for this elementary school project proposed to be developed on a parcel of land owned by the non-profit organization, New Economics For Women (NEW). This "turn-key" project consisted of a Charter Elementary School to be developed by NEW and sold to the LAUSD for operation. It was later decided that NEW would lease the school back and run it as a charter school. Issues of concern included, pedestrian safety, traffic, air quality, noise, and land use.
- **Hughes Magnet Span School IS/MND.** Served as the Technical Specialist in charge of preparation of the Socioeconomics, Hydrology, Public Services and Utilities, and Recreational analyses for the proposed re-opening of the existing Hughes Middle School as a Magnet Span School serving up to 1,620 District 6th though 12th grade students. The re-opening of the Hughes Middle School would require the relocation of the existing uses of the campus. The existing Enadia Way Elementary School and Platt Ranch Elementary School would be re-opened for the relocation of these uses.
- **Wonderland Elementary School Portable Classroom Additions IS/MND.** Served as the Technical Specialist in charge of preparation of the IS/MND for a proposed addition to the Wonderland Avenue Elementary School, located in the City of Los Angeles.
- **Pio Pico Elementary School Playground Expansion IS/MND**. Technical Specialist in charge of preparation of the Notice of Preparation, Initial Study, and Administrative Draft EIR for the expansion of a playground at the existing Pio Pico School in the LAUSD. The playground was proposed on five residential properties. One of the residences is a potentially significant historical resource because of its association with an African-American woman journalist, Fay M. Jackson. This project was cancelled by the LAUSD after completion of the administrative draft report.
- **Fairfax Senior High School Portable Classroom Addition IS/MND**. Served as Technical Specialist in charge of preparation of the IS/MND for the addition of portable classrooms at the school. Major issue areas covered were noise, hydrology, and geotechnical analysis.
- **Polytechnic Senior High School Portable Classroom Addition IS/MND**. Served Technical Specialist in charge of preparation of the IS/MND for the addition of portable classrooms at the school. Major issue areas covered were noise, hydrology, and geotechnical analysis.
- **Washington Senior High School Portable Classroom Addition IS/MND**. Technical Specialist in charge of preparation of the IS/MND for the addition of portable classrooms at the school. Major issue areas covered were noise, hydrology, and geotechnical analysis.

EIP Associates 1998 to 2001

MTA Mid Cities/Westside Transit Corridor Study EIS/EIR. Was a key Technical Specialist in charge of preparation of the EIS/EIR for this 3-phase (including prepared the Major Investment Study (MIS), the Environmental Impact Statement (EIS), and an evaluation of the urban design implications of transit interventions on selected routes) study intended to address current and long range traffic congestion in the central and westside areas of the Los Angeles Basin. Three east/west corridors and a range of transit alternatives ranging including Rapid Bus, light rail, and heavy rail are being evaluated. In addition to preparing several issue area chapters of this comprehensive joint EIS/EIR, Mr. Debauche assisted with the Environmental Justice analysis, the Section 4(f) Parklands discussion, Transportation/Traffic, and the Land Use sections of the EIS/EIR.

Wes Thompson Ranch Development Project EIR. Served as Technical Specialist for this hillside residential development in the City of Santa Clarita. Issues of concern included seismic and air quality impacts associated with the excavation of 2 million cubic yards of soil, the project's non-compliance with the City's hillside ordinance for innovative design, and traffic generated by project-related population growth in the area. Four different site configuration alternatives were developed as part of the EIR analysis. Other issues of concern included sensitive biological resources, the potential for hydrological impacts due to disturbance of the hillside, and cultural resources. As the technical writer for socioeconomics,

noise, hazardous materials, air quality, and public services, Mr. Debauche conducted the Transportation/Traffic and Alternatives analyses.

City of Santa Monica Environmental Assessments. Was key Technical Specialist in charge of preparation of several environmental assessment documents for housing, commercial, institutional, and mixed-use developments in compliance with CEQA. As the technical writer for socioeconomics, noise, hazardous materials, air quality, and public services, Mr. Debauche conducted the Transportation/Traffic, Noise, and Alternatives analyses for:

- **Seaview Court Condominiums IS/MND.** This comprehensive Initial Study/Mitigated Negative Declaration included six technical reports including traffic, cultural resources, parking survey, shade and shadow analysis, and a geotechnical assessment to evaluate the level of severity of this development in the waterfront area of Santa Monica. Major issues of concern were; parking and project-generated traffic on adjacent narrow residential streets; visual obstruction and shading impacts of the proposed structure; liquefaction and seismic impacts to adjacent properties as result of the project's excavation for a subterranean parking garage; and the potential impacts of the project to impact the integrity of a historic district and the historic Seaview Walkway to the beachfront.
- **Four-Story Hotel IS/MND.** A comprehensive Initial Study/Mitigated Negative Declaration was prepared for this four-story hotel adjacent to St. John's Hospital in Santa Monica. Major issues of concern included project-generated traffic on surrounding multi-family residential uses and emergency access to the hospital.
- **Santa Monica College Parking Structure B Replacement EIR.** This focused EIR addressed issues related to traffic and neighborhood land use impacts associated with the addition of a 3-story parking structure in the center of the SMC campus. Major issues of concern included the potential for project-generated traffic to cause congestion at the school's main entrance on Pico Boulevard, and the potential for overflow traffic to impact the Sunset Community of single-family homes adjacent to the school.
- **North Main St. Mixed-Use Development Project EIR**. This EIR included evaluation of impacts resulting from the development of a mixed-use development in Santa Monica's "Commercial Corridor" on Main Street, with ground-floor residences and boutique commercial uses. Major issues of concern included traffic and parking impacts to Main Street and surrounding residential land uses, shade and shadow impacts, and neighborhood impacts.

Specific Plans and Redevelopment Projects. As Technical Specialist for Transportation/Traffic, Socioeconomics, Noise, Hazardous Materials, Air Quality, and Public Services/Utilities, Mr. Debauche conducted analyses and prepared these environmental sections for:

- **Cabrillo Plaza Specific Plan EIR in Santa Barbara.** This project consisted a mixed-use commercial development on Santa Barbara's waterfront on Cabrillo Boulevard. On-site uses included an aquarium, specialty retail, restaurants, and office space.
- **Culver City Redevelopment Plan and Merger EIR.** This programmatic EIR evaluated the impacts of the City's redevelopment of its redevelopment zones. A major land use survey and calculation of acreage of redevelopment lands was conducted as part of the EIR.
- **Dana Point Headlands Specific Plan EIR.** This EIR evaluated the development of coastal bluff in the City with hotel, single- and multi-family residential, and commercial uses. Major issues of concern included ground disturbance as a result of excavation, impacts to terrestrial and wildlife biology, recreation impacts to beachgoers, and project-generate population inducement.
- **Triangle Gateway Redevelopment Project EIR in Beverly Hills, CA.** This EIR evaluated the development of a supermarket, retail shops, and office space in the triangle gateway portion of downtown Beverly Hills. Issues of concern evaluated by Mr. Debauche included traffic, land use, and impacts to on-site historic structures.
- **UCLA Campus Housing Expansion.** This EIR evaluated the development and expansion of campus housing within the UCLA campus. Issues of concern evaluated by Mr. Debauche included hazardous materials and population/housing.

CH2M Hill - Minneapolis, MN 1995 to 1998

- **Minneapolis/St. Paul International Airport Expansion EIS:** Mr. Debauche was a key writer of the EIS for this $4 million technical and environmental study, including the preparation of an Environmental Impact Statement (EIS), and an evaluation of the urban design implications of a proposed $800 million expansion of the existing MSP International airport, including transit and terminal modifications and the inclusion of a new perpendicular runaway. The studies included alternatives to the project and the long-term effects on the cities of Minneapolis and St. Paul. In addition to preparing several issue area chapters of this comprehensive EIS, Mr. Debauche assisted with the Environmental Justice Analysis (per Executive Order 12898), the Section 4(f) Parklands discussion, and the socioeconomics sections of the EIS. In addition, Mr. Debauche assisted with preparation of a technical report on airport noise effects on nearby housing and mitigation programs for the impacts of the proposed runway.
- **Minneapolis/St. Paul Wastewater Treatment Facility Expansion EIS:** Was a key writer of the EIS for expansion of the existing wastewater treatment facility serving the twin cities area. The studies included alternatives to the project and the long-term effects on the cities of Minneapolis and St. Paul. Mr. Debauche prepared several issue area chapters of this comprehensive EIS, including the Environmental Justice Analysis (per Executive Order 12898), and the socioeconomics sections of the EIS.

PROFESSIONAL ASSOCIATIONS

- American Planning Association (APA), Chapter Member

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION FOR THE *BLYTHE SOLAR POWER PLANT PROJECT*

Docket No. 09-AFC-6

PROOF OF SERVICE
(Revised 5/3/10)

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DECLARATION OF SERVICE

I, Hilarie Anderson, declare that on July 1, 2010, I served and filed a copy of the attached Revised Staff Assessment, Part 2. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/solar_millennium_blythe]

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(***Check all that Apply***)

FOR SERVICE TO ALL OTHER PARTIES:

✔ sent electronically to all email addresses on the Proof of Service list;

✔ by personal delivery;

✔ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

✔ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Original Signature in Dockets
Hilarie Anderson