STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

DOCKET	
09-AFC-10	
DATE	OCT 21 2010
RECD.	OCT 21 2010

In the Matter of	)	
	)	Docket No. 09-AFC-10
Application for Certification for the	)	
Rice Solar Energy Power	)	Dated: October 21, 2010
Plant Project	)	
	)	

IDENTIFICATION OF STAFF'S OPENING TESTIMONY

On October 13, 2010, the Committee designated by the Energy Commission to conduct proceedings on the Application for Certification for the Rice Solar Energy Power Project issued a "Prehearing Conference and Evidentiary Hearing Order." That Order states that Parties are to file Opening Testimony and Copies of Written Testimony and Documentary Evidence on or before October 21, 2010.

Staff's Opening Testimony is comprised of the Staff Assessment and Draft Environmental Impact Statement (SA/DEIS), docketed on October 11, 2010, and the following additional testimony:

Testimony of Terry O'Brien – Over Ride Statement and supporting declaration

Testimony of Geoff Lesh – Revised Worker Safety Conditions of Certification and supporting declaration

Testimony of Kim Tremain – Revised Cultural Resources section and supporting declaration

Testimony of Kristin Ford – Revised portion of Socioeconomics section and supporting declaration

Testimony of Alan Lindsley – Revised Traffic and Transportation Condition of Certification and supporting declaration

Testimony of Shaelyn Strattan – Revised portion of Land Use section and supporting declaration.

Proof of Service (Revised 1-5-10) filed with original,
Mailed from Sacramento on 10-21-10 C. Hoag

Update on the Status of Western's Telecommunications Study:

Staff presented and analyzed in the SA/DEIS several options that the Western Area Power Administration (Western) was considering for Applicant to establish telecommunications with Western's system to provide a protective relay circuit and a supervisory control and data acquisition circuit, together with data and telephone services. One of the options being evaluated by Western is to replace one of two existing overhead ground wires on the Parker-Blythe #2 transmission line with a fiber optic core overhead ground wire to either or both of Western's existing Parker and Blythe substations. As stated in the Biological Resources section of the SA/DEIS, the agencies require additional information to assess impacts associated with the fiber optic line option. Staff understands that a draft of Western's telecommunications study has been issued, is being reviewed by the applicant, and concludes the fiber optic line would not be necessary. At such time as staff receives confirmation from Western that this is the conclusion of their study and the fiber optic line will not be necessary, staff would provide testimony to update its conclusions for Biological Resources as it pertains to the fiber optic line that no additional information is needed.

Date: October 21, 2010

Respectfully Submitted,

DEBORAH R. DYER
Senior Staff Counsel
California Energy Commission
1516 9th St., MS-14
Sacramento, CA
Ph: (916) 654-3870
E-mail: ddyer@energy.state.ca.us

DECLARATION OF
TERRENCE O'BRIEN

I, Terrence O'Brien, declare as follows:

1. I am Deputy Director of the Siting, Transmission and Environmental Protection Division for the California Energy Commission.

2. I prepared the staff testimony on **Statement Regarding Overriding Considerations** for the Rice Solar Energy Project 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.

3. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

4. I am personally familiar with the facts and conclusions related in the testimony, 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: October 20, 2010 Signed: _____

At: Sacramento, California

TESTIMONY OF TERRY O'BRIEN
STATEMENT REGARDING OVERRIDING CONSIDERATIONS

The Energy Commission staff has recommended that the Energy Commission approve several solar projects through the use of its over ride authority notwithstanding the fact that staff found these projects would result in significant and unmitigated environmental impacts and/or result in noncompliance with various laws, ordinances, regulations or standards (LORS). To date, the staff has recommended Commission approval and over ride on six projects: Ivanpah, Beacon, Genesis, Imperial, Palen and Blythe.

Staff has recommended Commission approval and an over ride for the above-mentioned six projects because of concerns regarding the environmental consequences of global warming, including potential impacts of a significant and adverse nature to California's desert ecosystems. In determining whether to recommend an over ride, a project's location is key, since location drives impacts, often more so than any other factor. Three of the projects (Blythe, Genesis, and Palen) that staff recommended the Commission approve through an over ride are located in the East Riverside competitive renewable energy zone (CREZ) as well as a Bureau of Land Management solar zone study area. Staff believes this area in the I-10 corridor will have additional development and that given the proximity of existing transmission infrastructure and Interstate 10, combined with low desert tortoise densities, that this is an appropriate area to cluster development as long as site specific issues (e.g. sand transport and wildlife corridors) are adequately mitigated.

One of the projects, Beacon, will be located predominantly on abandoned agricultural land which dramatically reduces impacts to sensitive biological resources. Staff has consistently, both in the Desert Renewable Energy Conservation Plan (DRECP) and Renewable Energy Transmission Initiative (RETI) proceedings, supported solar development/projects on former agricultural land in the desert.

The other two projects on which staff has recommended an over ride, Ivanpah and Imperial, are both located in close proximity to major transmission infrastructure, other significant industrial and/or commercial development, and interstate freeways. These factors were an important consideration for staff when deciding whether an over ride recommendation was appropriate. In analyzing the Rice project, staff has determined that the project will result in significant unmitigable visual impacts. If the Commission concurs with staff's analysis, approval of the project will require an over ride.

In all of its filings recommending an over ride the staff has consistently stated it would not necessarily recommend an over ride for projects located in remote locations given our concern regarding hodge-podge development sprawl and potential impacts to pristine areas of California's deserts. Staff first expressed its concerns with development in remote areas of the Mojave and Colorado deserts in the November 19, 2008 RETI comments on the proposed competitive renewable energy zones and stated that renewable energy development should occur in areas proximate to "existing transmission infrastructure and load centers" and that it is important to "protect the

unique visual resources of the desert and to preserve the special qualities of remoteness and isolation that are inherent in the appeal of desert landscapes." That position/concern has not changed. In fact our concerns have increased given the number of projects the Commission has reviewed and the large geographical distribution of the project locations. Remote projects and their transmission lines also introduce into the landscape additional perching opportunities for ravens which are a predator of juvenile desert tortoises, a threatened species.

Staff believes it is essential that the current work on the Desert Renewable Energy Conservation Plan (DRECP) and the identification of development and conservation areas proceed as rapidly as feasible to provide clear guidance to renewable energy developers as to where to locate their projects. In the interim, staff can not recommend an over ride on the Rice project nor does it believe projects should be sited in remote areas. Our concerns are magnified by the visually intrusive nature of this technology. The glowing and sun bright storage vessel on top of a 650 foot tower will be highly visible over approximately 750 square miles of remote California desert, about 500,000 acres, an area approaching the size of the State of Rhode Island. This solar technology in particular, given its potential to significantly degrade the desert's visual resources, should be clustered in areas that already have been impacted by industrial and commercial development. Staff notes that the project is only 6 miles from the Iron Mountain CREZ and the BLM solar study area of the same name. In its November 2008 RETI comments staff stated its concerns, which have not changed, about development in this CREZ due to its remote location. Additionally, the Rice applicant, Solar Reserve, has met with the Energy Commission staff to advise them of their plans to file a future Application for Certification in the Iron Mountain CREZ a few miles north of the Rice site.

As we have reviewed the current group of ARRA projects, staff has become increasingly convinced of the importance of orderly development of renewable energy facilities in California's unique desert environments. We continue to believe that development in remote areas is antithetical to the goals of the DRECP.

DECLARATION OF
Geoffrey Lesh

I, **Geoffrey Lesh** declare as follows:

1. I am presently employed by the California Energy Commission in the **Engineering Office** of the Siting, Transmission and Environmental Protection Division as a **Mechanical Engineer.**

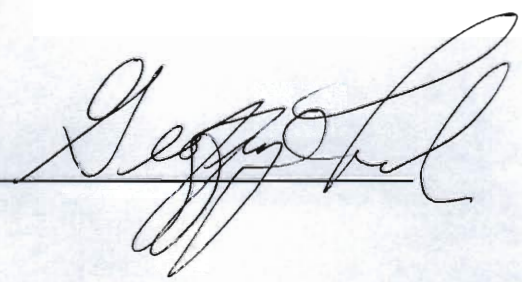
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the supplemental staff testimony on the **Worker Safety and Fire Protection Section** for the **Rice Solar Energy Project** based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony 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 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: Oct 20, 2010 Signed: 

At: Sacramento, California

The applicant would be required by Conditions of Certification **WORKER SAFETY-1** and **-2** to provide the final construction **and operations** Fire Protection and Prevention Programs to staff and to the RCFD prior to construction and operation of the project to confirm the adequacy of the proposed fire protection measures.

RCFD Impacts

In two letters from the RCFD (Riverside 2010b and 2010e), Captain Neuman of the RCFD has stated that the RSEP would have an impact on RCFD's ability to respond to fire, hazmat, and EMS emergencies at the RSEP. He also stated that the proposed RSEP, in addition to the three solar projects proposed for the Interstate-10 corridor (Blythe, Genesis, and Palen), would have a cumulative adverse impact on the RCFD's ability to provide an acceptable level of service. The RCFD based its analysis on their categories of industrial facilities, the type and level of service needed for projects in each category, the appropriate response times needed for each category, and the level of response required for the RSEP.

The RCFD determined that, due to the remote location of the RSEP and the other three solar power plants, the response time from the RCFD's existing facilities would be inadequate. Although the initial response time for a fire would be approximately one-hour ~~and 45 minutes~~ from Station # 49 and approximately one hour and fifteen minutes ~~two hours~~ from Station # 43, both those stations would only be able to send out one engine each with three firefighters each (Riverside 2010b~~e~~). This is because each station must leave at least one engine in reserve at all times and the minimum number of fire fighters on-duty at all times is three at each station. If an emergency response due to a confirmed fire is required, RCFD Standard Operating Procedures call for at least six engines to be dispatched, with three fire fighters on each engine and one battalion chief for a total of 19 fire fighters on the scene. The other engines would have to be dispatched from more remote fire stations. There is also the standard procedure of "back-fill" at the stations that are responding to an emergency to maintain response capability from those stations. Rather than leave the territory unprotected, the RCFD will try to move equipment and personnel to the vacated stations. The long travel times to the RSEP project (approximately 4 hours round trip), prolong the durations during which back filling of responding stations would be required, potentially impacting response capability at other fire stations.

The agencies have considered the position of the RCFD and all relevant information as well as past experience at existing solar power plants that are similar to, but smaller than, the proposed project. Staff reviewed the records of emergency responses of the San Bernardino County Fire Department (SBCFD) to the only three thermal solar power plants in the state. These are the Solar Electric Generating Station (SEGS) 1 & 2 in Daggett (operating since 1984), SEGS 3-7 at Kramer Junction (1989), and SEGS 8 & 9 at Harper Dry Lake (1989). Staff also reviewed what records were immediately available at the three solar plants. All sources stated that their records were incomplete and not comprehensive. Staff wishes to caution that since the number of thermal solar power plants is so few and their operating history so short, any conclusion as to accident incident rates is meaningless from a statistical perspective. Simply put, the data set is not robust enough to draw any conclusions about their safety records. Nevertheless, this information is provided for illustrative purposes.

WORKER SAFETY-8 In the event that the project owner does not reach an agreement with Riverside County Fire Department pursuant to **WORKER SAFETY-7**, the project owner shall provide documentation that a letter of credit in the amount of $820,000 has been provided to the ~~provide a $820,000 payment to~~ Riverside County Fire Department prior to the start of construction and reach an agreement under **WORKER SAFETY-7** within a year of site mobilization. This funding shall off-set any initial funding required by **WORKER SAFETY-7** above, until the funds are exhausted or an agreement is reached under **WORKER SAFETY-7**. This offset will be based on a full accounting by the Riverside County Fire Department regarding the use of these funds.

Verification: At least 30 days prior to site mobilization, if project owner has not reached an agreement with the Riverside Fire Department pursuant to **WORKER SAFETY-7**, the project owner shall provide documentation of the ~~payment~~ letter of credit described above to the Energy Commission CPM. The Energy Commission CPM shall adjust the payments initially required by **WORKER SAFETY-7** based upon the accounting provided by the Riverside County Fire Department.

WORKER SAFETY-9 The project owner shall develop and implement an enhanced Dust Control Plan that includes the requirements described in **AQ-SC3** and additionally requires:

a) site worker use of dust masks (NIOSH N-95 or better) whenever visible dust is present;

b) implementation of methods equivalent to Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004); and

c) implementation of enhanced dust control methods (increased frequency of watering, use of dust suppression chemicals, etc. consistent with AQ-SC4) immediately whenever visible dust comes from or onto the site or when PM10 measurements obtained when implementing ii (above) exceed 50 micrograms per cubic meter (μg/m3).

Verification: At least 60 days prior to the commencement of site mobilization, the enhanced Dust Control Plan shall be provided to the CPM for review and approval.

WORKER SAFETY-10 During any construction activities, the project owner shall provide onsite:

a) an EMT-P (Paramedic) who is certified by Riverside Emergency Services (REMS) along with the appropriate equipment and supplies;

b) a Advanced Life Support Ambulance with a California certified driver for use during medical emergency events; and

c) a contract with an air medical service to respond to a request from an onsite EMT-P.

Verification: At least 30 days prior to the commencement of site mobilization, the project owner shall be provide to the CPM for review and approval:

a) the name and contact information for the EMT-P. The contact information of any replacement EMT-P shall be submitted to the CPM within one business day, and

provide evidence in each Monthly Compliance Report during ~~commercial operation~~construction; and

b) a letter to the CPM confirming that the ~~Basic~~ Advanced Life Support Ambulance is available and will be onsite during any construction activities and provide evidence in each January Monthly Compliance Report during construction; and

c) proof of its contract for air medical service to the CPM for review and approval and provide evidence in each January Monthly Compliance Report during construction.

WORKER SAFETY-11 Beginning with commercial operation, the project owner shall provide onsite:

a) an EMT~~-P~~ who is certified by Riverside Emergency Services (REMS) along with the appropriate equipment and supplies; and

b) a contract with an air medical service to respond to a request from an onsite EMT~~-P~~.

Verification: At least 30 days prior to the commencement of commercial operation, the project owner shall be provide to the CPM for review and approval:

a) the name and contact information for the EMT~~-P~~(s) to be working on each shift. The contact information of any replacement EMT~~-P~~ shall be submitted to the CPM within one business day, and provide evidence in each Monthly Compliance Report during commercial operation; and

b) annually thereafter in the Annual Compliance Report, proof of its contract for air medical service to the CPM for review and approval.

CONCLUSIONS

Staff concludes that if the proposed RSEP project owner provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program as required by Conditions of Certification **WORKER SAFETY-1** and **-2** and fulfils the requirements of Conditions of Certification **WORKER SAFETY-3** through **-11**, the project would incorporate sufficient measures to ensure adequate levels of industrial safety and fire protection and comply with applicable LORS. Staff also concludes that the operation of this power plant would have a significant individual and cumulative impact on the RCFD and has proposed Conditions of Certification **WORKER SAFETY-7, -8, -10** and **-11** as mitigation that would reduce this impact to a level of insignificance. Alternatives considered in this SA-DEIS would not avoid worker safety and fire protection adverse impacts except for the No Project/No Action Alternative, which would not accomplish the project objectives. With implementation of the proposed Conditions of Certification, worker safety and fire protection impacts would be mitigated to less than significant for all alternatives including the proposed project.

DECLARATION OF

I, Kim Tremaine, declare as follows:

1. I am presently employed by the California Energy Commission in the Facilities Siting Office of the Systems Assessments and Facilities Siting Division as a Cultural Resources 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 and supplemental on the Cultural Section for the Rice Solar Energy Project 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: 10/21/10 Signed: Kim Tremaine

At: West Sacramento, California

Cultural Resources

Testimony of Kim J. Tremaine (Energy Commission), Stephen Tromly (Western Area Power Administration), and George Kline (Bureau of Land Management)[1]

SUMMARY OF CONCLUSIONS

The U.S. Bureau of Land Management (BLM), Western Area Power Administration (Western) and Energy Commission staff (staff), hereafter jointly referred to as the agencies, have reviewed the Rice Solar Energy Project (RSEP or proposed project) in accordance with the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

- Staff[2] concludes that the proposed Rice Solar Energy Project (RSEP) would have significant direct impacts to the features and artifact concentrations associated with the historic Rice Army Airfield (Rice AAF)[3] and the western periphery of Camp Rice (CA-SBA-10526H), as well as potential direct impacts to 23 other eligible or assumed eligible archaeological sites. Implementation of Energy Commission Conditions of Cerification **CUL-2** through **CUL-~~12~~ 14** would reduce these impacts to a less than significant level under CEQA.
- Staff finds that the RSEP construction impacts, when combined with impacts from the past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts to cultural resources at the regional level. Implementation of **CUL-1** would reduce that contribution to a less than significant level under CEQA.

Staff recommends adoption of conditions of certification **CUL-1** through **CUL-12**. Implementation of these conditions, as recommended by Energy Commission staff, would satisfy the Energy Commission's responsibility to comply with CEQA, ensure consistency with the applicable LORS, and reduce impacts to cultural resources to a less than significant level. The identification of relevant and reasonable mitigation measures also conforms to NEPA requirements for the BLM/Western analysis that can be considered in the Record of Decision (ROD).

INTRODUCTION

This cultural resources assessment identifies the potential impacts of the Rice Solar Energy Project (RSEP) on cultural resources. Cultural resources are categorized as buildings, sites, structures, objects, and districts under federal law (for the purposes of NEPA and the National Historic Preservation Act (NHPA), Section 106), and under California state law (for the purposes of CEQA). Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnographic, and historic.

[1] With contributions by Dwight Simons, Beth Bagwell, and Beverly E. Bastian

[2] "Staff" means Energy Commission staff unless otherwise indicated.

[3] No primary number or trinomial has been assigned yet to this resource.

Prehistoric archaeological resources are associated with the human occupation and use of California lands 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 historic vernacular landscapes. Under both federal and state historic preservation laws, most cultural resources must be at least 50 years old to have sufficient historical importance to merit consideration of eligibility for listing in the NRHP or CRHR. A resource less than 50 years of age must be of exceptional historical importance to be considered for listing.

For the RSEP, 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 avoided or mitigated.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS (LORS)

Projects licensed by the Energy Commission are reviewed to ensure consistency with applicable laws, ordinances, regulations, standards, plans, and policies. **Cultural Resources Table 1** provides a general description of the LORS applicable to the proposed project, all alternatives, and surrounding lands.

CULTURAL RESOURCES Table 1
Applicable Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description
Federal	
Antiquities Act of 1906 16 United States Code (USC) 431–433 National Historic Preservation Act of 1966 (NHPA)	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. Establishes a process to identify historic properties, determine effect and consultation to reduce, minimize or avoid effects.
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.
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) 25 USC 3001–3013	Provides for the protection of Native American graves, funerary objects, and "objects of cultural patrimony" on federal land; Establishes the procedures for determining ownership for Native American human remains, funerary objects, and other sacred objects under federal jurisdiction.
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.
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.

Proposed Project (Alternative 1)

SETTING/AFFECTED ENVIRONMENT

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.

Project Site

The applicant, Rice Solar Energy, LLC (RSE), a subsidiary of Solar Reserve, LLC, is proposing a 150-megawatt (MW) concentrating solar thermal power project with a central receiver tower, sun-tracking heliostat field, and an integral thermal storage for the liquid salt-based system. The power block and solar arrays would cover

approximately 1,410 acres of a 2,560-acre project site, immediately south and adjacent to State Route (SR) 62, at milepost 109, approximately 20 miles east of the SR62/177 intersection, and 15 miles west of Vidal Junction, in unincorporated Riverside County. The generating facility would be constructed on privately owned land and connected to the Western Area Power Administration's (Western) Parker-Blythe #2 transmission line by a 10.0-mile-long generation tie-line. The transmission line would be situated primarily on BLM-managed public lands, although it would cross a portion of two privately-owned parcels. Buildout coverage on the site (final footprint) would be about 55% (1,410 acres), including mirror fields, access roads, and buffer areas outside the fenceline.

From the interconnection substation, telecommunications would be established by: 1) replacing one of two existing overhead ground wires on the Parker-Blythe #2 transmission line with a fiber optic core overhead ground wire to either or both of Western's existing Parker and Blythe substations; 2) microwave (radio-frequency) transmission from either RSEP or the new substation, to terminate at Western's Blythe, Headgate Rock, or Black Point substations, or at an existing telecommunications site at Cunningham Mountain; or 3) by power line carrier/ broadband-over-power-line.

The project would have minimal to moderate ground disturbance impacts on the site area. Within the heliostat field, vegetation would be removed to near ground level and, overall, would retain the existing terrain without any significant grading for placement of the heliostat pylons or piers. The most significant grading would occur in the power block area and for development of the stormwater detention (30 acre-foot capacity) and wastewater evaporation ponds (three ponds at 5 acres each or a total of 15 acres). Trenching for installation of utilities (water, electric, gas, and communication) would occur to a depth of ten feet. Drainage diversion channels would be excavated around the northern half of the perimeter of the project facility, with the perimeter access road acting as a berm to prevent storm water from running onto the RSEP site from upslope areas. Grading and excavation would be necessary for the foundations of the project structures, including the central tower, heliostats, pipe racks, turbine, administration buildings, storage tanks for water and liquid salt, and transmission poles. Estimated foundation depths for the central tower range between 6 and 20 feet, with a diameter of about 115 feet. The donut foundation would have a central depth (immediately beneath the tower) of 20 feet and decreasing to a depth of 8 feet at the outer edges. Foundations for the heliostats would be 10 to 12 feet deep and 33 inches in diameter. Installation of the two project wells would require boring to a depth of about 190 feet.

The project's power block and solar arrays would be located on the site of the Rice AAF and a portion of Camp Rice, a World War II (WWII) desert training base that was part of the infantry and artillery Desert Training Center, California-Arizona Maneuver Area (DTC/C-AMA). It was used by General George S. Patton, Jr., from 1942-1944 to prepare American soldiers for combat in the North African desert. This location, a municipal airfield prior to WWII, reverted to civilian/public airport status again about 1949, then to a private airfield around 1952. Apparently abandoned between 1955-1958, the airport continued to be used sporadically by private pilots until the runways became unsafe. To the east, Camp Rice (Rice Divisional Camp) housed the 5th Armored Division during its training at the CAMA and maintained a large quartermaster depot at that location. The area was also used for Joint Exercise Desert Strike in 1964 (SR2009a). Little remains of Camp Rice or the Rice Army Airfield on the ground, aside a

few foundations, concrete pads, and defunct runways. However, the outline of both the airport and Camp Rice can still be easily discerned from the air.

The site is generally flat, with elevations ranging from about 720 feet (220 meters) above sea level (ASL) at the southern boundary to approximately 820 feet (250 meters) ASL in the north, along SR 62. Native plant revegetation is sparse to moderate and interrupted by the remains of the asphalt, gravel, concrete pads, foundations, runways, and taxiways. A number of small, dry desert washes traverse the project area, but no large ephemeral washes are present. There are no structures on the site, except for a few decaying foundations stemwalls, and no active use. The proposed project site can best be described as extensively disturbed land that has been unused for about 50 years and is gradually reverting to desert.

Surrounding Area

The proposed project site is located in the northeastern portion of unincorporated Riverside County, approximately 15 miles west of Vidal Junction and 3 miles east of the abandoned town of Rice. The San Bernardino County line is just north of SR 62, which is immediately adjacent to the project's northern boundary. Access to the site is along SR62, a two-lane state highway (also known as Aqueduct Road and Twenty-nine Palms Highway) that bounds the project site to the north, and provides a direct route between Vidal Junction, to the east, and Twenty-nine Palms to the west. SR177 intersects SR62 approximately 17 miles west of the project site and connects to Desert Center and Interstate 10 (I-10) to the south. The Colorado River Aqueduct (Aqueduct) parallels SR62 to the north of the project site. The Aqueduct is a 242-mile (389-kilometer) water conveyance operated by the Metropolitan Water District of Southern California (MWD). The Arizona and California Railroad (ARZC) shortline also parallels SR62 at the project site and extends nearly 300 miles between Matthie, Arizona and Cadiz, California, with a 50-mile southern branch to Ripley.

The area surrounding the project site also played an important role during WWII as part of the infantry and artillery DTC/C-AMA. In addition to Camp Rice and the Rice AAF, the 3d Armored Division used Camp Iron Mountain and Camp Granite, at the SR 62/177 intersection, about 17 miles west of the project site, from 1942-44. Camp Iron Mountain was designated as an Area of Critical Environmental Concern (ACEC) for its cultural significance in 1980, and is perhaps the best known and certainly the best preserved of all the training camps. Despite the ravages of time, a contour map, many rock mosaics, two alters, and numerous rock alignments along roads and walkways have survived. The area has been fenced to provide protection from vehicular traffic and both Camp Iron Mountain and Camp Granite are visible to the north and south of SR 62,

The habitat is represented by southwestern basin and range topography, characterized by numerous, generally north-south oriented mountain ranges alternating with valleys and alluvial plains. The terrain surrounding the project site consists of a number of broad shallow valleys that generally trend to the southeast, draining into the Colorado River. These valleys contain five playas or closed basin sinks formed by low-lying obstructions on the valley floor. Desert pavement is common and is often well-developed and present in broad patches. Elevations range between 700 and 1600 feet above mean sea level. Soils range from loose-sandy to coarse-sandy loams on the

bajadas and valley floors to cobbles, boulder outcrops, and talus on the mountain slopes.

The Rice Valley is a long shallow valley system that is contiguous with Ward Valley to the northwest. Under more pluvial conditions, these valleys had the potential to overflow their blockades and become a continuous drainage (McCarty 1980, p. 7). The climate of the RSEP project site and vicinity is hot and arid and is classified as sub-humid or sub-tropical with evaporation greatly outstripping precipitation (McCarty 1980). Summer temperatures from July through September average above 86 degrees Fahrenheit with daytime maximum temperatures often nearing 110 degrees Fahrenheit and ground temperatures exceeding 140 degrees Fahrenheit. Winter temperatures are mild, averaging 50–70 degrees Fahrenheit from December through February. Precipitation is around three inches per year, with substantial annual variability occurring between locations. The range of variability is 0–10 inches.

Sonoran Creosote Bush Scrub is the dominant vegetation community present through most of the eastern Mojave/Colorado Desert, with Desert Saltbush community in the immediate project vicinity. (Keeler-Wolf 2007; Kuchler 1977; Schoenherr 1992; Schoenherr and Burk 2007). Along the Colorado River floodplain, riparian communities are dominated by cottonwood and sycamore trees close to the river, and mesquite in drier parts of the floodplain. Two species of mesquite were key food sources for native inhabitants along the river. Mesquite, along with cottonwood, was also used to make arrow shafts, digging sticks, mortars, and pestles. Dense stands of willow and arrow weed are found bordering the river. Today, this area is used primarily for agriculture and recreation. In portions of the floodplain, saltcedar or tamarisk has replaced much of the mesquite and other native vegetation (Minckley and Brown 1994). The nearest native fish species are found in the main channel of the Colorado River mainly are Colorado pikeminnow, razorback sucker, and bonytail chub. (Minckley and Brown 1994; Moyle 2002). The historic-period settlement and land use pattern of the Rice Valley is largely related to early mining activities and early transportation corridors. Other activities playing minor roles in development of the region include: early expeditions, railroads, construction of the Colorado River Aqueduct, and military training.

Much of the surrounding land is managed by BLM, which allows livestock grazing and a variety of recreational activities. The land surrounding the project footprint, excluding Camp Rice and the former Rice AAF, is relatively undisturbed desert. There are no residences or commercial developments, other than the Iron Mountain Pumping Station (IMPS), within visual range of the project site or surrounding desert lands. The closest services to the project site are at Vidal Junction, approximately 13 miles to the east, at the SR 62/95 intersection. The closest towns with full services are Earp, California and Parker, Arizona, on SR62, approximately 17 miles west of Vidal Junction. The larger towns of Blythe and Twenty-nine Palms are about 65 miles south and 75 miles to the west, respectively.

Geology

The following discussion is primarily excerpted from Spaulding (2009). The RSEP is located within the geomorphic province known as the basin and range, situated in the Rice Valley between the Turtle Mountains to the north and the Big Maria and Little

Maria Mountains to the south. The geomorphic landscape consists of a broad bajada (a coalescing of neighboring alluvial fans into a single apron of deposits) from the Turtle Mountains, with parallel drainages of parallel rills, gullies, and washes flowing south-southwest toward a dune field southwest of the project area.

The underlying geology consists of alluvial deposits derived from Quaternary dune sands, and recent alluvium composed of sand, silt, clay, and gravel. These range from Pleistocene (1 million years old) to Holocene (8,000 BC to Recent) in age. Holocene alluvium less than 11,000 years old often is similar to older Pleistocene alluvium. It is typified by moderately to poorly bedded sands, silts, and gravels.

Quaternary alluvium, composed of eolian sand sheets/dunes, locally derived fill, and disturbed sediment mantles underlies most of the proposed receiver tower/heliostat and transmission line. Alluvial fans extending south from the Turtle Mountains contain fine-grained clasts (coarse gravel and finer clastic sediment). Within the heliostat field, they are uniformly fine-grained sediments.

Hubbs and Miller (1948, pp. 90, 164) observed that Late Pleistocene Lake Ward occupied the Danby Dry Lake Basin, northwest from Rice, while Lake Amboy was present in the Bristol-Cadiz Dry Lake Basins. These lakes may have been interconnected, and possibly provided a drainage route from the Death Valley-Mohave River pluvial lakes into the Colorado River (also see Enzel et al. 2003; Gallegos et al. 1980, pp. 22-30). However, only Danby Lake has evidence (the presence of former shorelines) for an expanded pluvial lake (Gallegos et al. 1980; Hubbs and Miller 1948; Smith and Street-Perriott 1983, p. 200; Thompson 1929, p. 708). Lake Ward in the Danby Basin may have been up to 59.5 m deep (Gallegos et al. 1980, pp. 27-28). Williams and Bedinger (1984) concluded Bristol, Cadiz, and Danby Lakes contained Late Pleistocene-Early Holocene marshes.

Paleoclimate and Paleoenvironment

Information on paleoclimate and paleoenvironment for the southern Mojave and northern Sonoran (Colorado) deserts are derived primarily from plant macrofossils found in packrat middens (Cole 1986; Grayson 1993; Spaulding 1990; Tausch et al. 2004; Thompson 1990; Van Devender 1990; Wigand and Rhode 2002, pp. 332–342; Cole 1986; West et al. 2007, pp. 30–33), and stratigraphic studies of playa and dry lake deposits years (Enzel et al. 1989, 1992, 2003; Gallegos et al. 1980, pp. 22-30). The Holocene, the geologic epoch following the Late Pleistocene during which humans probably first occupied North America, began approximately 12,000 years ago. For purposes of this discussion, it is divided into four periods: Early, Middle, Early Late, and Late Late.

Early Holocene (10,000-6,000 BC)

During the Late Pleistocene-Early Holocene, as the climate became warmer and drier, extensive lowland conifer woodlands retreated upslope and were replaced by desert scrub associations. In the northern Sonoran Desert, around 9,500 BC, hot desert plants (Mormon tea, desert thorn, cactuses, Joshua tree, pigmy cedar, cat claw acacia) began dispersing into the region, replacing cooler desert taxa (sagebrush, rabbitbrush, shadscale). From about 8,400 BC on, creosote bush white bursage, and other desert

thermophiles began appearing. This warmer drier period, however, also was characterized by episodes of greater precipitation. In the Mohave Desert, three high lake-stands have been identified at Silver Lake playa, dating between 13,000 and 7,300 BC (Enzel et al. 1989). Gallegos et al. (1980, p. 93) postulate that two moister climatic intervals, dating between 11,500 and 12,500 years ago, occurred, based on a pair of caliche beds near Cadiz Dry Lake that contained flaked stone artifacts.

Middle Holocene (6,000-3,500 BC)

The Middle Holocene was the warmest, driest part of the entire Holocene, and has been referred to as the Altithermal (Grayson 1993). Desert shrub vegetation dominated lowland and mid-level elevation localities. White burrobush and creosote bush greatly increased in abundance. A dearth of vegetation data from the Middle Holocene suggests plant cover was probably very sparse as a consequence of severe drought conditions. Between approximately 4,800 and 3,000 BC, little evidence exists for summer rainfall. Gallegos et al. (1980, p. 93) suggest a wetter climatic interval, dating around 8,000 to 8,500 years ago, probably filled desert lakes, based on the presence of a site dating from that time located in the fossil dunes near Bristol Dry Lake.

Early Late Holocene (3,500 BC–1 AD)

The Early Late Holocene has been characterized as a period of relatively cooler, moister climate, interspersed with evidence of warmer drier (sometime drought) conditions. This period has been termed the Neoglacial. Peat deposits, dating to about 5,000 years ago, occur at various spring localities in the Mojave Desert. Around 1,800 BC, a significant increase in the density of pinyon-juniper woodland occurred in southern Nevada, suggesting cooler temperatures and *winter*-precipitation. Denser vegetation appears to have characterized the period between c. 2,000 B.C. and A.D. 1.

A high lake-stand at Silver Lake occurred at approximately 1,620 BC (Enzel et al. 1989, 1992). Gallegos et al. (1980, p. 93) conclude wetter climate occurring about 3000 years ago, produced lake filling, based on evidence of shoreline camp sites at Cadiz Dry Lake. It would have formed a marshy, shallow lake in the Cadiz Dry Lake Basin, containing resources favorable for lakeshore hunting and gathering. However, use of Danby Dry Lake to the southeast probably was limited by its probable high salt content (Gallegos et al. 1980, p. 28).

Late Late Holocene (AD 1–present)

During the Late Late Holocene, temperature and precipitation patterns fluctuated widely. Periods of *summer*-dominant precipitation and milder winters, occurred, contrasting with periods of cooler, somewhat drier conditions and increased *winter*-precipitation The most significant period of warmer, drier climate, the Medieval Climatic Anomaly, occurred c. 1,200-800 years ago (Meko et al. 2001; Stine 1994, 1996, 1998, 2000). Cooler, wetter climate, dominated from about 1,600 to 1,200 B.P., and again during the Little Ice Age approximately 650 to 150 years ago (Fagan 2000; Grove 1988; Meko et al. 2001; Scuderi 1987a, 1987b, 1990, 1993). Cooler, wetter climatic episodes expanded pinyon-juniper woodland, while warmer, drier conditions favored expansion of saltbush and the creosote bush/white burrobush associations in the lowlands. Enzel et al. (1989, 1992) note a highstand occurred at Silver Lake approximately 390 B.P., corresponding to the Little Ice Age.

Prehistory

During the 1970s, the Bureau of Land Management conducted a large-scale cultural resources inventory of the Central Mojave and Colorado Desert Regions (Gallegos et al. 1980). In an overview of the region, Crabtree (1980) summarized the history of archaeological study, plotted the cultural chronology, identified common site types, and outlined research topics of interest at the time. Subsequent regional overviews cultural resources management investigations have contributed additional information refining our understanding of the prehistory of this region (cf., Arnold et al. 2002, pp. 43–48; Basgall 1993; Gilbreath and Hildebrandt 1997; Love and Dahdul 2002; Schaefer 1994; Schaefer and Laylander 2007; Schroth 1994; Sutton 1988, 1996; Sutton et al. 2007; Warren 1984; Yohe 1992).

Regional Chronology and Culture History

An initial cultural chronology-culture history scheme for the Colorado Desert was developed in the 1930s and 1940s (Campbell 1931, 1936; Campbell and Campbell 1935; Campbell et al. 1937; Rogers 1939, 1945). This scheme formed the foundation for subsequent efforts, most recently expressed by Sutton et al. (2007, pp. 233–243, table 15.4), relating the temporal periods and complexes delineated to those found in the Mojave Desert. The presentation below of the culture history of the RSEP region is largely drawn from this source.

Paleo-Indian Period (about 10,000–8,000 BC)

In the Southern California deserts, the Paleo-Indian Period dates to the first half of the Early Holocene, and possibly earlier (cf., Beck and Jones 1997; Dillon 2002; Erlandson et al. 2007; papers in Graf and Schmitt 2007; Grayson 1993, pp. 236-244; Jones and Beck 1999; Moratto 1984, Chapters 2 and 3; Rondeau et al. 2007; papers in Willig et al. 1988). This early period is characterized by the presence of various types of leaf-shaped, often fluted, lanceolate, and stemmed points, assigned to the Clovis and Western Pluvial Lakes Traditions. The Clovis Tradition generally dates earlier, and is characterized by large fluted and square-based spear points, large bifaces, heavy core tools, backed scrapers, burins, and gravers. Stemmed point (Western Pluvial Lake Tradition) assemblages usually date later in time, and include slightly-shouldered stemmed points, crescents, and other percussion-made bifacial tools, along with ground stone tools. These assemblages often occur in lowlands, and along former pluvial lakeshore margins. Presence of a possibly earlier tool assemblage has been claimed for artifacts recovered from the Calico site.

Dating of fluted and stemmed points in the Southern California desert is complicated by their frequent occurrence as surface finds. A number of sites have produced fluted or stemmed points. Among the most noteworthy Southern California sites are the China Lake site, the Lake Mojave and Pinto Basin localities, and the Awl, Henwood, Rogers Ridge, and Stahl sites (Beck and Jones 1997). It has been suggested that Paleo-Indian peoples were highly mobile, and repeatedly occupied preferred sites. A preference for lowland occupation and increasing use of upland habitats through time is suggested. A possible early emphasis upon hunting large, sometime extinct, terrestrial mammals, and exploiting marsh resources appears to have shifted through time to increased use of seeds and other plant resources along with small game.

Lake Mojave Complex (8,000–6,000 BC)

The Lake Mojave complex, also known as the Western Pluvial Lakes/Western Stemmed Tradition (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), occurs during the second half of the Early Holocene. It is characterized by Great Basin Stemmed Series projectile points (Lake Mojave and Silver Lake types), abundant bifaces, steep-edged unifaces, crescents, and occasional cobble tools 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.

Deadman Lake Complex (7,500–5,200 BC)

Currently, the Deadman Lake complex appears confined to the Twenty-nine 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.

Pinto Complex (8,000–3,000 BC)

The Pinto complex spans portions of the Early and Middle Holocene. Toolstone use, based on sites attributed to this complex, focus upon 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 sites occur in a broad range of topographic and environmental settings, especially within remnant pluvial lake basins. Moderate to large numbers of people, practicing a collector subsistence strategy, occupied large residential base camps for prolonged periods. Logistical forays into surrounding resource patches probably were made from these sites.

Possible Abandonment (3,000–1,000 BC)

Beginning roughly at this time, 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. This period corresponds, in part, to the latter portion of the proposed "Altithermal Abandonment," recognized by some prehistorians as characterizing portions of the Great Basin (see Kelly 1997, pp. 8–9).

Gypsum Complex (1,000 BC–AD 200)

The Gypsum complex, spanning most of the Early Late Holocene, 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 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 sites are uncommon in the southern and eastern Mojave Desert.

Rose Spring Complex (AD 200–AD 1000)

Cultural systems profoundly changed in the southern California deserts during Late Late Holocene with the introduction of the bow and arrow, represented by Rosegate Series points. During this time, a major increase in population is thought to have occurred, possibly resulting from a more productive environment and a more efficient hunting technology. Sites often are located near springs, along washes, and sometimes along lakeshores. Intensive occupation is indicated by the presence of wickiups, pit houses, and other types of structures. Well-developed middens have 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. During the middle of this period, a major drought (the Medieval Climatic Anomaly) occurred, resulting in hypothesized resource shortages.

Late Prehistoric Period (AD 1000–AD 1700)

During the Late Prehistoric period, horticultural practices and pottery were introduced (most likely from the Hohokam area in southern Arizona or from northern Mexico), having its greatest impact along the Lower Colorado River (McGuire and Schiffer 1982; Schaefer 1994, pp. 65–74; Schaefer and Laylander 2007, pp. 253–254). Ceramic artifacts began to appear in the Colorado Desert approximately AD 1000, assigned to the Lowland Patayan (Lower Colorado Buff Ware) and Tizon Brown Ware traditions (Lyneis 1988; Waters 1982).

A complex cultural landscape composed of rock art, trails, and geoglyphs (explained below) developed during the Late Prehistoric period. 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 toolstone.

Prehistory of the Rice Valley

Prehistoric sites in the immediate vicinity of the RSEP are rare, most likely attributable to the lack of a stabile water supply throughout prehistory. It is unclear whether there was ever a fresh water supply. However, seasonal vegetation patterns suggest that

past peoples inhabiting the area were very mobile. During early historic times, native peoples inhabited towns/hamlets located along the Colorado River, within the Coachella Valley, and at major desert springs/oases.

Prehistoric Research Topics

Prehistoric research topics include chronology, subsistence-settlement, technological organization, and trade and exchange.

Cultural Chronology

Concerns regarding prehistoric projectile point typology in the Southern California desert have been focused upon the contention that broken, reworked projectile points assigned to one type may produce points assigned to another, possibly obviating their usefulness as chronological markers. This is the Flenniken Challenge (cf., Arnold et al. 2004, p. 45). Dating Early Holocene points is complicated by their frequent occurrence as surface finds. Attempts to date them using obsidian hydration has produced varying results (cf., Basgall 1993, 1995; Jenkins 1987; Jenkins and Warren 1984; Schroth 1994). The chronological parameters and function(s) of Elko, Rosegate, and Humboldt points also have been issues (Bettinger and Eerkens 1997, 1999; Garfinkel and Yohe 2004; Yohe 1992, 1998, 2000). Of particular interest is introduction of the bow-and arrow sometime around A.D. 500.

The Middle Holocene has been viewed by some as a period during which most people left the Great Basin as a consequence of warmer, dryer climate, the so-called Altithermal Abandonment (cf., Antevs 1948; Baumhoff and Heizer 1965; Grayson 1993; Kelly 1997; Madsen 2002; Rhode 1999). This time is characterized by decreased archaeological visibility, suggesting people either were drawn to localities with more reliable resources, or migrated out of the Great Basin to more productive areas.

The Late Holocene is marked by a substantial increase in the number of archaeological, sites and greater numbers of artifacts, suggesting increased populations as well as population movements. These include the Anasazi Intrusion into southern Nevada/southwest Utah, focused upon the Virgin and Muddy River Valleys (cf., Kelly 1997; Larson 1987, 1996; Larsen and Miichaelson 1990; Lyneis 1992, 1994, 1995). On a larger scale was the apparent expansion of Numic-speaking peoples throughout much of the Great Basin (Bettinger and Baumhoff 1982; Grayson 1993; Kelly 1997; papers in Madsen and Rhode 1994). This is marked by changes in pottery, basketry, projectile points, and other artifacts. The Late Holocene also marked introduction of Hakataya/Lowland Patayan Ceramic Series buffware pottery into the Colorado Desert/Salton Basin (Arnold et al. 2004; Love and Dahdul 2002; Schaefer and Laylander 2007; Schroeder 1958, 1979; Waters 1982). Contemporaneous use of Tizon Brownware pottery in the Peninsular Ranges and along the Pacific Coast also occurred (Lyenis 1988; Griset 1996).

Subsistence-Settlement

In the Southern California desert, prehistoric subsistence-settlement strategies can be regarded as expressions of Holocene Archaic "Broad Spectrum" adaptation marked by increasing dependence through time upon exploitation of an extremely diverse suite of resources, and increasingly complex resource procurement behavior (cf., Arnold et al.

2004; Basgall 2000; Bettinger 1993, 1999; Elston 1982, 1986; Hockett 2007; Kelly 1995, 1996, 1997; Sutton 1996; Simms 1986, 1987; Thomas 1983a, 1983b; Warren 1984; Warren and Crabtree 1986). This is manifested by development through time of resource and land use intensification (cf., Barlow and Metcalfe 1996; Bettinger 1993, 1999; Elston and Zeanah 2002; Kelly 1997, 2001; papers in McGuire 2002; McGuire et al. 2004; Metcalf and Barlow 1992; Simms 1985a, 1985b, 1987; Thomas 1983a, 1983b, 1988; Zeanah 2004; Zeanah and Simms 1999).
These factors have expressed themselves in Holocene development of hunting and gathering practices. The focal point of the former has been the emphasis upon taking large versus small game animals, with causative factors including resource depression and intensification, climatic change, and social signaling (cf., Broughton and Bayham 2003; Broughton et al. 2008; Byers and Broughton 2004; Byers and Smith 2007; Byers et al. 2005; Codding and Jones 2007; Hildebrandt and McGuire 2002; Hockett 2005, 2007; Hockett and Murphy 2009; McGuire and Hildebrandt 2005; McGuire et al. 2004, 2007; Ugan 2005a, ,2005b; Ugan and Bright 2001). Gathering studies have emphasized pine nut and hard seed utilization, with transport and processing costs, increased use of upland habitats, and sexual division of labor viewed as critical issues (cf., Bettinger 1993, 1999; Hildebrandt and Ruby 2006; Kelly 1997, 2001; Thomas 1983a, 1983b, 1988; Zeanah 2004; Zeanah and Simms 1999).

Prehistoric hunting and gathering may have led to the evolution of hunting and/or gathering "landscapes", which influenced the location, distribution, and configuration of habitation sites and task sites utilized for specific resource procurement (cf., Basgall 2000; Bettinger 1999; Eerkens 1999, 2003 b & c, 2004; Fowler 1985, 1994, 1995, 1996; Gilreatgh and Hildebrandt 1997; Simons 2009; Simons et al. 2009; Zeanah 2004; Zeanah and Simms 1999). Through the Holocene, group mobility decreased and the length of site occupancy increased as growing population size appears to have increased territoriality and decreased foraging territory size (Arnold et al. 2004; Bamforth 1990, Basgall 2000; Bettinger 1999).

Eerkens (2003c; 2004) suggests a significant increase in small seed use and the advent of brownware pottery around AD 1300–AD 1400 are linked. Seed use was intensified because seeds could easily be individually owned, and not subject to unrestricted sharing. Pots were a critical component of small seed intensification, because they usually were individually made and owned, and could be used within houses, allowing food preparation and consumption to occur in private. Privatization of small seeds may have resulted from increased population size, which produced more potential "freeloaders," new community kinship structures, and creation of resource surpluses.

Horticulture/Agriculture

At the time of initial Euroamerican contact approximately 240 years ago, native peoples living along the Colorado River and within the Colorado Delta grew a wide variety of domesticates and wild grasses, which provided 30-50 percent of their subsistence economy (Castetter and Bell 1951; Schaefer and Laylander 2007, pp. 253-254). Annual flooding of the Colorado River rejuvenated the soil, and provided enough moisture to sustain crops. Colorado River agriculture appears to have begun around 1,300 years ago. It probably was introduced either from the Hokokam area to the east, or from northern Mexico to the southeast (McGuire and Schiffer 1982).

Horticulture appears to have spread west from the Colorado River, possibly reaching the western Colorado Desert 300-200 years ago. Human coprolites and seed caches found in ceramic jars and cache pits from this region contain remains of native cultigens (cf., Bayman et al. 1996; Swenson 1984; Wilke 1978a, 1978b; Wilke and McDonald 1989; Wilke et al. 1977). However, native cultigens may have reached this area through trade instead of local production (Schaefer and Laylander 2007, p. 254).

In the Mojave Desert and adjacent areas, irrigation agriculture was first practiced as a consequence of the Anasazi Intrusion (Kelly 1997; Larson 1987, 1996; Larsen and Michaelson 1990; Lyneis 1992, 1994, 1995; Warren 1984, p. 421, fig. 8.25). It occurred along with foraging for native wild plant and animal resources. Agriculture/horticulture subsequently was practiced by various Numic-speaking peoples, such as the Owens Valley Paiute, Death Valley peoples, Panamint and Timbisha Shoshone, and several Southern Paiute groups, including the Chemehuevi (Fowler 1995:, pp. 110-112, 1996, pp. 91-98; Lawton et al. 1976; Liljeblad and Fowler 1986, pp. 417-418; Steward 1930, 1933, 1938, 1940, 1970; Winter and Hogan 1986, pp. 125-129; Yohe 1997).

Maize, beans, squash, sunflowers, and amaranth were grown in gardens near springs, irrigated communal fields and garden plots, and along streams. Land management and plant husbandry techniques directed at non-domesticates included burning to encourage growth of new plants, clearing, pruning, and coppicing, transplanting plants, broadcast seed sowing, and irrigation of wild stands of bulb and seed plants. Mojave Desert agriculture/horticulture has been interpreted as a response to increased population pressure during late prehistoric times, possibly resulting from climatic change and/or immigration (Bouey 1979).

Cultural Landscapes

In the Colorado and Mojave Deserts, trails, cairns, geoglyphs, cleared circles, rock rings, other desert pavement features, rock art sites, and artifact scatters appear to be elements of prehistoric-ethnohistoric cultural landscapes[4] (Gilreath 2007; Schaefer and Laylander 2007, pp. 254–255; Cleland and Apple 2003; Cleland 2007). Geoglyphs were constructed on desert pavements by rearranging and/or clearing pebbles and rocks to form alignments, clearings, and/or figures (Arnold et al. 2002; Gilreath 2007, pp. 288–289; Solari and Johnson 1982). These "gravel pictographs" and rock alignments (Harner 1953) occur throughout the deserts of southeast California and adjacent portions of southern Nevada and western Arizona. Rock alignments are present throughout this region, while representational figures only occur close to the Lower Colorado River. An elaborate system of prehistoric-ethnohistoric trails crossed the southern California deserts, leading to or passing adjacent to many of these features (cf., Davis 1961; Earle 2005; Johnson 1980; Johnson and Johnson 1957; Sample 1950; von Werlhof 1988)

Colorado Desert localities include the Pilot Knob Complex, the rock art complex at Palo Verde Point, the Ripley Locality, the Quien Sabe-Big Maria complex, the Topock Maze

[4] Cultural landscapes, when related to specific ethnic groups, are referred to as Ethnographic Landscapes (Hardesty 2000).

(Rogers 1929), and a few dozen giant ground figures (Harner 1953; Setzler and Marshall 1952), often first observed from the air. 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). Cation ratio dating[5] of desert varnish has 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 the technique remains controversial (Gilreath 2007, p. 289).

These geoglyph, rock alignment, and rock art sites may represent prehistoric ceremonial centers, located along routes between sacred places, representing creation/origin stories/myths, cosmology, iconography, and religion of prehistoric peoples (Altschul and Ezzo 1995; Cleland 2005; Ezzo and Altschul 1993; Gregory 2005; Hedges 2005; Johnson 1985, 2003; von Werlhof 1995, 2004; Whitley 2000; Woods et al. 1985). They also may have functioned as focal points for shamanistic activities, vision quests, curing, and group rituals/ceremonies. Their construction has 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.

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).

Technological Organization

Prehistoric quarry/lithic artifact manufacture behavior in the Mojave Desert is manifested by differences in tool manufacture and behavior related to the presumed user's gender (Welch 2000), formal versus the expedient procurement of tool stone (Wilke and Schroth 1989); and scales of production occurring at ground stone tool quarries (Schneider et al. 1995). Bamforth (1990, 1992) considers Holocene settlement, raw material, and lithic procurement at several quarry sites in the central Mojave Desert. He suggests prehistoric quarry use was conditioned upon mobility strategies, regional quality and abundance of tool stone, as well as quarry location. Bamforth suggests that an emphasis on transporting prepared cores during the period 2,000 BC–AD 500 may have resulted from the formation of relatively large and stable communities in areas with concentrated plant resources. Basgall's (2000) study of tool stone use during the Late Pleistocene-Early Holocene concluded tool stone selection mainly reflected functional attributes of various tool stone types.

[5] 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.

With respect to social and cultural factors governing pottery adoption and use within the Southern California deserts, one concern has been determining if ceramic vessels were locally made (Eerkens 2001; Eerkens et al. 1999, 2002a, 2002b; Griset 1996). Pots generally appear to have been locally produced and used, with limited exchange of pots between different groups. Production appears to have been organized at an individual or family level, emphasizing production of largely utilitarian wares.
Pottery from northern Mojave sites has a relatively high number of elemental signatures suggesting high levels of residential mobility (Eerkens 2003b; Eerkens et al. 2002b). Additionally, prehistoric people produced a fairly large number of pots. The combination of high mobility and a fairly high level of pottery production is seen as leading to caching pots near lowland wetlands, which were fixed in the landscape, development of pottery attributes promoting fuel consumption, and a high degree of standardization of largely utilitarian ceramics.

Trade and Exchange

Prehistoric and ethnohistoric Southern California desert peoples had a highly developed network of trail connections linking locations within and beyond the region (cf., Davis 1961; Earle 2006; Johnson 1980; Johnson and Johnson 1957; Sample 1960; von Werlhof 1988). High mobility produced considerable cross-cultural interaction and integration in spite of frequent open aggression and warfare between different groups. This integration and interaction occurred between mobile hunter-gatherers and sedentary horticultural peoples. They are archaeologically manifested by the spatial distribution of site types, rock art, artifacts (especially ceramics and shell ornaments), and tool stones, especially obsidian.

Archaeologists monitor the dynamics of prehistoric trade in the Southern California desert by analyzing distributions of artifacts made from various tool stones, shell beads and ornaments, and ceramic types and composition (Schaefer and Laylander 2007, pp. 255–256). Radiocarbon dates ranging between 11,200 and 7860 B.P. on shell beads from several Mojave Desert sites indicate regional trade began early (Fitzgerald et al. 2005). Jones et al. (2003) note Early Holocene desert peoples may have had foraging territories 200-300 km on a side.

The Southern California desert provided prehistoric peoples with a variety of lithic materials for artifact production. These included obsidian, cryptocrystalline silicates (chert), crystalline volcanics (basalt, rhyolite), quartz, and plutonic, metamorphic, and sedimentary rocks. Coso obsidian was the dominant source of obsidian used by desert peoples prior to c. AD 700 when its use dramatically declined (Arnold et al. 2004; Eerkens and Rosenthal 2004; Ericson 1989; Gilreath and Hildebrandt 1997; Hughes 1988; Mazer et al. 1991; Rhode 2000; Stevenson and Sheetz 1989; Stevenson et al. 1993).

Other obsidian sources in the southern Mojave Desert include Bristol Mountains and Devil Peak (Shackley 1994). Johnson and Wagner (2005) and Johnson and Haarklau (2005) note obsidian from a host of sources located along the boundary between the northernmost Mojave Desert and the south-central Great Basin were utilized. Approximately a dozen sources located in Baja California, extreme northwest Sonora, and western Arizona also possibly were used (McFarland 2000; Shackley 1988, 1995,

2005). During the last thousand years, Obsidian Butte glass became the principal obsidian used in the Colorado Desert and coastal southern California (Hughes 1986; Hughes and True 1983; Laylander and Christenson 1988; Schaefer and Laylander 2007, p. 251).

Artifacts made from shellfish species inhabiting the northern Sea of Cortez occur in coastal southern California and the Great Basin (Bennyhoff and Hughes 1987; Fitzgerald et al. 2005) and may have been traded through the Colorado Desert (Schaefer and Laylander 2007, p. 255). Shells from southern California coastal species occur at a number of Southern California desert sites and at others in the Southwest (Ford 1983). Late Period interregional connections are suggested by the frequent occurrence of Lower Colorado Buffware (i.e., Patayan/Hakataya) pottery throughout the Colorado Desert (Cordell 1997; McGuire 1982; Plymale-Schneeberger 1993; Schaefer and Laylander 2007, p. 255; Schroeder 1979; Shaul and Hill 1998; Waters 1982).

Ethnographic Background

The Chemehuevi are the most likely Native American group ethnohistorically inhabiting the Ward/Rice Valley region. Adjacent groups included the Serrano, Cahuilla, Mojave, Maricopa, and Halchidhoma. The Rice project area is located within the southern part of Chemehuevi territory. Mohave territory was to the east. The Las Vegas group of Southern Paiute were to the north-northwest. The Serrano were to the west-southwest.

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 middle of the Maria Mountains, paralleling the east side of the Iron Mountains, and then running between Old Woman Mountain and just east of Cadiz Dry Lake (Kelly 1934; Kelly and Fowler 1986, p. 369, fig. 1).

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 corresponded 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 up 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/sub-conical 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 closest known Chemehuevi tribal unit to the RSEP project area is in the Providence Mountains (roughly 90 miles northwest), named "Tumpisagavatsits" or "Timpashauwagotsits" (Kroeber 1925, p. 595). 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 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 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 Twenty-nine 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 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 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. Trail networks used for hunting, trading, and social visiting connected villages. 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.

Men hunted deer, mountain sheep, pronghorn, rabbits, rodents, and birds. This game was stalked/pursued/trapped by individuals and communal hunting groups. Blinds, pits, bows and arrows, throwing sticks, nets, snares, and traps were used to procure game. Communal hunts using 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 communal men's sweathouses 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. All clan members jointly owned clan territory. 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 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 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 meat. Hunting played a minor role in the Mohave subsistence economy (Stewart 1983b, pp. 56–59).

Technology of the Mohave was relatively simple, with tools 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 was not heavily interested in trade.

The Mohave were culturally similar to the other River and Delta Yumans: the Quechan, Halchidhoma, Maricopa, and Cocopa. During ethnohistoric 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 Maricopa and the Halchidhoma

Ethnographic information for the Maricopa and 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 Halchidoma 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 Halchidhoma 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

The RSEP is located in an area that has historically been and remains remote from centers of development and settlement. The primary historic themes in this discussion focus on Spanish and Mexican routes through the desert, early American traffic, mining, transportation, military training, power transmission, and agriculture/ranching.

Transportation

Spanish and Mexican Routes through the Desert

Sixteenth-century maritime Spanish explorer, Hernando de Alarcon, made the first Euroamerican incursion into the region in 1540, ascending 85 miles up the Colorado River to a point near present-day Yuma. Alarcon was sent to supply Coronado's land

expedition that had set out on foot from Compostela, Mexico, in search of the fabled seven cities of gold. He eventually cached the supplies and departed after waiting many days. Melchior Diaz, leading a small contingent of Coronado's land unit, later arrived and recovered the supplies. Both Alarcon and Diaz noted the bleak nature of the country. The interior of the Colorado Desert was not explored further until 1702 when Father Eusebio Francisco Kino, a Jesuit missionary from Sonora, began seeking an overland route to coastal California (Rice et al. 1996; Hague 1976; Warren 1980, pp. 83–88).

Nearly seventy years later, Francisco Garcés (a Franciscan Padre) also seeking a route to the coast, forded the Colorado River at the mouth of the Gila River, and went west through the desert before turning back. His efforts were eventually rewarded in March 1774, when he arrived at Mission San Gabriel, accompanying the expedition of Captain Juan Bautista de Anza (Rice et al. 1996, Hague 1976). In 1779, two mission outposts were subsequently established near present-day Yuma to minister to the native Quechan, and strengthen Spain's hold on this strategic point of entry into California. All passage along this route, later known as the Anza or Yuma Trail, was discontinued in 1781 when the Quechan revolted, killing over thirty missionaries, settlers, and soldiers, including Garcés.

Early American Trans-Desert Crossings

In 1846, during the opening stages of the Mexican-American war, General Stephen Watts Kearny led an advance column of the United States Army into the southern California desert. From Santa Fe, Kearny's troops entered California by way of Yuma, reaching San Diego in December, having abandoned their wagons shortly after crossing the Rio Grande. The war ended in 1848 with the signing of the Treaty of Guadalupe Hidalgo, ceding California and the adjacent Southwest to the United States.

Only days after the Mexican-American War ended, gold was discovered in California, beginning the Gold Rush. It is estimated more than 100,000 travelers entered California by way of the Yuma Crossing.[6] The presence of so many travelers along this route highly impacted the desert. Whereas previous expeditions made the journey in isolation, during the Gold Rush, trails became de facto highways. Companies of miners frequently encountered one another, or encountered recently vacated campsites. The desert floor also became littered with articles abandoned when they either fell apart or proved too heavy or cumbersome for transport. Broken wagons, furniture, articles of clothing, tools and even weapons left by the side of the road became a bonanza for scavengers (Lamb n.d.).

After 1851, travel to California along the southern route through the Colorado Desert declined (Lamb n.d.). Horse traders and livestock drovers still used the trail to drive herds from Texas and Mexico to California, and the U.S. Army continued to send caravans of provisions from San Diego to its outpost Fort Yuma, at least until 1852. Emigrants, moving west, however, were more apt to be settling in Southern California as farmers or ranchers rather than prospecting for mineral resources.

[6] http://www.yumaheritage.com/history.html

The Weaver Route/Trail

Sometime during the 1850s, Pauline Weaver, a mountain man, scout, rancher, and miner, blazed a trail across the desert to the Colorado River. The route appears to have passed by Rice (von Till Warren and Roske 1981, p. 20), following in part the route of current Highway 62. Weaver kept his route a secret, and it was little used. He may have been shown the route by local Native Americans whom he had lived among.

Automobile Roads

Automobiles began replacing buckboards (four-wheeled wagons drawn by a horses or mules) about 1910.[7] Because of bad roads, the high-centered Model-T was the vehicle of choice. At that time, no maps, road signs, or service stations existed. Venturesome motorists in Southern California, faced with these circumstances, banded together in 1900 to form a touring club, and began publishing a monthly magazine with tips on travel and directions to popular destinations (Warren 1980, p. 92). Because desert driving could be perilous, motorists began advocating for better information and road assistance. In 1917, the U.S. Geological Survey erected signs directing travelers to water at 167 localities in California's desert (Thompson 1921).

The California Department of Engineering, after paving its first auto road in 1912, began issuing maps in 1918 (Warren 1980, p. 92). Roads remained unpaved for the most part through the 1920 with the exception of a two-mile wood planked section between Brown's Well and Blythe Junction (Brown 1920, pp. 64-65, fig. 1; 1923, pp. 180-181, fig 11). A decade later, during the construction of the Colorado River Aqueduct, Parker Dam Road (renamed California State Route 62 in 1970became part of the paved road network (Metropolitan Water District 1941, p. 25). This road runs along the northern boundary of the Project.

Railroads

Many rail lines cross the Mojave and Sonora Deserts including the Union Pacific, the Central Pacific (CP), the Southern Pacific (SP), and the Atchison, Topeka, and Santa Fe (ATSF). Of these railroads, lines formerly part of the ATSF run parallel to and north of the RSEP ownership property. The ATSF was initially established in 1860 to run from Atchison and Topeka, Kansas to Santa Fe, New Mexico (Bryant 1974; Marshall 1945; Waters 1950). After completing this mainline segment, the railroad quickly expanded both east and west.

Between February 1882 and August 1883, the Atlantic and Pacific (AP) Railroad constructed a line between Mojave and Needles, California (Myrick 1963, pp. 762-793). Crossing the southern Mojave Desert, the railroad passed through Barstow, Ludlow, Amboy, Cadiz, and Goffs. From Needles the route proceeded east across north-central Arizona and New Mexico to Albuquerque, New Mexico. Operating control of the Mojave Desert portion of the line immediately passed to the SP.

The following year, an agreement was reached turning control of the AP over to the ATSF. During the rest of the 1880s, the ATSF expanded its presence in California,

[7] http://www.dustyway.com/2008/12/desert-driving-in-early-days.html

reaching San Diego and San Francisco. Needles and Mojave became important operational centers. Two decades later, ATSF recognized a need for a line from Phoenix into California (Bryant 1974, pp. 186-187; Marshall 1945:p. 183, pp. 267-268; Myrick 1963, p. 792; Waters 1950, pp. 357-358). Beginning in March 1904, construction began along the 100-plus miles across western Arizona. Progress was slowed by a shortage of workers who could withstand the heat. Parker was finally reached on June 17, 1907.

Construction of a bridge across the Colorado River was difficult, and was not completed until Summer 1908. The national recession (i.e., "panic") of 1907 further delayed construction of the 82-mile segment from Parker via Rice to Cadiz. It finally was completed on July 1, 1910. During 1916, the 41-mile Palo Verde branch line was built by the California Southern Railroad. It extended from Rice (originally known as Blythe Junction) south to Blythe.

Harnessing the Colorado - The Colorado River Aqueduct

The paucity of water in the Southern California desert made agriculture a challenge. Plans to improve matters began as early as the 1880s. Thomas Blythe, an investor from San Francisco, backed construction of a canal in the Palo Verde Valley,[8] 65-miles south of the RSEP. Water, taken from a swamp area called Olive Lake, was used to irrigate pasturelands and small agricultural plots. With Blythe's death in 1883, no further agricultural development in the valley occurred, until the turn of the century. In 1904, the Palo Verde Land and Water Company purchased the Blythe Estate, and began constructing additional canals and intake structures. Two years later, the California state legislature was petitioned to pass the Palo Verde Irrigation District Act to better administer irrigation and drainage.

The Colorado River Aqueduct, which runs immediately north of Rice, was part of a series of 20th century projects designed to utilize water from the Colorado River for agricultural and urban development. Although schemes to appropriate Colorado River waters began as early as 1859, it was not until the first decade of the 20th century that a significant effort was made to harness the Colorado (Starr 1990, Chapter 2; Stevens 1988, pp. 10-16). Private developers formed the California Development Company, and dug a canal to convey Colorado River water to irrigate farms in the Imperial Valley. Following completion of the canal in May 1901, over 10,000 people came to the Imperial Valley during the next three years. Problems with silting and seasonal water supplies led to construction of a new canal without a headgate in 1904.

Disaster struck in Spring 1905 when a series of Colorado River floods overwhelmed the canal. The river began cutting a new channel into the Imperial Valley, with its waters forming the Salton Sea. When efforts to return the Colorado to its original course failed, the California Development Company turned to the Southern Pacific Corporation for financial and engineering assistance in June 1905. After spending $3.1 million, the SP finally returned the river to its former course in February 1907.

[8] http://www.pvid.org/History.html

Following the 1905-1907 disaster, continuing problems with siltation, floods, and seasonal lack of water plagued Imperial Valley farmers. During the 1910s, it was increasingly evident that a dam(s) on the Colorado was needed to control flooding and provide dependable water storage, along with construction of a new water delivery system to the Imperial Valley (Hundley 2001, pp. 211-234; Starr 1996, Chapter 11; Stevens 1988).

In April 1922, the Swing-Johnson Bill for the Boulder (i.e., Black) Canyon Project was introduced in the U. S. Congress. A subsequent U.S. Supreme Court decision (*Wyoming vs. Colorado*) held that the doctrine of prior water appropriation governed water allotments from a shared water source to individual states. This produced immediate opposition to the Boulder Canyon Project by six of the seven states located within the Colorado River Basin, who feared that California would obtain most of the basin's water as a consequence of the court decision.

In November 1922, U.S. Secretary of Commerce Herbert Hoover presided over a conference attended by representatives from the seven Colorado Basin states. The resultant Colorado River Compact established formulas for sharing and distributing Colorado River water and hydroelectric power. After several years of political maneuvering by basin states and further amendments, the terms of the compact were approved by six states, and ratified by Congress. In December 1928, Congress passed the Boulder Canyon Project bill.

One of the first acts of Herbert Hoover's presidency in early 1929 was to authorize the Boulder Canyon Project to proceed. In March 1931, the $48 million construction contract was awarded to the Six Companies. With Frank Crowe as construction supervisor, work on Hoover Dam immediately began. Dedicated at the end of September 1935, the dam provided a massive storage facility for Colorado River water in Lake Mead, effectively ending downstream flooding, and ensuring a year-round water supply.

William Mulholland, anticipating the high demand for water in Southern California, began sending survey crews into the desert in 1923 to find an aqueduct route to transport water from the Colorado River to the coastal plain (Hundley 2001; Metropolitan Water District 1941; Mulholland 2001; Starr 1996, Chapter 11). In 1928, fearing droughts and future water shortages, 13 Southern California cities (Los Angeles, Burbank, Glendale, Pasadena, San Marino, Beverley Hills, Santa Monica, Torrance, Compton, Long Beach, Fullerton, Anaheim, and Santa Ana) formed the Metropolitan Water District of Southern California (MWD). During November-December 1930, the Parker route for the aqueduct was adopted. On September 29, 1931, by a five-to-one margin, MWD voters approved a $220 million bond issue to construct the Colorado River Aqueduct.

Construction was completed on October 14, 1939. The first water reached Southern California's coastal plain in June 1941. The aqueduct is recognized as one of the engineering marvels of the modern world, and was nominated as a National Historic Engineering Landmark by the American Society of Civil Engineers.[9,10] It involved the

[9] http://www.mwdh2o.com/mwdh2o/pages/about/history4.swf

labors of an estimated 35,000 people.

A portion of this aqueduct runs along the northern edge of the RSEP ownership property. It is a concrete-lined canal, 20-55,12 feet wide and 11,71 feet deep (Metropolitan Water District 1941, pp. 36-37 (map), 39). The Colorado River Aqueduct was constructed between 1933 and 1941 (Hundley 2001, pp. 227-234; Metropolitan Water District 1941; Starr 1996, Chapter 11). It runs 242 miles from Lake Havasu on the Colorado River to Lake Matthews in western Riverside County, using five pumping plants, 92 miles of tunnels, 63 miles of concrete-lined canals, 55 miles of concrete conduits, and 144 siphons, totaling 29 miles. Parker Dam, impounding Lake Havasu on the Colorado River was built between 1934 and 1938 (Hundley 2001, pp. 229-230; Reisner 1993, pp. 257-259).

Mining

Riverside County is known mostly for sporadic, small-scale mining of gold, silver, lead, copper, uranium, fluorite, and manganese. Shumway et al. (1980), provide an overview of mining in region, focusing on areas adjacent to the project area. Large numbers of prospectors were attracted to the region during the gold boom in La Paz, located in western Arizona approximately six miles north of present day Ehrenberg, in 1862. During 1865, the Mule Mountains, approximately 90 miles south from the project area, became the first discovery of gold in Riverside County. Not long after, miners began prospecting in the mountains located on either side of the Rice Valley. As early as 1865, iron ore was being mined in the Eagle Mountain District southwest of the RSEP.

The RSEP project area is surrounded by a number of mining districts. They include the Arrow (90 miles northwest of the project), Freeman (located 40 miles northwest of Project Area from the Old Woman Mountains east to the Chemehuevi Mountains), Chemehuevi (northeast of Project Area, approximately 30 miles, within the Whipple Mountains), Copper Basin (also located in the Whipple Mountains), and Sunrise (roughly 15 miles north in the Turtle Mountains) Districts (Shumway et al. 1980). In addition, several local mountain ranges also have produced significant commodities, including the Arica and Little Maria mountains.

The Arica Mountains, roughly 5 miles southwest of the RSEP was heavily mined for gold and copper, along with small amounts of lead, silver, and iron. Lum Gray and John L. Thomas Brown were the first prospectors in the area, and discovered gold in 1894. Lum went on to develop the Onward Claim with this brother (Shumway et al. 1981). By 1912, this area was known as the Arica group of claims,[11] and was operated by Lum's son, Jack Gray. In March 1913, the mines were leased to J.V. Priest, of Assets Realizing Mines Company, who set up a mill, and pumped water from Brown's Well three miles away. The mines continued to change hands over the years, and

[10] The Los Angeles Aqueduct, which conveys water 238 miles from the Owens River on the east side of the Sierra Nevada Mountains, was mastermind of William Mulholland and his associates. Their deceptive tactics were used to obtain Bureau of Reclamation water rights and subsequently secure a bilateral monopoly of one buyer and one seller (the Los Angeles Water Board and the Owens Valley Irrigation District). Construction began in 1908 and was completed in 1913.

[11] Other mines in the area include: Brown Mine North, Brown Mine, Mountain Queen, Randolph and Hamilton, and other unnamed prospects.

experienced limited periods of operation.

Rock salt was mined at Danby Lake, 15 miles to the west/northwest (Bailey and Aubury 1902; Ver Planck 1958). From 1890 to 1894, one of the earliest rock salt mining operations in California was conducted by the Crystal Salt Company, which had prospected in 1882. Most of the salt was shipped to mines at Calico by steam traction wagons. Subsequent mining occurred on a smaller scale during World War I, the 1920s, and from 1934 to 1942. In addition, sizeable sustained gypsum mining began in the early 1920s in and around Midland, 15 miles due south of the project area, in the Little Maria Mountains (Murdoch and Webb 1956; http:vredenburgh.org). A railroad from the Palo Verde Valley to Rice (formerly Blythe Junction) and south to Midland was eventually built by 1916 to import supplies and export gypsum.

A review of the BLM's National Integrated Land System (NILS) GeoCommunicator website,[12] shows that the majority of the RSEP project area lacks prior disturbance by mining activities. Some mining may have occurred along the western boundary of the RSEP ownership property (mostly mining associated with the Arica Mountains.

Former Community of Rice

Rice, originally named Blyth Junction, was a small community, adjacent to a subdivision and siding on the AP/ATSF Railroad (Brown 1920, pp. 64-65, fig. 1; 1923, pp. 180-181, fig. 11). A well, which ultimately was abandoned, was driven to 355 feet to provide water for railroad locomotives (Brown 1923, pp. 88-101). In the late 1910s-early 1920s, the community had a post office, Blythe Junction, open from November 5, 1910 to September 30, 1916 (Frickstad 1955, pp. 138), and provided water, meals, and sometimes gasoline and general supplies to desert travelers (Thompson 1921, pp. 223-225). During the mid-1930s, Rice had about 15 inhabitants, and a two-pump Shell gasoline station run by the Weaver Family. The Rice Post Office was open between March 1, 1933 and May 31, 1943, and was reestablished on July 1, 1946, closing again at a later date sometime after 1955 (Frickstad 1955, pp. 145).

A Union 76 service station, now in ruins, was open until the late 1970s. Currently, Rice is a vacant site with no standing structures or residents. Along the right-of-way of the Arizona and California Railroad (formerly the ATSF), travelers along Highway 62 have spelled out their names and other forms of graffiti with ballast stones taken from the railroad grade.

Military Activities

19th Century- Camp Cady

With the increase in traffic along southern California desert routes, the U.S. government thought it necessary to establish military outposts to protect travelers from Native American attacks. Major facilities were established at Fort Yuma from1850-1883, Fort Mojave (1859-1890), and Camp Cady between, 1860 to 1871 (Hart 1965, pp. 57-60, 112-115, 124-126; Ruhge 2005, pp. 408-411, 445-447, 470-475; Waitman 1954, 1968).

[12] http://www.geocommunicator.gov/GeoComm/index.shtm

By order of General N.S. Clarke, Camp Cady was established on April 14, 1860, roughly 130 miles northwest of Rice Army Air Field. This camp was not intended to be permanent, and therefore, Major Carleton only constructed temporary shelters made of grasses for his men. Carlton subsequently established Fort Beale as a subpost of Camp Cady. This installation was located about 10 miles north of Goffs.

Camp Cady was officially re-activated on April 23, 1865, housing Company C, 4th California Volunteer Infantry for a little over a year until July 6, 1866. Before this time, the only "structures" at the camp were hastily made brush shelters. After 1866, permission was received to construct 35 adobe buildings (Hart 2009). Despite this, the government attempted to close the camp during the same year, but public pressure for continued military protection was too strong. Later in 1866, five soldiers were killed. Threats to the area required continual patrols and wagon train escorts increasing the number of soldiers in the camp to 120 men.

Eventually the need for Camp Cady was less important, and it was moved one-half mile west in 1868 to a location with sufficient area for a parade ground, which was not possible at its former site. In 1868, the number of troops was cut in half as safer, more efficient, travel routes were established elsewhere. Finally in 1871, the camp's buildings were sold to civilians, and used by missionaries.

20th Century Military Activities

The Desert Training Center

In 1942, during World War II, General George S. Patton established the Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA) in a sparsely populated region located in southeastern California, Arizona, and Nevada. Its purpose was to prepare tank, infantry, and air units for the harsh conditions of North Africa by practicing maneuvers, developing tactics, and field testing equipment (Bischoff 2000; Crossley 1997; Howard 1985; Meller 1946). The installation, operated for two years, was originally 10,000 square miles in extent, reaching 28,000 square miles by mid-1943 (Crossley 1997). The facility was the first simulated theater of operations in the United States. Its location was chosen for its unforgiving desert heat, rugged terrain, telephone communications system, accessibility by established railroads and highways, and its proximity to the Colorado River Aqueduct that ensured a reliable water supply (Bischoff 2000; Corssley 1997; Henley 1992, pp. 5–7; Howard 1985, pp. 273–274).

A number of military camps were established in California, Nevada, and Arizona (Bischoff 2000; Crossely 1997; USACCE 1993). California installations included Camps Clipper/Essix, Coxcomb, Desert Center, Goffs, Granite, Iron Mountain, Ibis, Ono, Pilot Knob, Rice, and Young. Camp Young, near Indio, served as the main headquarters, activated on April 28, 1942. Army Air Fields were established at Blythe, Desert Center, Rice, Shavers, and Thermal. Between 1942 and 1944, 20 divisions, 13 infantry and 7 armored, participated in maneuvers at the Desert Training Center. With the exception of one National Guard division, all were Regular Army formations (Crossely 1997). Training followed an eight-week regimen.

Throughout its existence the Desert Training Center, renamed the California-Arizona Maneuver Area in October 1943, experienced logistical problems with obtaining supplies and transporting troops, compounded by a chronic lack of service units. As a result, the War Department closed the facility in April 1944, turning it over to the 9th Service Command which policed the area, closed the camps, and collected/salvaged all equipment and materials. Following the end of World War II, little was left of the post's facilities, except foundations, road grids, and other features.

Camp Rice

Camp Rice was a divisional camp of the DTC/C-AMA, located three miles east of the community of Rice, California, immediately adjacent to Rice Army Air Field (AAF). As with all divisional camps, Camp Rice was constructed as a temporary facility to create a realistic wartime conditions training atmosphere for stationed military personnel. Built during early 1942, the camp housed the 5th Armored Division from August to October 1942. Men of the 6th Armored Division resided there from November 1942 to March 1943 (Bischoff 2000, p. 84). Training included field exercises such as night movements use of firing ranges, anti-aircraft firing, and training with anti-tank weaponry (Meller 1946, p. 60). The 6th Armored participated in training exercises with the 4th Armored in early 1943. Shortly following this exercise, the division was moved to Camp Coxcomb, located southwest of Camp Rice. This facility had better amenities for the troops (Fergusson and Calvit 2009, p. 2-12).

Rice Army Air Field

Rice Field pre-dated World War II. It began as a municipal airport for the community of Rice constructed sometime after 1932 (Freeman 2010). A decade later, the airport was acquired by the 4th Air Support command and was in military use by October 26, 1942. As part of the combat training, the Army Air Force and the Army Service Force were included, serving as support to Army Ground Forces (AGF).

Air squadrons were primarily assigned supporting roles to the ground units, providing tactical support and generally creating a realistic combat environment (Blake, 1996). During maneuvers and other training operations, planes flew low over the troops in order to prepare them for strafing in actual combat. Air crews also practiced bombing and gunnery on several ranges spaced throughout the DTC/CAMA. For the most part, air-to-ground gunnery practice was focused on the toes of nearby mountains (Hazenbush, 1944).

A variety of airplanes were used. L-1 and L-4 Piper Cubs were common for surveillance, proving invaluable in spotting enemy units and directing artillery fire more effectively. Low flying, twin-engine A-20 Havoc attack airplanes (light bombers) were perhaps the most frequently encountered by ground troops. Because of the presence of these aircraft, small units learned the importance of camouflage, dispersion, and the digging of slit trenches. In several instances, C-50 cargo planes were used to supply troops during maneuvers. Douglas C-47, P-39 Airacobra, P-40 Warhawk, and P-38 Lightning were also known to have been used at the DTC/CAMA.

The Rice AAF had two 5,000-foot runways and numerous dispersal pads. The airfield contained barracks, recreation and mess halls, powerhouses, and support facilities to

house 3,000 men. By 1943, 4,000 men were reportedly stationed there (Bischoff 2000, p. 93; Fergusson and Calvit 2009, p. 2-10). The 836th Engineer Aviation Battalion was temporarily stationed in adjacent Camp Rice to assist in construction/improvement of the airfield before being moved to Camp Young which had better amenities.

After the DTC/C-AMA was closed on April 30, 1944, Rice AAF was assigned to March Field as a sub-base. It ceased operating on August 2, 1944. In 1949, the field was reopened as a civilian airport. The air field was privately owned from 1951 through 1955. Its final abandonment occurred sometime between 1955 and 1958 (Freeman 2010).

Operation Desert Strike

During the Cold War years, relations between the United States and the Soviet Union were fragile. While a campaign promoting the nonproliferation of nuclear weapons began in 1958, a treaty was not signed until 1970. Amid worries of nuclear war, a two-week training exercise occurred in 1964 called Desert Strike. It involved over 100,000 men, 780 aircraft, 1,000 tanks, and 7,000 other vehicles ranging over 150,000 square miles in California, Nevada, and Arizona, along the banks the Colorado River and adjoining desert valleys (Garthoff 2001, p. 199; Nystrom 2003). Four Army divisions, three Army Reserve and National Guard brigades, and fifteen tactical Air Force squadrons participated in the exercise.

The exercise was a two-sided enactment, with fictitious world powers "Calonia" and "Nezona" sharing a common border along the Colorado River. The premise of the conflict between these two entities, each led by a Joint Task Force, was a dispute over water rights. Major tactical operations during the exercise included deep armor thrusts, defensive operations along natural barriers, counterattacks including airmobile and airborne assaults, and the simulated use of nuclear weapons. The Air Force provided fighter, air defense, interdiction, counterair reconnaissance, and troop carrier operations in support of both joint task forces (Desert Strike n.d., p. 316).

In the first phase of Desert Strike, Calonia initiated mock battle with a full-scale invasion of Nezona. A new technique for military river crossings was put into operation during this invasion. It was accomplished with a combination of assault boats, amphibious armored personnel carriers, ferries, bridges, and fords at eight major sites across a 140-mile long stretch of the Colorado River. Attack and counterattack continued into a second phase during which simulated nuclear strikes and airborne assaults occurred. Heavy equipment, such as M60 tanks, was used during the maneuvers, and their track marks can still be seen across the desert (Prose and Wilshire 2000).

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 Energy Commission 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. It also provides a brief description of cultural resource types identified by the applicant. Thus, the inventory consists of the body of resources the applicant identified in the AFC, 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 project's impacts are presented in a separate subsection below.

Area of Potential Effects

The concept and general definition of the Area of Potential Effects (APE),similar to the CEQA project area for the purpose of analysis, are discussed under "Methodology and Thresholds for Determining Environmental Consequences. Archaeological and built-environment APEs are defined below for the RSEP, considering both the horizontal and vertical dimensions (above and below ground) of the project.

Archaeological APE

For archaeological resources, staff has defined the horizontal extent of the APE to include the project ownership property; the CEC mandated minimum 200-foot buffer around the ownership property, the approximately 10-mile long generator tie-line with an associated 100-foot buffer, substation with a 100-foot buffer, and the fiber optic telecommunications line that will replace the existing ground wire along the Parker-Blythe No. 2 - 161kV Transmission Line. Following these CEC mandates, the RSEP horizontal archaeological APE encompasses a total of 4,002-acres (3,772.8 for the ownership property/generator tie-line/switchyard and 228.9 for the buffer area) and 2,291 acres for the fiber optic overhead groundwire replacement (764 acres in the existing right-of-way and 1,527 acres for the buffer area).

The archaeological APE is located on the following USGS 7.5-Minute Quadrangles: *Big Maria Mountains NW, California* (1971), *Grommet, California* (1971), and *Rice, California* (1983), *Gene Wash, California-Arizona* (1959), *Cross Roads, California-Arizona* (1977), *Parker, Arizona-California* (1975) , *Parker NW., California* (1975), *Parker SW., California-Arizona* (1975), *Vidal, California* (1975), *Big Maria Mountains SW, California* (1972), *Mc Coy Wash, California* (1975), and *Ripley, California* (1975).

The study area is located in portions of the following survey sections: Township 1 South, Range 20 East: Sections 24 and 25; Township 1 South, Range 21 East: Sections 19, 20, 29, 30, 33, 34, and 35; Township 2 South, Range 21 East: Sections 1 and 2; Township 2 South, Range 22 East: Sections 6 (presumed), 7, 8, 16, 17, 21, and 22); Township 2 North, Range 27 East: Sections 4, 5, 8, 17, and 18; Township 2 North,

Range 26 East: Sections 13 and 24; Township 2 North, Range 26 East: Sections 22, 23, 24, 27, and 28; Township 2 North, Range 26 East, Sections: 28, 31, 32, 33; Township 1 North, Range 26 East, Section: 6; Township 1 North, Range 25 East, Section: 1, 10, 11, 12, 15, 16, 17 (presumed), 20 (presumed); Township 1 North, Range 25 East: Sections 19 (presumed), 20 (presumed), and 30 (presumed); Township 1 North, Range 24 East: Sections. 25, 26, 33, 34, and 35; Township 1 South, Range 24 East: Sections 4, 5, 6, and 7; Township 1 South, Range 23 East: Sections 12, 13, 14, 15, 21, 22, 29, 31, and 32; Township 2 South, Range 23 East: Section 6 (presumed); Township 2 South, Range 22 East: Section 1 (presumed), Township 2 South, Range 22 East: Sections 1 (presumed), 2 (presumed), 11 (presumed), and 14 (presumed); Township 2 South, Range 22 East: Sections 14 (presumed), 15 (presumed), 22 (presumed), 27 (presumed), 33 (presumed), and 34 (presumed); Township 3 South, Range 22 East: Sections 4, 8, 9, 17, 20 (presumed), and 29 (presumed); Township 3 South, Range 22 East: Section 32 (presumed); Township 4 South, Range 22 East: Sections 5 (presumed), 6 (presumed), 7 (presumed), 18 (presumed), 19 (presumed), 30 (presumed), and 31 (presumed); Township 5 South, Range 22 East: Sections 5 (presumed), 6 (presumed), 7 (presumed), and 8 (presumed); Township 5 South, Range 22 East: Sections 8, 17, 20, 29, 32, and 33; Township 6 South, Range 22 East, Sections 4, 9, 16, 21, and 28; Township 6 South, Range 22 East: Sections 29 and 33.

The archaeological APE also includes a vertical dimension determined based on the maximum depth that would be reached by all foundation excavations and pipeline trenches. At the time of the submitted AFC, the structures included in the RSEP proposal include pipe racks, a turbine, water tanks, a liquid salt tank, heliostats, and the central tower/receiver. The maximum depth (below finished grade) for these structures is roughly 20 feet and the minimum depth (below finished grade) is 12-inches. At the time of these plans, a grading strategy had not been put into effect – to date, cut and fill depths, at various locations across the site, are presumed to between 0 and 8 feet. The previously mentioned structures will have vertical heights and depths as follows: turbine with a mat foundation[13] and height of 8 feet; water tanks with a 2-foot deep foundation and height of 30-feet; two liquid salt tanks also with a 2-foot deep foundation and height of 40-feet; the heliostat foundations may reach a depth of 10 to 12 feet and 33 inches diameter and a height above ground of 28 feet); and the central tower which will be situated on a donut shaped foundation with a height of 538-feet. The donut foundation (diameter of 115-feet) will have a central (immediately beneath the tower) depth of 20-feet and will thin out as it moves farther away from the middle, reaching a depth of 8 feet. If the fiber optics line is installed to replace the existing overhead ground wire the Parker-Blythe Transmission Line #2, it would be hung at a height of 60-70 feet, at the top of the H-frame wood pole structures.

Built-Environment APE

For built-environment resources, staff has defined the horizontal extent of the APE to include the project footprint and a surrounding half-mile buffer.

[13] In areas where shallow or mat foundations are planned and the existing grades are more than one-foot below the bottom of the footing, the upper ± 2-feet of existing soils should be over-excavated to expose firm, native soils, prior to placement of engineered fill.

Ethnographic APE

For this project, staff identified no ethnographic resources and so defined no APE for them.

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 to 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 eleven 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. The Project falls within the jurisdiction of the Eastern Information Center, which is housed in the Anthropology Department at the University of California, Riverside.

Rice Solar's cultural resources consultant, CH2MHILL, conducted a records search at the Eastern Information Center, University of California, Riverside and at the San Bernardino Archaeological Information Center on April 23, 2009. This study area included the project ownership property and 1-mile buffer. A 0.5-mile buffer was established around the generator tie-line.

Previous Surveys

Seven previous studies have been conducted within the 1-mile radius of the Project, three of which lie within the proposed RSEP archaeological APE (Ri-1690; Ri-7753; Sb-5332). Ri-1690 was a linear survey (for a seismic testing line in 1983) that crossed the RSEP ownership property in the southeast corner. Ri-7753 was a survey for the Parker-Blythe Transmission Line No. 2. Sb-5332 was conducted in the northeastern corner of the RSEP area (at the location of existing telecommunications towers); resources were identified. Two of the remaining studies (Ri-1210 and Ri-7172) were block surveys of varying sizes located outside of the project area, but within the 1-mile search radius. The Tennessee Valley Authority conducted Ri-1210, located north of the generator tie-line, roughly 1.7-miles northwest of the generator tie-in's southeastern terminus, to survey two uranium exploration sites. Ri-7172 was a small study conducted for the implementation of telecommunications equipments near existing towers. The two remaining reports, Ri-1211 and Ri-1244, consist of overview studies for Rice Valley and the surrounding areas.

Cultural Resources Table 2
Previous Surveys within the Study Area (Records Search Limits)

Report No.	Date	Within APE	Author(s)	Title
RI-7172 (25006A)	2003	N	Pletka	Cultural Resource Assessment for the AT&T Wireless Services Facility No. 25006A, Unincorporated Riverside County, California
RI-1690	1983	Y	Wilke	Negative Letter Report to BLM from the Archaeological Research Unit of the University of California Riverside
RI-1210	1981	N	Lippencott	A Cultural Resources Survey of Two Proposed Uranium Exploration Sites in Rice Valley, Riverside County, California
RI-7753	1998	Y	Schaefer	A Cultural Resources Inventory and Evaluation of the Parker-Blythe 161 kV Transmission Line No. 2, Riverside and San Bernardino Counties, California
RI-1211	1980	Y	Von Till Warren et al.	A Cultural Resources Overview of the Colorado Desert Planning Units
RI-1244	1978	N	BLM	Planning Unit Archaeological Survey Sample Unit Records
SB-5332	1999	Y	Duke	Cultural Resources Assessment for Pacific Bell Mobile Services Facility CM-688-01, County of San Bernardino, California

Previously Recorded Resources

The records search identified 81 previously recorded resources (64 prehistoric and 17 historical) within the RSEP study area, the vast majority of which are situated along the existing Parker -Blythe Transmission Line No. 2 (Cultural Resources Table 3 – Appendix A). Of these, 77 are located within the archaeological APE. The prehistoric sites include 29 trail segments (two with associated petroglyphs, several with associated lithic scatters and/or quarries), 26 lithic scatters, 7 quarry sites, one geoglyph, and one ceramic scatter. The historical sites include 3 small unnamed temporary Desert Training Center camp sites, Camp Rice, 2 mining camps, two historic roads, the Atchison-Topeka-Santa Fe Railroad, the Colorado River Aqueduct, the structural remains of a former Vidal power substation, and 6 refuse scatters and/or dumps.

Archival and Library Research

Detailed resource-specific information needed by staff may entail primary and secondary research in various archives and libraries. 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.

As such, CH2MHILL also visited the General Patton Memorial Museum (on July 30, 2009) in order to learn more about regional history[14]. CH2MHILL also performed other archival research including the examination of historic topographic maps including: several iterations of *Rice, California* (War Department 1:62,000 scale, 1943; War Department 1:62,5000 scale, 1943; USGS 1:62,500 scale, 1954; USGS 1:34,000 scale, 1977) and *Big Maria Mountains* (USGS 1:62,5000 scale, 1951). In addition, other historic maps were referenced online from California State University, Chico and University of Alabama. Also reviewed were maps from the Malcolm Rogers collection on file at the Museum of Man in San Diego.

Staff executed additional archival research, visiting the University of California, Davis Shield Library and conducted additional online searches for historic maps depicting the project area. The following maps were examined:

- Beale (1861), Map of Public Surveys in California, Scale 1:1,140,000.
- American Photo-Lithographic Company (1865), California, Scale 1:5,069,000.
- Asher and Adams (1872), California and Nevada- South Portion, Scale 1:1,267,000.
- Williams (1873), Map of California and Nevada, Scale 1:3,485,000.
- Colton (1873), Colton's California and Nevada, Scale 1:2,091,000.
- Mitchell (1875), Map of the State of California, Scale 1:2,408,000.
- Hardesty (1882), Map of California and Nevada, Scale 1:2,000,000;
- Hardesty (1883), Map of Southeastern California, Scale 1:1,140,000.
- Rand McNalley (1884), California, Scale 1:2,028,000.
- Punnett Brothers (1897), Map of the State of California, Scale 1:2,218,000.
- Rand McNalley (1897), California, Scale 1:1,190,000.
- U.S. Geological Survey (1914), Lithologic Map of California, Scale 1:2,000,000.
- Smith (1916), Geological Map of the State of California, Scale 1:760,320.
- Executive Order 11652, Section 3(E) and 3(D) or (E) (1972), Arizona-California-Nevada Desert Training Center Maneuver Area, Sheet 5.
- U.S. Geological Survey (1978), Rice Quadrangle, Scale 1:24,000.
- War Department (1944), California, Scale 1:62:500.

Local Agency and Organization Consultation

California counties and cities may recognize particular cultural resources as locally historically important by ordinance, in general plans, or by maintaining specific lists. 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.

[14] The General Patton Museum is located at Chiriaco Summit near Desert Center and contains information about the Desert Training Facility and other military history related to the Project area.

CH2MHILL contacted various institutions requesting information for the ownership property and surrounding area. The following institutions were contacted by formal letter (dated October 8, 2009) General Patton Memorial Museum and Riverside County Historical Society.

Local Agency and Organization Consultation Results

CH2MHILL received no responses from the various institutions contacted. As portions of the RSEP falls on BLM land, a Fieldwork Authorization Request form was filed and approved. Contact with the CEC is ongoing to coordinate of project activities.

Native American Consultation

The 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.

CH2MHILL contacted the NAHC on August 31, 2009, requesting a list of local Native Americans who might have concerns about the RSEP and a search of the Sacred Lands Files for any known resources that might be affected by project impacts. The NAHC responded on September 9, 2009, indicating that that there were no known Native American cultural resources in the area and supplied CH2MHILL with a list of individuals representing local Native American communities. At the time of CH2MHILL's inquiry, the co-lead federal agencies (Western and BLM) had decided to conduct further consultation with the identified Native American tribes.

Steve Tromly of Western corresponded with local Native Americans by letters dated January 26, 2010 (initial consultation) and June 30, 2010 (project status up-date). Cultural Resources Table 4 provides a list of those contacted, their affiliations, and responses, if any. Among those contacted were individuals from the Ramona Band of Cahuilla Mission Indians, Twenty-Nine Palms Band of Mission Indians, the Chemehuevi Reservation, the Colorado River Indian Tribe Reservation, the AhaMaKav Cultural Society (Fort Mojave Indian Tribe), the Morongo Band of Mission Indians, the San Manuel Band of Mission Indians, and the Torres-Martinez Desert Cahuilla Indians. A tribal meeting and site visit was held on April 8, 2010, with representatives from three tribes (Fort Mojave, Fort Yuman-Quechan, and Twenty-Nine Palms Band) in attendance. These tribes expressed interest in conducting an ethnohistory study for the proposed project area. Western sent a Scope of Work for the study to the three tribes on April 12, 2010.

CULTURAL RESOURCES Table 4
Summary of Applicant's Native American Consultation*

Contact	Affiliation	Sent	Response
Joseph Hamilton	Ramona Band of Cahuilla Mission Indians	Letter	None to date
Darrell Mike	Twenty-Nine Palms Band of Mission Indians	Letter	None to date
Joseph R. Benitez	None provided by the NAHC	Letter	None to date
Charles Wood	Chemehuevi Reservation	Letter	None to date
Michael Tsosie	Colorado River Reservation Indian Tribes	Letter	None to date
Linda Otero	AhaMaKav Cultural Society, Fort Mojave Tribe	Letter	6/17/2010 – states that the tribe would like to stay involved with the progress of the RSEP
Michael Contreras	Morongo Band of Mission Indians	Letter	None to date
Ann Brierty	San Manuel Band of Mission Indians	Letter	None to date
Diana L. Chihuahua	Torres-Martinez Desert Cahuilla Indian	Letter	None to date
Ernest H. Silva	Morongo Band of Mission Indians	Letter	None to date

* Notice of project sent 1/26/10; Project Update with Cultural Results sent 6/30/10

Results of Inquiries Made to Native Americans

Western and CH2MHILL have received few comments to date. The Cultural Society director for the Fort Mojave Indian tribe requested continued consultation by e-mail on June 17, 2010. Consultation with the Tribes is ongoing.

Field Inventory Investigations

To facilitate the environmental review of their projects, CH2MHILL conducted surveys of the main project footprint (heliostat field) and gen-tie line (4,002 acres) to identify previously unrecorded cultural resources in both the archaeological and built environment APEs. The CH2MHILL survey included a pedestrian archaeological survey and a built-environment windshield survey. No survey of the Parker-Blythe Transmission Line No. 2 was conducted as it had been previously surveyed in 1997. The applicant also conducted a geoarchaeological study to determine the likelihood of encountering buried cultural deposits.

Results of Pedestrian Archaeological Survey

CH2MHILL performed the pedestrian survey of the RSEP between August 31 and September 16, 2009 (Fergusson and Calvit 2009). A four-member crew and one field director walked transects spaced no more than 15 meters. Identified sites (i.e., artifact groups of 5 or more items) were recorded, photographed and their positions determined with handheld global position system (GPS) unit. Isolates (i.e., artifact concentrations of 4 or less) were not recorded. Isolated features were recorded as sites. An arbitrary

distance of 50-meters between artifacts and features or a change in landform was used to create boundaries between individual sites.

Cultural Resources Identified

CH2MHILL survey team recorded two new resources: an historic road segment along the transmission generator tie-line, and the Rice Army Air Field (AAF). They also recorded features at the western periphery of previously recorded Camp Rice, producing a site record update. They found 141 archaeological features and 98 artifact concentrations associated with the RAAF/Camp Rice (Fergusson and Calvit 2009, pp. 5:1-9). Documentation consisted of a listing of features/concentrations, very brief descriptions, a map of their locations, and some photographs. Feature forms were prepared of a representative sample of the features/concentrations (23%) identified during the field survey to demonstrate their general nature with the intent of completing the full documentation as part of the mitigation measures. Information on these features and artifact concentrations are presented in Cultural Resources Tables 5 and 6.

Historic Features

Rice AAF/Camp Rice contain 141 features including: 18 debris features (burned & unburned, piled or placed in pits); 14 earthen features (emplacements, a firing butt, a mound, and berms); 52 pits (unlined, rock lined, wood lined); 5 trenches; 31 concrete slabs (remnants of structures within the RAAF including, but limited to, kitchens, bathhouses, lavatory, barracks/officer's quarters, dispensary, headquarters, enlisted mess hall, and airfield operations building); 12 stone features (rock piles, rock alignments, aerial markers); and 9 miscellaneous features such as a drain, sign bases, sidewalk, wells, and wooden posts) (Cultural Resources Table 5, Appendix A).

Historic Artifact Concentrations

Artifact concentrations associated with Rice AAF include 39 localities, all of which are either refuse scatters or burned debris dumps, composed primarily of fuel cans, miscellaneous metal, paint cans, and food/beverage cans (Cultural Resources Table 6). Of these 39 locations, 27 (70%) are located within the receiver tower area and the remaining 12 (30%) are within the ownership property block. Fifty-nine artifact concentrations were found associated with the western periphery of Camp Rice. The majority (n=41) are debris scatters primarily comprised of food cans (i.e., sanitary cans, hole-in-top cans, food bottles, and army ration cans), but also glass, and construction debris. The rest are burned debris dumps. All are located outside of the solar tower outline, but within the ownership property boundary. (See Cultural Resources Table 6, Appendix A).

Results of Geoarchaeological Investigations

Geoarchaeological monitoring of a geotechnical investigation within the RSEP APE took place August 5, 2009 (Terracon 2009). Excavations of two test trenches were observed by Dr. Geoff Spaulding for presence/absence of paleosols, archaeological artifacts, or other evidence of archaeological deposition. Each trench was excavated to a depth of roughly 10 feet (~3-meters). Strata and stratigraphic boundaries were then described, identified, and recorded for each trench. Two alluvial units, each possesing several horizons, were identified. Trench 1 provided the most complete stratigraphic sequence.

The upper portion of Trench 2 was apparently removed during grading/construction of the RAAF and replaced by 16 to 30 cm of recompacted fill and rubble. From these observations, Spaulding concluded that the Holocene (the last 10,000 years) is restricted to roughly the top 20 cm. He also regarded it unlikely that subsurface archaeological resources exist within the project area.

Results of Windshield Survey for Built-Environment Resources

The field survey for the built-environment APE was conducted congruently with the archaeological resources survey (August 31 – September 16, 2009) (CH2MHILL 2009 5.3b, pp. 5-7). The CEC mandates a minimum 0.5 mile radius from the plan site and generator tie-line. The only structures over 45 years of age within the vicinity of the RSEP site are State Route 62, the Colorado River Aqueduct, and the Atchison, Topeka, and Santa Fe Railroad, all of which have been previously recorded and are outside the APE. As Rice AAF and Camp Rice structures were dismantled when they were closed, the architectural survey instead relied heavily on the literature review and historic aerials in order to create a complete context for the area (CH2MHILL 2009 5.3b, pp. 5-7).

Summary of Identified Cultural Resources in the Archaeological APE

A total of 77 sites are present within the APE, including both *previously* recorded resources and *newly discovered* ones identified during field investigations (Cultural Resources Table 7). Two of the resources, the Rice AAF and Camp Rice, contained numerous features and artifact concentrations, including refuse scatters, pits, and rock alignments [Cultural Resources Table 6 (Appendix A) and Table 7(see below)].

Cultural Resources Table 7
Summary of Cultural Resources within the Archaeological APE
(Previously Identified & Newly Discovered)

Site Era	Site Type	Total
Historic	Small Unnamed Military Camps	2
	Camp Rice	1
	Rice Army Air Field	1
	Mining Camps	2
	Roads	1
	Refuse Scatters/Dumps	6
	Historic Structural Remants	1
Prehistoric	Ceramic Scatters	1
	Geoglyphs	1
	Lithic Scatters/Quarries	32
	Trail Segments (some with lithics, quarries, geoglyphs, ceramics)	29
	Total	**77**

A summary of the resources within the archaeological APE is presented in Cultural Resources Table 8.

Cultural Resources Table 8
Summary of Features and Artifact Concentrations found within the Rice AAF/Camp Rice Facility Footprint portion of the APE

Aerial Markers	2
Barracks	1
Barrier	1
Berms	4
Burned Debris Dump/Pit	13
Charcoal Dump	2
Concrete Slab	28
Dirt Mound	1
Drain	1
Dump/Pile	2
Emplacement	8
Firing butt	1
Pit	18
Rock-Lined	20
Wood-Lined	2
Posts	1
Rock Alignment	4
Rock Pile	6
Septic Pit	1
Sidewalk	1
Sign Base	2
Trench	3
Rock-Lined	2
Wood-Lined	1
Well Features	2
Wood Posts	1
Burned Debris	6
Can Scatter	12
Construction Debris	2
Debris Scatter	18
Dump	1
Burned Debris Dump	1
Capped Well	1
Debris Scatter/Dump	2
Emplacement	1
Pit	7
Rock-Lined	1
Burned Debris	7
Can Scatter	14
Construction Debris	1
Debris Scatter	34
Glass Scatter	3
TOTAL	**238**

NRHP and CRHR Evaluations of Cultural Resources

Previously recorded and newly recorded resources are discussed below in separate subheadings, followed by discussions of two proposed cultural landscapes (the Desert Training Center and the Prehistoric Trails Network).

Previously Recorded Resources within the APE

All previously recorded resources along the existing Parker-Blythe Transmission Line No. 2 were evaluated by Schaefer et al. (1998). Their eligibility recommendations (eligible, not eligible, and indeterminate[15]) are assumed valid for the purposes of this Staff Assessment and are listed in Cultural Resources Table 9, Appendix A. It is acknowledged that these recommendations have not received concurrence from the Office of Historic Preservation. Of the 77 resources considered, 23 were recommended eligible for the NRHP, 35 were indeterminate (therefore possibly eligible), and 18 ineligible. The only other resource previously recorded within the APE (not recorded as part of the Parker-Blythe Transmission Line No. 2) is Camp Rice. It has not been evaluated.

Newly Recorded Resources

Two new resources were identified during the CH2MHill surveys of the RSEP heliostat field and gen-tie line: the historic Rice AAF and an unnamed, unimproved dirt road. In addition, new features and artifact concentrations, associated with the previously recorded Camp Rice, were also identified. The road, while still having physical integrity, does not appear to be significant, thus, for purposes of this analysis, is considered ineligible for both the NHRP and CRHR. Eligibility recommendations for Rice AAF and Camp Rice are discussed below.

Bischoff (2007), the Applicant's historian for RSEP, argues that the Rice AAF and Camp Rice should be considered eligible for listing in the NRHP, having sufficient integrity to reflect their important historical association with the DTC/C-AMA. He regards Rice AAF to be, by far, the best example of a DTC/C-AMA airfield. It was a multifaceted facility containing many important elements, still evidenced by elaborate, improved-surface runways, taxiways, dispersal pads, streets, rock-lined walkways associated with a tent area, and foundations for various temporary structures such as barracks, mess halls, kitchens, lavatories, bathhouses, operations,etc. Staff concurs with Bischoff's eligibility recommendations for both the Rice AAF and Camp Rice. These resources meet all NRHP Criteria A, B, C, and D (also CRHR Criteria 1-4). See next section, Desert Training Center Cultural Landscape, for discussion regarding each criterion, as the arguments for the specific facilities (Rice AAF and Camp Rice) and the DTC/C-AMA as a whole are similar.

Condition of certification **CUL-11** requires the creation of a Historic Interpretive Area, providing: (1) consistency with the requirements of the Warren-Alquist Act and (2) a portion of the mitigation for the loss of the majority of features associated with the Rice

[15] Resources listed as indeterminate are either: (1) very large lithic scatters with chipping station complexes that extended beyond the project ROW, precluding ability to record in entirety or to properly consider the archaeological context; or (2) resources that had been previously recorded and could not be relocated in 1998, possibly because they were originally mismapped or destroyed in the interim.

AAF and impact to Camp Rice. The Historic Interpretive Area would be located along the west side of the project's secondary access (fire access road), adjacent to several remaining artifacts of the Rice AAF (e.g., stem wall foundations and rock-lined paths), which would become part of an interpretive path. All sensitive site information related to the Rice AAF would be documented (and curated, if appropriate) prior to completion of the interpretive area and public access. Location of the Historic Interpretive Area at a considerable distance from the remaining Camp Rice would help limited additional public impacts to the Camp's remaining features.

Desert Training Center Cultural Landscape (DTCCL)

In 1986, the BLM planned to nominate each of the seven camps to the NRHP, to develop an interpretive program for the DTC/C-AMA, and to provide historical resources protection through designation as an Area of Critical Concern (ACEC) (Bischoff 2000, p. 134). Bischoff (2000, p.133; 2007, p.159-160), developing an historical context for the DTC/C-AMA, concluded it was a significant resource under all four criteria of the NRHP.

In a later publication, Bischoff (2007, p.159) argues that the DTC/C-AMA meets Criterion A being associated with events that made a significant contribution to the broad patterns of our history. The DTC/C-AMA was one of a kind in U.S. military history. It was here that the tactical, strategic, and logistical doctrines were developed and refined and subsequently applied overseas. More than one million men trained here, representing more than ten percent of those serving in the war. The training left a lasting impression on them. Undoubtedly, this training contributed to the fighting capabilities of U.S. soldiers in WWII.

Under Criterion B, Bischoff (2007, p.159) argues that the DTC/C-AMAA is also associated with the lives of persons significant to our past. In this case, he argues that several preeminent figures in the U.S. Army served there and helped shape the facility. General George S. Patton, one of the best-known military figures of the twentieth century, was instrumental in the development of the training center. Other famous military personages included General Walton Walker, General Terry Allen.

Under Criterion C, Bischoff (2007, p.160) argues that the DTC/C-AMA, with its unique layouts of camps and airfields, embodies a distinctive characteric of a type, period, or method of construction.

Lastly, Bischoff (2007, p.160) argues that the archaeological resources (e.g., refuse deposits, the footprints of runways and landing strips, tank tracks, barracks foundations, foxholes, bivouacs), many of which have artifactual components, may yield information important to America's history of desert training during WWII, meeting Criterion D.

He recommends that the facility be nominated to the NRHP as a discontiguous district of clearly functionally- and temporally-related cultural resources. He further proposes that the facility be recorded as multiple properties consisting of contributing and noncontributing elements to the district. Consequently, the DTC/C-AMA can be thought of as an interconnected landscape of World War II training sites that are highly significant for their contributions to our understanding of how American soldiers were trained during World War II.

Energy Commission staff, Western, and BLM supports the designation of a noncontiguous cultural landscape (historic district) that incorporates historical archaeological sites associated with Gen. Patton's World War II DTC/C-AMA, to be known as the Desert Training Center Cultural Landscape (DTCCL). The NRHP guidance for districts and cultural landscapes requires identifying certain characteristics, including boundaries, one or more periods of significance, thematic associations, and property (resource) types. The boundaries of the DTCCL need to be refined, based on the historical record. The period of significance is 1942–1944. The thematic associations include the nation's preparation for World War II, U.S. Military Training, Gen. George S. Patton, Jr., and Gen. Walton Walker. The DTCCL site types include, but are not limited to depots, airfields, ranges, bivouacs, maneuver areas, camps, and hospitals.

Energy Commission staff, Western, and BLM recommend that DTCCL is eligible for listing on the NRHP under Criteria A through D (CRHR Criteria 1-4). The DTC/C-AMA was the largest and the only such military training facility in American military history. The training that took place here undoubtedly helped to win World War II. Contributors to this landscape associated with the RSEP include the following: Rice AAF, Camp Rice, two other small military training camp sites and a military refuse dump (Cultural Resources Table 10).

Prehistoric Trail Network Cultural Landscape (PTNCL)

Energy Commission staff, Western, and BLM supports the designation of a noncontiguous cultural landscape (historic district) that incorporates prehistoric archaeological sites associated with the Halchidhoma Trail (CA-Riv-0053T) referred to here as the Prehistoric Trails Network Cultural Landscape (PTNCL). This landscape consists of important destinations in the Colorado Desert near Blythe, California, the network of trails that tie them together, and the features and sites associated with the trails. The foundation of this cultural landscape is a core group of 224 sites originally recorded by McCarthy (1993) and those found during survey of the Parker Dam-Blythe Transmission Line No. 2. Those from the Parker Dam-Blythe Transmission Line are found primarily at the south end of the Whipple Mountains and are thought by Schaefer et al. (1998:90) to be associated with an important route from Parker to Needles that may have been part of the *keruk* trail system, citing Altschul and Ezzo (1994) and Stone (1991:82).

In the 1990s McCarthy (1993) and a group of volunteers recorded 20 km of the Halchidhoma Trail (CA-Riv-0053T) as it curves around the southern and western side of the McCoy Mountains leading from the Blythe Intaligos (geoglyphs) through the Chuckwalla Valley. They identified 224 trail-associated sites and subsidiary trails associated with the Halchidhoma Trail. McCarthy's report provides the basis for preliminary definitions of the boundaries, period of significance, thematic associations, and property types of the PTNCL.

The NRHP guidance for districts and cultural landscapes requires identifying certain characteristics, including boundaries, one or more periods of significance, thematic associations, and property (resource) types. The boundaries of the PTNCL need to be refined as additional pieces are identified, but in broad terms the boundary extends

along the length of the historically known route of the Halchidhoma Trail, from where it begins near Blythe at the Colorado River, continuing to the west through the Chuckwalla Valley towards modern Los Angeles, with a suggested width of 10 miles. The period of significance also needs to be refined, but it appears that the prehistoric trail systems of southern California were used for thousands of years. Therefore, as a preliminary measure, Energy Commission staff defines the period of significance as the entire prehistoric and early historic periods. The thematic associations currently include travel, trade, and ritual. Resource exploitation, particularly the collection of stone tool and ground stone raw materials, is also an important theme. The PTNCL site types are divided into three categories: destinations, trails, and trail-associated sites or features[16]

Destinations primarily include water sources, but also include residential, religious, and resource-collection sites. Water-oriented destinations include natural features such as rivers, springs, lakes, rainwater tanks, as well as man-made wells. Residential sites include villages and camps with evidence of a full range of activities. Religious sites include geoglyphs and petroglyphs. The importance of particular destinations is indicated by the web of multiple trails that converge on certain places, often mountain passes or water sources.

Trails can either be created by the movement of traveling feet or formally constructed. They average 30 cm in width and can be traced for many km, interrupted only by gullies and washes. Trails are usually the shortest and most convenient routes from one point on the landscape to another.

Trail-associated sites or features could include: concentrations of ceramics/pot drops, cleared circles, rock rings, rock clusters, rock cairns, rock alignments, petroglyphs, and geoglyphs. When the trail itself is not preserved, its route can often be approximately traced by distinctive patterns of trail-associated sites and features.

Energy Commission staff recommends that the PTNCL is eligible for listing on the NRHP under Criteria A and D and for the CRHR under Criteria 1 and 4. Under Criterion A/1, a resource is eligible if it is associated with "events that have made a significant contribution to the broad patterns of our history". In the context of a Native American site where its importance is not recorded in written form, National Register Bulletin 38 (NPS 1998, pp. 12–13) makes it clear that the word "our" refers to the group that finds the property significant and "history" includes both traditional oral and written history. Important events can include specific events, or repetitive trends. Places referred to in Native American oral histories and creation stories, therefore, are potentially eligible.

Native American groups in the Mojave Desert consistently accord mythological importance to springs, petroglyph sites, and particularly trails systems. Trails across the desert mark the locations of travels of ancestral groups as they migrated to the confluence of the Gila and Colorado Rivers. Trails also facilitate dream travel to these places and the times when events mentioned in story and song occurred (Cleland 2005, p. 132). The particular trail that forms the backbone for this cultural landscape, the Halchidhoma Trail (CA-Riv-0053T), is well known from multiple historical and

[16] The list of property types included in the PTNCL is not comprehensive; it should be added to as needed as new patterns are discovered.

ethnographic sources. It was an essential trade, transportation, and ritual route for Native American peoples and early European visitors in the Colorado Desert during prehistoric and historic times. This route was an essential connection between the Pacific Coast and the Southwestern deserts of Arizona and New Mexico.

Energy Commission staff, Western, and BLM consider the resources that make up the PTNCL to be significant under NRHP Criterion A (CRHR Criterion 1), for their ties to important events in American history. However, most property types associated with the PTNCL exist today as archaeological resources, such as petroglyphs, pot drops, cleared circles, and webs of intersecting trails. These sites are also considered Register-eligible under Criterion D/4 for their ability to yield information important in history and prehistory.

There are 29 trail segments with, and without, associated trailside features recorded along Parker-Blythe Transmission Line No. 2[17]. Fourteen have been recommended eligible for the NRHP and thus contributors (Cultural Resources Table 9). The other 15 segments have been recommended ineligible or indeterminate. These recommendations may need to be revisited as the Office of Historic Preservation has not reviewed or concurred with them.

METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

The purpose of this cultural resources analysis is to provide evidence of the ongoing public process by which the Energy Commission, Western, and BLM are jointly complying with local, state, and federal regulations to which each agency is variously subject. The Energy Commission, pursuant to section 25519, subsection (c) of the Warren-Alquist Act of 1974 (Act), is the lead agency for the purpose of complying with CEQA in relation to the certification of the proposed facility and the site on which the facility would operate, and is further responsible, pursuant to Section 25525 of the Act, for ensuring that the facility would conform with applicable State, local, or regional standards, ordinances, or laws.

THE PROJECT AREA OF ANALYSIS AND THE AREA OF POTENTIAL EFFECTS

A useful precursor to a cultural resources analysis under CEQA and NEPA and a requisite part of the Section 106 process (36 CFR Part 800) is to define the appropriate geographic limits for an analysis. The area that Energy Commission staff typically considers when identifying and assessing impacts to cultural resources under CEQA is referred to here as the "project area of analysis." Energy Commission staff defines the Project Area of Analysis (PAA) as the area within and surrounding a project site and associated linear facility corridors. The area reflects the minimum standards set out in the Energy Commission Power Plant Site Certification Regulations (Cal. Code Regs., tit.

[17] Trail segments identified along the Parker-Blythe Transmission Line No. 2 may be considered contributors to the PTNCL. These include: CA-SBR-1498, -1499, -1506, -1508, -1524, -8004, -8871, -8872, -8873, -8874, -8875, -8876/H, -8877, -8878, -8889, -8893, -8898, -8902, -8903, -8904, -8906, -8908, -8909, -8910, ; and CA-RIV-160, 872, -5984, -5985, 5987/H.

20, § 1701 et seq., appen. B, subd. (g)(2)) and is sufficiently large to facilitate considerations of archaeological, ethnographic, and built-environment resources. The project area of analysis is a composite, though not necessarily contiguous geographic area that accommodates the analysis of each of these resource types:

- For archaeological resources, the project area of analysis is minimally defined as the project ownership boundary, plus a buffer of 200 feet, the project tie line and access road routes, plus 100 feet to either side of the rights-of way for these routes and the project fiber optics on the existing transmission line, 25 feet either side of the transmission line, and access road rights-of-way..
- For ethnographic resources, the project area of analysis is expanded to take into account traditional use areas and traditional cultural properties which may be far-ranging, including views that contribute to the significance of the property. These resources are often identified in consultation with Native Americans and other ethnic groups, and issues that are raised by these groups may define the area of analysis.
- For built-environment resources, the project area of analysis is confined to one parcel deep from the project site footprint in urban areas, but in rural areas is expanded to include a half-mile buffer from the project site and above-ground linear facilities to encompass resources whose setting could be adversely affected by industrial development.
- For a historic district or a cultural landscape, staff defines the project area of analysis based on the particulars of each siting case.

Western and BLM conclude here that the PAA concept provides an appropriate areal scope for the consideration of cultural resources under NEPA and is consistent with the definition of the Area of Potential Effects (APE) in the Section 106 process (36 CFR § 800.16(d)). The PAA will, therefore, be equivalent to the APE for the purpose of the present analysis.

Inventory of Cultural Resources in the Project Area of Analysis

A cultural resources inventory, specific to each proposed or alternative action under consideration, is a necessary step in the staff effort to determine whether such actions may causea substantial adverse change in the significance of any cultural resources (under CEQA) that are on or would qualify for the California Register of Historical Resources (CRHR); maysignificantly affect important historic and cultural aspects of our national heritage (under NEPA); or may, adversely affect any cultural resources that are on or would qualify for the NRHP, as required under Section 106.

The development of a cultural resources inventory entails working through a sequence of investigatory phases to establish the universe of cultural resources that will be the focus of the analysis of each proposed or alternative action. Generally the research process proceeds from the known to the unknown. These phases typically involve background research to identify known cultural resources, fieldwork to collect requisite primary data on not-yet-identified cultural resources in the vicinity of an action, and assessment of the results of any geotechnical studies or environmental assessments completed for a project site. The results of this research then support the development of determinations of historical significance for the cultural resources that are found.

Determining the Historical Significance of Cultural Resources

A key part of a cultural resources analysis under CEQA, NEPA, or Section 106 is to determine which of the cultural resources that a proposed or alternative action may affect are important or historically significant. (Each of these three regulatory programs uses slightly different terminology to refer to historically significant cultural resources. Clarifications on the use of the terms "historical resource," "important historic and cultural aspects of our national heritage," and "historic property" may be found in the "Cultural Resources Glossary" subsection at the end of this section.) Subsequent effects assessments are only made for those cultural resources that are determined to be historically significant. The criteria for evaluation and the requisite thresholds of resource integrity that, taken together, are the measures of historical significance vary among the three regulatory programs.

Evaluation of Historical Significance Under CEQA

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 listing in 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, 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.

In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (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).

Assessing Action Effects

The core of a cultural resources analysis under CEQA, NEPA, or Section 106 is to assess the character of the effects that a proposed or alternative action may have on historically significant cultural resources. The analysis takes into account three primary types of potential effects which each of the three above regulatory programs defines and handles in slightly different ways. The three types of potential effects include direct, indirect, and cumulative effects. Once the character of each potential effect of a proposed or alternative action has been assessed, a further assessment is made as to whether each such effect is significant, relative to specific regulatory criteria under CEQA, NEPA, and Section 106.

Direct and Indirect Effects

Direct and indirect effects are those that are more clearly and immediately attributable to the implementation of proposed or alternative actions. Direct and indirect effects are conceptually similar under CEQA and NEPA. The uses of the concepts vary under Section 106 relative to their uses under CEQA and NEPA.

Direct and Indirect Impacts Under CEQA

In the abstract, direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic built-environment resources when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project construction creates improved accessibility and vandalism or greater weather exposure becomes possible.

Ground disturbance accompanying construction at a proposed plant site, along proposed linear facilities, and at a proposed laydown area has the potential to directly

impact archaeological resources, unidentified at this time. The potential direct, physical impacts of the proposed construction on unknown archaeological resources are commensurate with the extent of ground disturbance entailed in the particular mode of construction. This varies with each component of the proposed project. Placing the proposed plant into this particular setting could have a direct impact on the integrity of association, setting, and feeling of nearby standing historic structures

Direct and Indirect Effects Under NEPA

The concepts of direct and indirect effects under NEPA are almost equivalent to those under CEQA. Direct effects under NEPA are those "which are caused by the [proposed or alternative] action and [which] occur at the same time and place" (40 CFR § 1508.8(a)). Indirect effects are those "which are caused by the [proposed or alternative] action and are later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR § 1508.8(b)).

Direct and Indirect Effects Under Section 106

The Section 106 regulation narrows the range of direct effects and broadens the range of indirect effects relative to the definitions of the same terms under CEQA and NEPA. The regulatory definition of "effect," pursuant to 36 CFR § 800.16(i), is that the term "means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register." In practice, a "direct effect" under Section 106 is limited to the direct physical disturbance of a historic property. Effects that are immediate but not physical in character, such as visual intrusion, and reasonably foreseeable effects that may occur at some point subsequent to the implementation of the proposed undertaking are referred to in the Section 106 process as "indirect effects."

Cumulative Impacts

Cumulative Impacts are slightly different concepts under CEQA and NEPA, and are, under Section 106, undifferentiated as an aspect of the potential effects of an undertaking, of a proposed or alternative action. The consideration of cumulative impacts reaches beyond the project area of analysis or the area of potential effects. It is a consideration of how the effects of a proposed or alternative action in those areas contributes or does not contribute to the degradation of a resource group or groups that is or are common to the project area of analysis and the surrounding area or vicinity.

Cumulative Impacts Under CEQA

A cumulative impact under CEQA refers to a proposed project's incremental effects considered over time and taken together with those of other nearby past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project" (Pub. Resources Code sec. 21083; Cal. Code Regs., tit. 14, secs. 15064(h), 15065(a)(3), 15130, and 15355). Cumulative impacts to cultural resources in a project vicinity could occur if any other existing or proposed projects, in conjunction with the proposed project, had or would have impacts on cultural resources that, considered together, would be significant. The previous ground disturbance from prior projects and the ground disturbance related to the future construction of a proposed project and other proposed projects in the vicinity could have

a cumulatively considerable effect on archaeological deposits, both prehistoric and historic. The alteration of the natural or cultural setting which could be caused by the construction and operation of a proposed project and other proposed projects in the vicinity could be cumulatively considerable, but may or may not be a significant impact to cultural resources.

Cumulative Impacts Under NEPA

As noted in 40 CFR § 1508.7, "a [C]umulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over a period of time." Cumulatively significant impacts are part of the consideration when determining the intensity of a significant effect [40 CFR § 1508.27(b)(7).

Cumulative Effects Under Section 106

The Section 106 regulation makes explicit reference to cumulative effects only in the context of a discussion of the criteria of adverse effect (36 CFR § 800.5(a)(1)). Cumulative effects are largely undifferentiated as an aspect of the potential effects of an undertaking. Such effects are enumerated and resolved in conjunction with the consideration of direct and indirect effects.

Assessing the Significance of Action Effects

Once the character of the effects that proposed or alternative actions may have on historically significant cultural resources has been determined, the severity of those effects needs to be assessed. CEQA, NEPA, and Section 106 each have different definitions and tests that factor into decisions about how severe, how significant the effects of particular actions may be.

Significant Impacts Under CEQA

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. 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.

Significant Effects Under NEPA

Significant effects under NEPA require considerations of both context and intensity (40

CFR § 1508.27). In the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant (40 CFR § 1508.27(a)). A consideration of intensity involves the consideration of the severity of an impact.

Adverse Effects Under Section 106

As noted in36 CFR § 800.5(a)(1), "[A]n adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." A formal effect finding under Section 106 relates to the proposed or alternative action as a whole, rather than to the individual resources.

Resolving Significant Effects

The concluding phase in a cultural resources analysis, whether under CEQA, NEPA, or Section 106, is to (avoid) or mitigate those effects of a proposed or alternative action that have been found to be significant. The terminology used to describe the process of effects resolution differs among the three regulatory programs. The resolution of significant effects under CEQA involves the development of mitigation measures that would avoid the adverse impact or reduce the potential impact to a less than significant level or to the extent feasible (14 CCR § 15126.4). Mitigation under NEPA includes proposals that avoid or minimize any potential significant adverse effects of a proposed or alternative action on the quality of the human environment (40 CFR § 1502.4). The definition of mitigation in the NEPA regulation includes the development of measures that would avoid, minimize, or rectify significant adverse effects, progressively reduce or eliminate such effects over time, or provide compensation for such effects (40 CFR § 1508.20). The Section 106 process directs the resolution of adverse effects through the development of proposals to avoid, minimize, or mitigate such effects (36 CFR § 800.6(a)).

The present analysis seeks to resolve the potentially significant adverse effects of the proposed and alternative actions on cultural resources through the development of measures that satisfy the common conceptual threads of effects resolution in CEQA, NEPA, and Section 106. Energy Commission staff proposes Condition of Certification **CUL-10** as the basis for coordinating CEQA compliance requirements with those required of Western and BLM under NEPA and Section 106. The Western/BLM proposes to use the present cultural resources analysis and its consultation efforts under Section 106, which includes the negotiation and drafting of a Memorandum of Agreement (MOA), to evidence its compliance with NEPA. Energy Commission staff also proposes additional conditions of certification (**CUL-1** through **CUL-9** and **CUL 11-12**) that the applicant would implement in the event that the staffs of the Energy Commission and the Western/BLM should become unable to resolve differences of professional opinion on the disposition of a cultural resource during the construction,

operation, maintenance, or decommissioning and closure of the proposed, or alternative actions. The applicant's implementation of the terms of the MOA and of the additional conditions of certification would ensure compliance with applicable LORS, in addition to compliance with CEQA, NEPA, and Section 106.

Assessment of Impacts and Mitigation Discussion

Construction Effects

The main facility footprint will adversely and substantially impact nearly all of the features and artifact concentrations recently recorded within the Rice AAF and western periphery of Camp Rice. Because these resources are assumed to be contributing properties to the World War II DTC/C-AMA, the proposed project will also directly impact the DTC Cultural Landscape (DTCCL). In addition, possible construction impacts may also occur to 23 previously recorded sites recommended eligible for the NRHP along the Parker-Blythe Transmission Line No. 2. These include: RIV-5983H, -5985T, -5987/H, -5988H, -5990H; SBR-1511, -1506, -1508, -2525, -8871/H, -8877, -8878, -8882, -8908, -8892, -8897, -8902, -8903, -8904, -8906, -8907, -8909, and -8910. Cultural Resources Table 10 lists assumed eligible resources subject to direct project impacts.

CULTURAL RESOURCES Table 10
NRHP and CRHR-Assumed Eligible Cultural Resources Subject to Direct Project Impacts

Resource	Resource Descriptions	NRHP/CRHR Eligibility
DTC/C-AMA Cultural Landscape	Rice AAF/Camp Rice (with associated features and artifact concentrations), as well as Riv-5987, -5988, and -5990	Assumed Eligible
Prehistoric Trails Network Cultural Landscape	Prehistoric Trails and contributing sites noted along the Parker-Blythe 161 kV Transmission Line No. 2 (Riv-5985, -5987(Locus A); SBR-1506, -1508, -8871, -8877, -8878, -8901, -8903, -8904, -8906, -8908, -8909, -8910)	Assumed Eligible
Lithic Scatters/ Quarries	SBR-1511, -8882, -8892-, -8897, -8907	Assumed Eligible*
Geoglyph	SBR-2525	Assumed Eligible*
Mining Camp	RIV-5983H	Assumed Eligible*
Historic Road	Road-1	Assumed Eligible

* Assumed Eligible resources with asterisks are ones that were recommended eligible by Schaeffer et al. (1998) but that have not received concurrence from the Office of Historic Preservation.

Operation Effects

With respect to direct impacts, if, during operation of the RSEP, the project owner should plan any changes or additions entailing significant amounts of ground disturbance, the project owner would have to petition the Energy Commission to review the environmental impacts of those activities and approve the plan. 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 direct impacts.

Project Closure and Decommissioning Effects

Cultural resources within the proposed RSEP main facility footprint are expected to be destroyed during facility construction. Therefore the closure and decommissioning of the proposed project is unlikely to cause additional impacts to known or previously unknown cultural resources. However, sites within the linear facilities corridor and near the boundary of the proposed project footprint may still exist after RSEP construction and associated archaeological data recovery. These sites could be impacted by activities associated with project closure and decommissioning.

As for any changes or additions to the RSEP during operation, as discussed above, the project 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

The RSEP is proposed to be sited on private lands and is subject to CEQA review. A portion of the proposed generation tie line would traverse land managed by the BLM. The project would interconnect with a Western transmission line. Under CEQA Guidelines, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts" (14 Cal Code Regs §15130(a)(1)). Cumulative impacts must be addressed if the incremental effect of a project, combined with the effects of other projects is "cumulatively considerable" (14 Cal Code Regs §15130(a)). Such incremental effects are to be "viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (14 Cal Code Regs §15164(b)(1)). Together, these projects comprise the cumulative scenario which forms the basis of the cumulative impact analysis.

CEQA also states that both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion, "but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness,

and shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact" (14 Cal Code Regs §15130(b)).

NEPA states that cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR §1508.7). Under NEPA, both context and intensity are considered. When considering intensity of an effect, we consider "[w]hether the action is related to other actions with individually minor but cumulatively significant impacts. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts." 40 CFR §1508.27(b)(7).

The intensity, or severity, of the cumulative effects should consider the magnitude, geographic extent, duration and frequency of the effects (CEQ, 1997). The magnitude of the effect reflects the relative size or amount of the effect; the geographic extent considers how widespread the effect may be; and the duration and frequency refer to whether the effect is a one-time event, intermittent, or chronic (CEQ, 1997).

Geographic Extent

The geographic scope for this project is fairly localized around the RSEP ownership boundary, however, given the nature of the Colorado Desert Valley system, the RSEP project area should not be limited to the Rice Valley, but should also include its northwest continuation into the Ward Valley (that includes Bristol and Cadiz Dry Lake system). As mentioned above, the valleys in this region are contiguous and drainages often flowed into one another. In terms of temporal limits, the immediate mountain ranges should also be included in this scope: Turtle Mountains, Whipple Mountains, Chemehuevi Mountains, Old Woman Mountains, and Arica Mountains. These mountains represent the mining activities that took place in the immediate area and should be considered a part of this scope in order to encompass a broader historic context for the region (i.e., pre-dates the construction, operation, and closure of Rice AAF and Camp Rice).

Existing Cumulative Conditions

Four existing projects occur within the immediate vicinity of the RSEP project site: (1) the Rice Valley Grazing Allotment (which roughly borders the western, southern, and eastern boundaries of the RSEP); (2) the Arizona-California Railroad (parallels the northern boundary of the RSEP Project Area); (3) the Colorado River Aqueduct (also parallels the northern RSEP site boundary); and (4) Westerns' Parker Dam-Blythe transmission line #2. The railroad and aqueduct hold particular significance, as they contribute to the development of the area (transportation, mining, etc.). Modification/maintenance of these features may impact the archaeological components of Camp Rice. Seven other existing projects are located within Rice Valley; however, they are well outside of the range of possible impacts to cultural resources for the RSEP proposed project area. As the RESP will affect the Rice AAF and Camp Rice archaeological resources, the project will significantly alter the cultural environment of the area.

Future Foreseeable Projects

Foreseeable Projects in the Project Area

A solar thermal power plant is proposed for the Ward Valley (Table 3, ID# B), approximately 5 miles northwest of the RSEP Project area. Impacts caused by the construction of this project will not impact the RSEP site, although it may affect the overall context of the area (that is mining districts in the immediate area).

Foreseeable Renewable Project in the California Desert

A solar thermal power plant (Table 3, ID# F) roughly 26 miles west of the RSEP at Cadiz Lake may affect drainage systems from Bristol/Cadiz Lakes into the Danby Dry Lake and subsequently Rice Valley.

Overall Conclusion – Cumulative Impacts

The RSEP 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 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. To mitigate to the extent reasonable the region-wide, substantial cumulative impact to the DTCCL identified in this analysis, staff staff recommends Condition of Certification **CUL-1**

DTCCL Landscape Documentation and Possible Nomination Program

RSEP shares the historical military training sites associated with the DTC/C-AMA with three other projects currently under consideration in the southern desert: Blythe Solar Power Project, Genesis Solar Energy Project, and Palen Solar Power Project. The DTCCL Program would provide the data for consideration of the DTCCL eligibility for NRHP nomination.

It is staff's intention to allow future projects, under Energy Commission jurisdiction, that would contribute to the cumulative impacts to cultural resources in the region to contribute to this mitigation program, along with any contemporaneous and future projects not under Energy Commission jurisdiction that would contribute to the cumulative impacts to cultural resources in the region. It is staff's intention to allow future projects that would contribute to the cumulative impacts to cultural resources in the region to contribute to this mitigation program, whether under Energy Commission jurisdiction or not.

The cost of this program 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 related 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.

Considering these unknown and unquantifiable factors, staff considers the number of acres disturbed by each project to be a reasonable and concrete proxy. Condition of Certification **CUL-1** require the RSEP owner to contribute $25 per acre disturbed to a special Energy Commission fund to finance the documentation and possible NRHP nomination of the DTCCL. Staff arrived at this amount by estimating what the cost of each program would be, including overhead costs ($300,000), dividing that by the total number of acres the projects together would disturb or enclose (11,903 acres), and rounding to the nearest $5.00 increment, for a levy of $25 per acre. It is likely that RSEP would start construction after the DTCCL study is already in progress. Therefore, it is reasonable to partially exempt RSEP from contributing to the first phase of the study, which would produce the historic context, evaluation criteria, and research questions that will guide data recovery from DTCCL archaeological sites. It would not, however, be reasonable to exempt RSEP from the entire cost of the first phase, as the PI-Historian would have to revise the context to include those aspects of the DTCCL that are specific to the RSEP. This is expected to take approximately one-quarter (25%) of the total phase one hours for the RSEP site, compared to the hours necessary on the other three projects. The hours allocated to the first phase of the study represent 16 percent (16%) of the total hours in the DTCCL budget. Therefore, RSEP would be credited with a 12% discount, for a levy of $22 per acre disturbed.

Staff is recommending an identical condition for the project owners of the Palen Solar Power Project, Genesis Solar Energy Project, and Blythe Solar Power Project. Any additional coordination among project owners that can be negotiated, beyond that specified here, is welcomed and encouraged. Applicants may make their contributions to the DTCCL fund prior to certification. 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. Western and BLM concur with this strategy.

DTCCL Program Elements

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 mechanism and contribution basisindicated in **CUL-1**.

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 Master ofArts (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 Energy Commission will engage a DTCCL Historical Archaeologist to collaborate with the PI-Historian. The PI-Historian will 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.

The Energy Commission will provide copies of the AFC, data responses, confidential cultural resource documents, Revised Staff Assessment (RSA), Supplemental Staff Assessment, and other relevant documents for this project to the DTCCL PI-Historian and Historical Archaeologist.

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;

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 four project sites (RSEP, Palen Solar Power Project, Blythe Solar Power Plant, and Genesis Solar Energy Plant);

6. Compile a list of known DTCCL contributors, with a description and individual map plot of each; and

7. Assist Energy Commission staff in drafting a map showing all DTCCL elements and drawing a provisional boundary for the DTCCL from the historical perspective; and provide written justification for the boundary.

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 and to the BLM Palm Springs Field Office archaeologist for review and approval.

B. Historical Archaeological Study

The Energy Commission 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 Historical Archaeologist will:

1. Synthesize the present state of knowledge of DTCCL historical archaeology in the Rice Valley, 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 Rice Valley, 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 sites are identified within the project areas of the RSEP, Palen Solar Power Project, Blythe Solar Power Project, or Genesis Solar Energy 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, literature synthesis, and 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
      i. Specify what kinds of resources have the relevant data
   b. Answerable with data from known archaeological resources
      i. Specify the methods for making this determination
   c. To determine the presence or absence of additional archaeological resources not presently known but likely

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, direct the drafting of 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. The Energy Commission will contract with an outside firm to perform the drafting;

8. Train the Project Historical Archaeologists for the RSEP, Palen Solar Power Project, Genesis Solar Energy Project, and Blythe Solar Power 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 RSEP, Palen Solar Power Project, Genesis Solar Energy Project, and Blythe Solar Power 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 Energy Commission will provide the products of 1–8 to the four project CRSs.

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

C. Possible NRHP nomination of the DTCCL:

After all data recovery for the four 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, will collaborate on a NRHP multiple property nomination for the DTCCL under Criteria A, C, and 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), and

i. other;

3. Historical background and context;

4. Justification of eligibility;

5. Period of significance and justification for POS;

6. Identification of contributors; assistance to Energy Commission staff in the creation of a map of contributors, archaeologically confirmed sites, and site descriptions of all; and

7. Provision for adding additional contributing resources to the district as further survey is done.

The BLM will submit the 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 a report that will include a summary of the evidence justifying the ineligibility determination, documenting all research activities conducted on the basis of the applicant's funding, and synthesizing all data from the DTCCL investigation to create a document that BLM can use to manage the DTCCL resources..

D. Management Plan and Information Dissemination:

The Energy Commission will assist the BLM Palm Springs Field Office archaeologist in seeking BLM recognition for the DTCCL as a resource requiring special management status, if NRHP eligibility is not supported:

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 Energy Commission will obtain the services of an exhibit preparer and the PI-Historian will 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 Energy Commission and the BLM will offer the materials for use and display.

The DTCCL PI-Historian will also explore other modes of public dissemination of DTCCL data and propose these, with budgets, to staff. The PI-Historian and Historical Archaeologist will act as technical advisers for these products, but the Energy Commission will contract with another firm to create them. 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 locations where artifacts of archaeological interest are no longer present), such as the more permanent camps and air bases.This trail and a map 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.

DTC/C-AMA Cultural Landscape, Project-Specific Mitigation for RSEP Impacts to Contributors

The DTCCL and its potential contributors will be defined and impacts to these resources will be evaluated by two specialists: a DTCCL PI and Historian and a DTCCL Historical Archaeologist. The responsibilities of each specialist are outlined below and in condition of certification **CUL-2**.

The DTCCL PI-Historian will be a specialist in World War military history who will write a context for the DTCCL expanding upon, but not duplicating the efforts of Bischoff (2000 and 2009). The context will emphasize material culture, create a timeline of activities across the entire maneuver area and result in detailed maps that focus on the four project areas and the maneuvers that took place in each. This specialist will also conduct oral history interview with veterans and synthesize previously recorded interviews.

The DTCCL Historical Archaeologist will be a specialist in the identification, analysis and interpretation of the artifacts, environmental modifications (e.g. tank tracks), and trash disposal patterns associated with the early phases of WWII land-based army activities. In addition, the specialist will be knowledgeable of the full range of late

nineteenth and early-to-mid-twentieth-century can, bottle, and ceramic diagnostic traits. As some of these skills are rare, the DTCCL Historical Archaeologist will be responsible for training the field crews with the above skills so they can accurately complete in-field artifact analyses. The specialist will also be responsible for accurately and consistently determining if each RSEP site is associated with the DTCCL, or some other historic time period such as pre-1940s mining and ranching. This specialist will also ensure that the field work on the historic archaeological sites at all four solar project sites is consistent, and of high quality. This person will also facilitate data sharing between different projects, project owners, and companies, if necessary.

Together, the DTCCL PI-Historian and the DTCCL Historical Archaeologist will write a context that: refines the research questions that will be addressed, identifies the specific data sets needed to answer these questions, develops mitigation measures for the relevant site types, and establishes the analytical standards that will be met. Until these refinements take place, research and mitigation will be modeled on Bischoff's (2000 and 2009) context, under the guidance of BLM and Energy Commission archaeologists.

Finally, if both DTCCL specialists agree that the DTCCL is eligible for listing on the NRHP, they will jointly write a nomination form under Criterion D and any other Criterion they think is appropriate. The nomination will list the resources that they have identified from all four projects as contributors. Resources will be identified as contributors or non-contributors on the basis of the contexts developed by the specialists and on the basis of the data recovered from each potential contributor during the evaluation and data recovery activities that staff has recommended for each known resource that would be impacted by the RSEP and the other two projects. The evaluation of each resource as a potential DTCCL contributor would suffice as well to evaluate it as an individual resource if the DTCCL specialists should agree that the DTCCL is not eligible for listing on the NRHP.

PROJECT ALTERNATIVES

	Proposed Alternative	Acres	MW	Federal Nexus
1	Proposed Project	1,410 acres + 10.0 mile long transmission line corridor	150	Yes
2	Reduced Acreage (same site location)	1,270 acres + 10.0 mile long transmission line corridor	~148	Yes
3	North of Desert Center (alternate location), includes realignment and reconductoring of existing SCE 161/230kV line.	1,410 acres + 4.6 mile long transmission line corridor	150	Yes
4	Rice Valley Road Transmission Line	1,410 acres + 13.9 mile long transmission line corridor	250	Yes
5	No Project/No Action	0	0	No

Reduced acreage Alternative

The Reduced Acreage Alternative would be 7.2 percent smaller than the proposed project. It would be located in the same 2,560-acre square-shaped parcel within the larger 3,324-acre ownership property as the proposed project. Although the overall heliostat field distance from the central tower would be reduced, the number of heliostats would remain the same. The heliostat field (plus the evaporation pond and administration areas) would occupy about 1,270 acres instead of the 1,370 acres required for the proposed project. The receiver location would remain the same, with the edges of the field contracting towards the center. The heliostat footprint of the Reduced Acreage Alternative is shown in **Alternatives Figure 2**. The site layout, 653-foot total height of the solar tower and receiver, and transmission interconnection to Western's Parker-Blythe #2 transmission line would be the same as the proposed project. The generation output would be reduced by approximately 2 MW.

Similar to the proposed project, the Reduced Acreage Alternative would transmit power to the grid through the planned Western substation to be located adjacent to Western's Parker-Blythe #2 161-kV transmission line.

The Reduced Acreage Alternative is evaluated in this SA/DEIS because it would eliminate about 100 acres of the proposed project footprint, reducing impacts to ephemeral washes, the loss of land considered habitat for the state and federally listed threatened desert tortoise and impacts to the historic Rice Airfield. The Reduced Acreage Alternative would allow the applicant to contribute clean, renewable energy to help meet the State's energy goals, while reducing impacts to the desert environment. A limited acreage alternative was suggested in scoping comments.

Setting and Existing Conditions

All of the aspects of the setting and existing conditions as set out above for the proposed project are also pertinent to this alternative except the project description. As configured, the reduced heliostat field would be located on land that was previously surveyed for cultural resources in connection with the proposed project. As the ownership property dimensions remains the same, the same number of previously recorded resources still fall with the project area. Until final plans are set, staff cannot determine what impacts will occur for the Rice AAF.

Cultural Resources Inventory

CH2MHILL's record search and field survey for the proposed Reduced Alternative configuration falls within the boundary of the proposed project ownership property. Thus, additional records search and field survey were not required. Future actions, as part of the Conditions of Certification, will be required to update site records and address any deficiencies in documentation.

Assessment of Impacts and Discussion of Mitigation

Staff concludes that impacts would be nearly identical to the proposed Project, with most of the features and artifact concentrations associated with Rice AAF will still be destroyed. Staff recommends that impacts of this alternative on cultural resources would have to be avoided or mitigated by means of data recovery, with specific modes of data recovery detailed in a Memorandum of Agreement (MOA), to be negotiated and

signed by the Western, BLM, the State Historic Preservation Officer, the Energy Commission, any Native American tribes or groups who opt to sign, and, possibly, the applicant. Western has initiated consultation with the State Historic Preservation Officer discussing the area of potential effects, eligible sites, effects and the MOA.

CEQA/NEPA Level of Significance of Impacts

Staff, Western, and BLM would assume that all construction impacts, direct, indirect, and cumulative, to all eligible and staff-assumed-eligible cultural resources located in the APE of this alternative would be substantial and adverse, and significant with respect to CEQA. Staff, Western, and BLM also assume that these impacts would be reduced to a less-than-significant level by the implementation of **CUL-1** through **CUL-12** and mitigation measures outlined in the MOA, and would be less-than-significant with respect to CEQA. Staff would also provide mitigation measures for the appropriate treatment of potentially eligible archaeological resources discovered during construction of this alternative, should it be built, and these measures would reduce the alternative's impact on discovered Register-eligible archaeological resources to less than significant.

NORTH OF DESERT CENTER ALTERNATIVE

The North of Desert Center Alternative would be a 150 MW solar thermal facility located on approximately 2,643 acres of land. It is located along Desert Center Rice Road (State Route 177) east of Kaiser Road, north of Oasis Road, and approximately 1.6 miles north of I-10. The North of Desert Center Alternative is primarily private land with smaller sections of BLM land in the eastern portion of the site. It is largely fallow agricultural land. The existing SCE 161-kV transmission line (from the Blythe-2 substation to the Eagle Mountain-1 substation) that traverses the alternative site would be realigned to roughly follow the site boundary. A new 0.125-mile transmission line (along Osborne Ave.) and substation would interconnect to the realigned SCE line at the northeast boundary of the site. The boundaries and transmission realignment of the North of Desert Center Alternative are illustrated in **Alternatives Figure 2.**

Setting and Existing Conditions

The North of Desert Center Alternative is composed largely of private properties (agricultural land) but also includes undeveloped BLM land, and some County of Riverside land. The alternative site is located along Desert Center Rice Road (State Route 177) east of Kaiser Road, north of Oasis Road, and approximately 1.6 miles north of I-10 in Riverside County, California. The alternative site is roughly 38 miles southwest of the RSEP with a varying environmental setting, in that nearly 70% of the land proposed for the North of Desert Center Alternative is disturbed by past and current agricultural operations. The remaining landscape is similar to the Palen Solar Project and consists of desert washes, sandy dunes, and lower alluvial fan sediments. Major water sources are limited to the Colorado River, which lies approximately 50 miles east of the alternative site. However, when rainwater exceeds evaporation and occasional flooding occurs, Palen Lake (approximately 12 miles east of the alternative) will fill, creating a temporary water source. The Colorado Desert has a long and culturally rich past beginning thousands of years ago and continuing through the World War II desert training activities.

A *Cultural Resources Class III Report for the Proposed Palen Solar Power Project, Riverside County, California* (Tennyson and Apple, 2009) and *Palen Solar Power Project Application for Certification, Volume I* (AECOM, 2009) provide a brief cultural context for the North of Desert Center Alternative. Staff of Applied Earth Works, Inc. conducted a records search for the North of Desert Center Alternative at the Eastern Information Center of the California Historical Resources Information System on February 16, 2010. The records search indicated that a total of nine surveys had been conducted within a one-mile radius of the alternative site. Of these, four surveys included minor portions of the proposed alternative site. The records search documents two sites (one prehistoric habitation site and one historical ceramic cup fragment) within a one-mile radius of the alternative site. No previously recorded sites have been documented within the North of Desert Center Alternative.

Less than 1% of the North of Desert Center Alternative appears to have been subject to reliable pedestrian surveys. No cultural resources were documented during these surveys. Because so little of the alternative site has been surveyed, the lack of known sites is not a reliable indicator for the archaeological potential of the alternative site. As previously mentioned, a large portion of the alternative site is devoted to and disturbed by agricultural activities. The alternative site has high potential for encountering resources related to the DTC/C-AMA Cultural Landscape, and more specifically, to Camp Desert Center, an atypical and dispersed layout of facilities adjacent to the Desert Center Airfield and surrounding the community of Desert Center.

Assessment of Impacts and Discussion of Mitigation

For staff, Western, and BLM to more fully assess direct, indirect, and cumulative impacts for this proposed alternative, additional information would be needed. Similar to the proposed project, staff, Western, and BLM would make recommendations that the impacts of this alternative on cultural resources would have to be avoided or mitigated by means of data recovery, with specific modes of data recovery detailed in a MOA, to be negotiated and signed by the Western, BLM, the State Historic Preservation Officer, the Energy Commission, any Native American tribes or groups who opt to sign, and, possibly, the applicant.

CEQA/NEPA Level of Significance of Impacts

Staff, Western, and BLM assume that all construction impacts, direct, indirect, and cumulative, to all eligible and staff-assumed-eligible cultural resources located in the APE of this alternative would be substantial and adverse, and significant with respect to CEQA. Staff, Western and BLM also assume that these impacts would be reduced by the implementation of **CUL-1** through **CUL-12** and the mitigation measures outlined in the MOA, and would be less-than-significant with respect to CEQA. Staff, Western, and BLM would also provide mitigation measures for the appropriate treatment of potentially eligible archaeological resources discovered during construction of this alternative, should it be built, and these measures would reduce the alternative's impact on discovered Rregister-eligible archaeological resources to less than significant.

STATE ROUTE 62/RICE VALLEY ROAD GENERATION TIE LINE ALTERNATIVE

The State Route (SR) 62/Rice Valley Road Generation Tie Line Alternative would interconnect to Western's 161-kV/230-kV Parker-Blythe transmission line #2 at the same location as the proposed project generation tie line. This alternative generation tie line would exit the proposed solar facility at the northeast corner and follow SR 62 approximately 4.5 miles east to the junction of Rice Valley Road. It would then trend south to follow the unpaved Rice Valley Road for 4.0 miles to its juncture with the applicant's proposed new generation tie line alignment and continue southeast for 5.4 miles along the proposed alignment to Western's Parker-Blythe #2 transmission line. The SR 62/Rice Valley Road Generation Tie Line Alternative route is illustrated in **Alternatives Figure 3.**

The SR 62/Rice Valley Road Generation Tie Line Alternative is evaluated in this SA/DEIS because it would: (1) Avoid the permanent loss of 13.4 acres of foraging and cover habitat for plant and animal species, including the state and federally listed threatened desert tortoise and (2) Avoid the creation of a new 4.6 mile vehicle access route between the proposed solar facility and the proposed junction of the new transmission line access road with the existing Rice Valley road. The proposed new vehicle access route would necessitate additional enforcement and maintenance to prevent unauthorized off-road vehicle access, propagation of new, unauthorized vehicle routes, and consequent habitat damage, soil erosion, and vehicle disturbance.

Setting and Existing Conditions

All of the aspects of the setting and existing conditions as set out above for the proposed project are also pertinent to this alternative except the project description.

Cultural Resources Inventory

CH2MHILL's field survey for the proposed RSEP did not cover this alternative transmission alignment. However, since this alternative transmission line route travels through historic Camp Rice and follows the course of both the historic Colorado River Aqueduct and historic California SR 62, additional cultural resources are likely to be impacted. An additional pedestrian survey will be required in order for staff, Western and, BLM to properly assess impacts for this alternative.

Assessment of Impacts and Discussion of Mitigation

Staff, Western, and BLM would make recommendations that the impacts of this alternative, on cultural resources to be avoided or mitigated by means of data recovery, with specific modes of data recovery detailed in a MOA, be negotiated and signed by Western, BLM, the State Historic Preservation Officer, the Energy Commission, any Native American tribes or groups who opt to sign, and, possibly, the applicant.

CEQA/NEPA Level of Significance of Impacts

Staff, Western, and BLM would assume that all construction impacts, direct, indirect, and cumulative, to all eligible and staff-assumed-eligible cultural resources located in the APE of this alternative would be significant and adverse. Staff, Western, and BLM also assume that these impacts would be reduced to a less-than-significant level by the

implementation of **CUL-1** through **CUL-11** and the MOA. Staff, Western, and BLM would also provide mitigation measures for the appropriate treatment of potentially eligible archaeological resources discovered during construction of this alternative, should it be built, and these measures would reduce the alternative's impact on discovered Register-eligible archaeological resources to less than significant.

NO PROJECT/NO ACTION ALTERNATIVE

Under this alternative, the proposed Project would not be approved by the Energy Commission; BLM would not approve the transmission line application and would not amend the CDCA Plan; and Western would not approve the interconnection request. As a result, no solar energy project would be constructed on the project site, BLM would continue to manage the land encompassing the transmission line consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended, and Western would continue to operate the Parker-Blythe Transmission Line under current conditions.

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, none of the impacts (such as destruction of the Rice AAF and Camp Rice) from the proposed project would occur and none of the benefits of the proposed project (meaning the production of solar energy) would occur. In the absence of this project, other renewable energy project would have similar impacts in other locations.

COMPARISON OF ALTERNATIVES AND RECOMMENDATION OF LEAST IMPACT CULTURAL RESOURCES ALTERNATIVE

CH2MHILL's record search and field survey, and staff's review for the proposed RSEP, identified 26 eligible or assumed eligible resources. Because the Reduced Acreage Alternative would use the same ownership property boundary, the potential impact to the archaeological resources is the same for those two options.

The number of archaeological sites identified as subject to impacts from the SR62/Rice Valley Road Transmission Line Alternative is unknown, but likely greater than Project impacts, as it bisects Camp Rice.

The number of archaeological sites identified as subject to impacts from the North of Desert Center Alternative is unknown, thus no comparison can be made, and thus remains unanalyzed.

The number of archaeological sites identified as subject to impact from the No-Project/No-Action Alternative is 0.

From a comparison based on the number of archaeological sites that would be impacted, the No-Project/No-Action Alternative would have the least impact on cultural resources. If a project were to be built, of the analyzed options, the proposed Project and/or Reduced Acreage Alternative would have the least impacts on cultural resources.

NOTEWORTHY PUBLIC BENEFITS

Significant direct physical impacts to cultural resources often result in the complete destruction of the resource. Mitigation of these impacts frequently involves the collection of information (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. In the case of the history associated with Rice AAF, Camp Rice, and the DTC/C-AMA, the public's access to information would be significantly enhanced by implementation of the recommended mitigation measures/Conditions of Certification. This allows us to argue that these significant impacts can be mitigated to a less-than-significant level.

COMPLIANCE WITH LORS

The County of Riverside's General Plan has language promoting the general county-wide preservation of cultural resources. The programmatic agreement requires 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 RSEP implements the recommended conditions of certification, its actions would be consistent with the general historic preservation goals of the County of Riverside.

Warren-Alquist Act (Pub. Resources Code § 25500 et seq.)

Pursuant to § 25529 of the Warren-Alquist Act, the Energy Commission ~~shall require the establishment of~~ is required to establish an area for public use as a condition of certification of a facility proposed in an area of recreational, scenic, or historic value.

Staff concludes that this section of the Warren-Alquist Act is applicable ~~on the basis that the project~~ to this project, based on its location in an area that has both historic and scenic values. Historic values are recognized within the project area and locale by the prior existence of Rice AAF and Camp Rice, both part of the greater DTC/C-AMA. The DTC/C-AMA can be thought of as an interconnected landscape of World War II training sites that are highly significant for their association with General George S. Patton and for their contributions to our understanding of how American soldiers were trained during World War II. ~~Scenic~~ The scenic values ~~of~~ associated with the RSEP site are ~~recognized considering the site is within~~ the large open areas of level topography, ~~and~~ the absence of intervening landscape features, and the existing uninterrupted desert vista. SR 62, ~~north~~ which parallels the northern boundary of the RSEP site, is part of a 143-mile segment of SR 62 eligible for State Scenic Highway designation. Called the "29 Palms Highway", the eligible scenic highway serves as the principal public access to Joshua Tree National Park roughly 25 aerial miles west of the project site. In addition, there are four BLM wilderness areas within 10 miles of the project site: Rice Valley, Turtle Mountain, Riverside Mountains and Palen/McCoy. (Please see the **Visual Resources and Land Use** sections of this document for more information.)

Selection Criteria

Staff used the following criteria as guidance for selecting an appropriate public use area:

- Would the public use area provide a specific and tangible benefit to the community?
- Are the public use area plans prepared or can they be readily prepared within the time frame of other plan preparations for the proposed RSEP project?
- Is the public use area environmental review and permitting underway or completed, or can it be integrated with the RSEP project?
- Would the public use area cause a public nuisance?
- Would the public use area be properly operated and maintained?
- Can the public use area that would be funded by the applicant be developed without dependency on additional funding sources?

~~Based on the above criteria, staff determined that a Historic Interpretive Area, developed immediately adjacent to the Project's Administration Area, with easy access from SR 62, would best meet the needs of the public, as well as the statutory requirement for a public use area.~~

~~Staff proposes Condition of Certification **CUL-11**, which would require the project owner to construct and maintain a Historic Interpretive Area, with visitor services, including parking, water, restro**oms**, and shade, appropriate to a desert environment. Although not specifically related to the interpretive value of the site, requirements for restrooms, drinking fountain, garbage cans, and shaded areas have been included to address relevant sanitary concerns and acknowledge the area's unique desert conditions. Providing self-closing containers and collection of refuse would minimize litter that could attract wildlife and invite increased predation on desert tortoise and other at-risk species. There are no existing restrooms or source of drinking water along SR62 for many miles in either direction. Restrooms would prevent the inappropriate use of the land surrounding the interpretive area and provide a means to property contain and dispose of human waste. A properly maintained drinking fountain would provide public access to potable water in an environment where outside activities could contribute to dehydration and heat-related illness. Shaded areas would also reduce heat-related impacts.~~

Staff has determined, in discussion with the applicant, that development of a public use area close to the power plant and solar fields could pose security problems. Remaining features of the Rice AAF that would be easily accessible from a roadside area would also be in close proximity to the project's security fence and solar heliostat field. Therefore, Energy Commission staff recommends a combination of conditions that would avoid the security issues, while meeting the intent of the Warren-Alquist Act and partially mitigating for the loss of historic resources associated with the Rice AAF and portions of Camp Rice.

Condition of certification **CUL-11** would provide a viewing area and informational kiosk off SR 62, near the northwestern boundary of the project site. The roadside stop would

be sited adjacent to the historic Rice AAF and Camp Rice, but at a distance from the plant facilities that would not present a security risk or invite damage to any remaining historic resources. The applicant/project owner would be required to construct a roadside stop that would include parking for up to four vehicles (including a handicap-assessible parking space); and a set of interpretive panels, protected by a shade structure, detailing the history and significance of Rice AAF and Camp Rice, and their contribution to the surrounding DTC/C-AMA landscape.

Condition of certification **CUL-13** would provide aerial documentation of the remains of the Rice AAF, Camp Rice, and the surrounding DTC/C-AMA area, along with additional historic film, still photos, and interviews, that would be made available to the public in a visual documentary format. This would allow the public a unique view of these historic training facilities.

Condition of certification **CUL-14** would provide an interpretive display identifying and interpreting the contributions and historic context of Camp Rice and the Rice AAF, at the George S. Patton Museum, located off Interstate 10, about 30 miles east of Indio at Chiriaco Summit. The display would include a short excerpt of the documentary identified in **CUL-13** above, along with brochures and pamphlets containing additional information on Camp Rice and the Rice AAF.

CONDITIONS OF CERTIFICATION

Applicant Recommended Mitigation Measures

The applicant has provided the following recommendations for measures to mitigate adverse effects of the RSEP on the Rice AAF and Camp Rice.

Oral History

The applicant proposes to contact unit historians for information on units known to have trained at Rice AAF and Camp Rice and to identify living WWII veterans. These veterans would be requested to participate in an oral history interview. Transcriptions of interviews and video materials would be deposited in the General George Patton Museum, the Special Collections Department at the University of California at Riverside, or other qualified repository.

Archival Research

The applicant proposes accessing archives of WWII historical record groups housed in the National Archives system and other sources, such as the General George Patton Museum, locating records associated with units or persons who trained at Rice AAF and Camp Rice. The end products of this effort would be a summary technical report of findings and an article to be published in a scholarly journal.

Site Mapping

The applicant proposes taking low-altitude, high-resolution aerial photographs of the Rice AAF and using these as a base map to outline the physical features, including foundations, refuse pits, stone alignments, and roads, visible from the air. The features should be annotated to indicate feature function as indicated on the 1942/1944 plan

view. Sub-meter accuracy global positioning system devices would be used to record each of the major physical features in detail and generate a map using geographic information systems (GIS) on a topographic or aerial photographic base. The final product would be a detailed map of the associated features.

Public Education

The applicant proposes the creation of an internet site administered by Solar Reserve or other entity (such as BLM or General George Patton Museum) on which historical summaries, illustrations, and documents can be posted. In addition, the applicant proposes the development of a pamphlet and construction of an interpretive kiosk in Project land set aside as a public use area.

Public Access

The applicant proposes to establishing a Public Use Area consisting of a ~~turnoff~~ pull-off from SR 62, parking ~~are~~ for up to ~~8~~ four (4) vehicles, an interpretive kiosk protected by a shade structure that displays panels of text and illustrations ~~(photographs, maps, and diagrams)~~ that illustrate and interpret Rice AAF and Camp Rice as components of the larger DTC-AMA. This would contribute to meeting the provisions of the Warren-Alquist Act (California PRC 25529) as discussed in the **Compliance with LORS** subsection. Staff has identified some additional features of the public use area that it believes are necessary to complement those proposed by the applicant.

Staff has incorporated the recommendations of the applicant, as appropriate. ~~into the Energy Commission proposed~~ The conditions of certification proposed by energy Commission staff (see below) ~~in a manner that~~ would mitigate both project-specific and cumulative impacts to a less than significant level.

PROPOSED CONDITIONS OF CERTIFICATION

CUL-1 DESERT TRAINING CENTER CALIFORNIA-ARIZONA MANEUVER AREA CULTURAL LANDSCAPE (DTCCL) PROGRAM

The project owner shall contribute to a special fund set up by the Energy Commission and/or Western to finance the DTC/C-AMA Cultural Landscape Documentation and Possible NRHP Nomination Program (DTCCL Program) presented in the RSEP SA/DEIS.

The amount of the contribution shall be $22 per acre that the project encloses or otherwise disturbs. Any additional contingency contribution is not to exceed an amount totaling 20% of the original contribution. The contribution to the special fund may be made in installments, with the approval of the Compliance Project Manager (CPM), with the first installment to constitute 1/3 of the total original contribution amount.

If a project is not certified, a project owner does not build the project, or for any reason deemed acceptable by the CPM, a project owner does not participate in funding the DTCCL Program, the other project owner(s) may consult with the CPM to adjust the scale of the DTCCL Program research activities to match available funding. A project owner that funds the DTCCL Program and then withdraws shall be able to receive a refund of their contributions on a prorated basis.

Verification:

Within two weeks (14 days) of the receipt of an invoice from the Energy Commission or BLM, the project owner shall contribute the entire amount of the required contribution or the first of three installments, equal to one-third of the total contribution amount, to the established funding vehicle for the Program. The delivery dates for the remaining installments shall be determined by the CPM, based on program requirements.

The project owner shall provide a copy of the notice of successful transfer of funds for any payment or installment to the DTCCL fund to the CPM within 10 days of receipt.

CUL-2 CULTURAL RESOURCES PERSONNEL

Prior to the start of ground disturbance (includes preconstruction site mobilizationand 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) and one or more alternate CRSs, if alternates are needed. The CRS shall manage all monitoring, mitigation, curation, and reporting activities in accordance with the Conditions of Certification (Conditions).

The CRS may obtain the services of Cultural Resources Monitors (CRMs), as needed, to assist in monitoring, mitigation, and curation activities. The project owner shall ensure that the CRS implements the cultural resources conditions providing for data recovery from known historical resources and 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 affected in an unanticipated manner. No ground disturbance shall occur prior to Compliance Project Manager (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.

The project owner shall ensure that the CRS obtains the services of a qualified historical archaeologist to conduct the research specified in **CUL-9**. 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 resumes of the CRS, alternate CRS, and 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. The project owner may name and hire the CRS, alternate CRS, and PHA prior to certification.

Field Crew Members and Cultural Resources Monitors

CRMs and field crew members, including the Special Interest Monitor (SIM)[18], 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.

Verification:

1. Preferably at least 120 days, but in any event no less than75 days prior to the start of ground disturbance, the project owner shall submit the resumes for the CRS, the alternate CRS(s) if desired, and the PHA to the CPM for review and approval.

2. At least 65 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 (or alternate CRS) and PHA will be available for on-site work and are prepared to implement the cultural resources conditions of certification.

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 the AFC and all cultural resources documents, field notes, photographs, and other cultural resources materials generated by the project to the proposed new CRS. If no alternate CRS is available to assume the duties of the CRS, a monitor may temporarily serve in place of a CRS, for a maximum of three days, to allow ground disturbance to continue uninterrupted. If cultural resources are discovered, ground disturbance shall be halted until there is a CRS or alternate CRS to make a recommendation regarding significance.

[18] The SIM may observe without meeting the qualifications identified in this subsection, but recommendations for the treatment of any unanticipated finds will be considered advisory only and will need approval from the CRS or alternate CRS to be implemented. SIMs without sufficient professional qualifications cannot act as or in place of a CRM.

4. At least 20 days prior to data recovery on known archaeological sites, the CRS shall provide a letter to the CPM for review and approval, naming anticipated field crew members for the project, providing resumes or other proof of qualifications, 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 to the CPM for review and approval, naming anticipated CRMs for the project providing resumes or other proof of qualifications, 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 for review and approval, identifying the new CRMs. providing resumes or other proof of qualifications, and attesting to their qualifications.

CUL-3 PROJECT DOCUMENTATION FOR CULTURAL RESOURCES PERSONNEL

Prior to the start of ground disturbance, the project owner shall provide the CRSand PHA with copies of the AFC, data responses, confidential cultural resources documents, Staff Assessment (SA), and any subsequent revised or supplemental SA. The project owner shall also provide the CRS, PHA, and 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. The CPM 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, PHA, and 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.

Until ground disturbance is completed, the project construction manager shall provide the CRS and CPM with a schedule of project activities for the following week, including the identification of area(s) where ground disturbance will occur. The project owner shall notify the CRS and CPM of any changes to the schedule of construction phases.

Verification:

1. Preferably at least 115 days, but in any event no less than 60 days prior to the start of ground disturbance, the project owner shall provide the CRS, PHA, and CPM with copies of the AFC, data responses, confidential cultural resources documents, the Staff Assessment (SA), and any revised or supplemental SAs. The project owner shall also provide the CRS, PHA, and CPM with the subject maps and

drawings. Staff, in consultation with the CRS, and PHA, will review and approve maps and drawings as suitable for cultural resources monitoring and data recovery activities.

2. 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, PHA, and CPM.

3. 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, PHA, and CPM.

4. Weekly, during ground disturbance, a schedule of anticipated following week's project activity shall be provided to the CRS and CPM by letter, e-mail, or fax.

5. 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-4 CULTURAL RESOURCES MONITORING AND MITIGATION PLAN

Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by or under the direction of the CRS, with the contributions of the PHA, to the CPM for review and approval. 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, 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. Prior to certification, the project owner may have the CRS, alternate CRS, and PHA complete and submit the CRMMP to the CPM for review and approval, except for those portions to be contributed by the DTCCL programs.

The CRMMP shall include, but is not 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 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 DTCCL documentation and possible NRHP nomination program;
   b. Recapitulates the existing historic contexts developed in the DTCCL historic context and adds to these the additional context of the non-military, historic-period occupation and use of the Rice Valley, to create a comprehensive historic context for the RSEP vicinity;
   c. Poses archaeological research questions and testable hypotheses specifically applicable to the archaeological resource types known for Rice Valley, based on the research questions developed under the DTCCL research and on the archaeological and historical literature pertinent to Rice Valley; and
   d. Clearly articulates why it is in the public interest to address the research questions that it poses.
4. Protocols, consistent with the guidance provided in **CUL-9**, shall be specified for the treatment of known and newly discovered prehistoric and historic-period archaeological resource types.
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- or NRHP-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 prior to and during the ground-disturbance and post-ground–disturbance analysis phases of the project shall be specified~~.~~ , taking into consideration any pre-construction ground disturbances that may require biological monitoring.
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. Any 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 RSEP 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. Preferably at least 90 days, but in any event no less than 30 days prior to the start of ~~ground disturbance~~site mobilization, the project owner shall submit the CRMMP to the CPM for review and approval.

2. At least 20 days prior to the start of ~~ground disturbance~~site mobilization, 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 30 days prior to the initiation of ~~ground disturbance~~site mobilization, 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 RSEP cultural resources activities and requiring curation. Any agreements concerning curation will be retained and available for audit for the life of the project.

CUL-5 CULTURAL RESOURCES REPORT (CRR)

The project owner shall submit the final Cultural Resources Report (CRR) to the CPM for review and approval and to Western's 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 Western's 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 archaeologist and Western's archaeologist for review and comment. 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 Western's 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.

CUL-6 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 the project owner with 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-7 CONSTRUCTION MONITORING PROGRAM

The project owner shall ensure that the CRS, alternate CRS, or CRMs shall monitor, full time, all ground disturbance, to prevent construction impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner~~,~~. Consistent with the recommendations of the County of Riverside, a Special Interest Monitor (SIM), designated by the George S. Patton Memorial Museum, shall monitor all ground disturbance, consistent with the actions of a CRM, but shall only have the

authority to halt construction or assume full responsibilities as a CRM if he/she meets the qualification requirements, as designated in **CUL-2**. Otherwise, any recommendations are advisory only and must be approved by the CRS or alternate CRS.

Full-time archaeological monitoring for this project shall include the archaeological monitoring of ground-disturbing activities by approved CRS or CPM in the areas specified, 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. 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 noncompliance 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~~conditions of certification.

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 shall 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.

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. 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 within 15 days of receipt,

CUL-8 AUTHORITY TO HALT CONSTRUCTION; TREATMENT OF DISCOVERIES

The project owner shall grant authority to halt ground disturbance to the CRS, alternate CRS, PHA, 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.

If human remains are found, the project owner shall follow the requirements of the State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98(b). The Riverside County Coroner shall be notified and remains shall be left in place and free from disturbance until the final decision as to the treatment and their disposition has been made. If the remains are determined to be Native American, the Native American Heritage Commission (NAHC) shall be contacted within the period specified by law. Subsequently, the NAHC shall identify the "Most Likely Descendant." The Most Likely Descendant shall then make recommendations and engage in

consultation concerning the treatment of the remains. Human remains from other ethnic/cultural groups with recognized historical associations to the project area shall also be subject to consultation among appropriate interested parties, CPM, Riverside County, and federal agency representatives (if the find occurs on federal public lands).

~~In the event that~~For unanticipated finds, excluding human remains, 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 within a minimum of 100 feet of the find 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 plan, 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, PHA, 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-9 DATA RECOVERY FOR RICE ARMY AIR FIELD AND CAMP RICE FEATURES

Prior to the start of ground disturbance, the project owner shall ensure that records for all 298 historic-period features be upgraded. The focus of the recordation upgrade is to recover any additional data associated with these features before they are destroyed during construction. A 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 CPM, 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-2** 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, or equivalent qualified person approved by the CPM and hired by the project owner should the DTCCL Historical Archaeologist not be available, to identify the specific landform for each site; 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~~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~~ geophysical 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~~a representative sample of diagnostic 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~~geophysical survey of portions of the airfield be completed with inclusive coverage of the northern end of the site, where most of the military activities occurred, to identify and map the distribution of near-surface and buried materials/features. ~~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.~~ This survey shall be conducted with a mobile electromagnetic instrument and high-resolution GPS unit, measuring both conductivity and magnetic susceptibility (metal detection).

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, including those identified in the geophysical survey, 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~~feature, as follows:
   a. Letter reports may address one ~~site~~feature or multiple ~~sites~~features depending on the needs of the CRS; and
   b. The letter report shall be a concise document ~~the~~that 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~~feature landforms.
   c. The letter report shall make a recommendation on whether each ~~site~~feature 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 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-5**). Relevant portions of the information gathered shall be included in the possible NRHP nomination for the DTCCL (funded by **CUL-1**).

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.

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 to the CPM for

review and approval, evidencing that the field portion of data recovery at ~~each site~~particular features have ~~has~~ been completed. When the CPM approves the letter report, ground disturbance may begin at the ~~site~~feature location(s) that are the subject of the letter report.

CUL-10 COMPLIANCE COORDINATION WITH FEDERAL SECTION 106 MOA

If stipulations in the RSEP Section 106 Memorandum of Agreement (MOA), should such a document be prepared and executed, conflict in a mutually exclusive manner with or precisely duplicate the conditions of certification in the Energy Commission Decision, the MOA provisions shall take precedence. Where provisions for the implementation of historic preservation treatments in the conditions of certification are in addition to or exceed such provisions in the MOA, the applicant shall implement treatment in a manner that fulfills both the provisions of the MOA and the conditions of certification. Where the applicant believes that a mutually exclusive conflict exists between these conditions and the provisions in the MOA, or that the said conditions and provisions appear to require a precisely duplicative effort, the applicant shall submit, for the review and approval of the CPM, formal correspondence that states the applicant's determination that such a conflict or effort exists and provides evidentiary support for that determination. Where provisions in the conditions of compliance appear to augment or exceed the provisions in the MOA, the project owner shall coordinate historic preservation treatment with the CPM. Such coordination may, at the discretion of the ~~applicant~~project owner, be on a formal or informal basis. However, the CPM shall make the final determination of the consistency of project activities with Energy Commission conditions of compliance.

Verification:

Prior to the implementation of any historic preservation treatments in these conditions that may conflict in a mutually exclusive manner with any analogous treatments that a Federal MOA may provide or that may precisely duplicate such analogous treatments, the project owner shall consult with the CPM concerning any such conflicts and provide, for the review and approval of the CPM, formal correspondence that relates the outcome of said consultation, states the ~~applicant's~~project owner's determination that a mutually exclusive conflict or precisely duplicative effort exists, and provides evidentiary support for that determination. The ~~applicant~~project owner shall not proceed with the implementation of any historic preservation treatments that are subject to consultation under this condition until the CPM approves the applicant's determination thereon.

CUL-11: ~~PUBLIC ACCESS TO HISTORIC FEATURES~~HISTORIC INTERPRETIVE ROADSIDE STOP

Prior to the start of construction, the project owner shall provide conceptual plans for the Historic Interpretive Roadside Stop (HIRS or roadside stop) ~~Area~~ to the CPM for review and approval. ~~The plans shall also identify existing historic features of Rice AAF and Camp Rice that would be protected from disturbance during construction and preserved in accordance with the MOA.~~ Prior to commercial operation of RSEP, the project owner shall provide the final plans for the ~~Historic Interpretive Area~~roadside stop to Western, BLM, and Riverside County for review and comment, and to the CPM for review and approval~~, that would illustrate and interpret Rice AAF and Camp Rice as components of~~

~~the larger DTC/C-AMA~~. Construction of the roadside stop ~~Historic Interpretive Area~~ shall be complete prior to the start of commercial operations. The project owner's plans for the ~~Historic Interpretive Area may~~ roadside stop shall be coordinated with Caltrans and Riverside County, and shall be developed in a manner that does not compromise site or public safety or security.

The Historic Interpretive ~~Area~~Roadside Stop shall include and make accessible to the public the following features:

1. An encroachment off SR 62 ~~(proposed Fire Access road encroachment)~~ to the ~~Historic Interpretive Area~~ roadside stop and vehicle parking area, consistent with Caltrans, Riverside County, and the Americans with Disabilities Act (ADA) access and ~~requirements~~ parking requirements~~;~~. The vehicle parking area shall include:
   a. Four (4) parking spaces, including one van-accessible ADA-compliant parking space.
   b. The parking spaces and encroachment shall provide a level, all-weather surface, preferably of compacted roack, decomposed granite, or similar permeable material, or as required by Caltrans.
2. An interpretive kiosk, protected by a shade structure, that displays a minimum of five (5) panels of text and graphics ~~illustrations (e.g. photographs, maps, and diagrams)~~ that illustrate and interpret Rice AAF and Camp Rice as individual historic features and as components of the larger DTC/C-AMA~~;~~ Access to the kiosk shall be handicap-accessible, over a level, all-weather surface, preferably of compacted roack, decomposed granite, or similar permeable material, or paved with asphalt concrete, consistent with Riverside County paving requirements and Caltrans encroachment requirements.
3. ~~Identification of existing historic features of Rice AAF, adjacent to the kiosk, with signage and interpretive information along an ADA-accessible walking trail;~~
4. ~~A shade-covered area, with minimum of two picnic tables and benches;~~
3. Self-closing, wildlife-resistant trash can~~s~~;
4. ~~A two-stall, ADA-accessible, contained restroom facility; and~~
5. ~~A drinking fountain.~~

Verification:

1. At least 30 days prior to the start of construction, the project owner shall submit conceptual plans for the Historic Interpretive ~~Area~~Roadside Stop to Western, BLM, and Riverside County for review and comment, and to the CPM for review and approval. ~~The plan shall identify existing historic features of Rice AAF and Camp Rice that would be protected from disturbance during construction and preserved in accordance with the MOA.~~
2. No later than one year following ~~commencement of RSEP~~ start of construction, the project owner shall submit final plans for the roadside stop ~~Historic Interpretive Area~~

to Western, BLM, and Riverside County for review and comment, and to the CPM for review and approval.

3. At least 30 days prior to ~~RSEP~~ the start of commercial operation, the project owner shall complete construction of the ~~Historic Interpretive Area and obtain approval from~~ roadside stop and submit photographic proof of completion to the CPM ~~that the Historic Interpretive Area meets the requirements of this condition~~for review and approval. The ~~Historic Interpretive Area shall be open~~roadside stop shall be moade accessible to the public within 10 days from the start of commercial operations and shall be maintained by the project owner for the life of the project.

4. In each Annual Compliance Report, the project owner shall provide a summary of the following:

   a. Estimated public visitation to the ~~Historic Interpretive Area~~roadside stop;

   b. Any issues associated with operating and maintenance;

   c. Proposed maintenance and improvements, and a schedule for completion;

   d. A log of all completed maintenance and improvements to the ~~Historic Interpretive Area~~roadside stop from the start of ~~RSEP~~ commercial operation to the present day.

CUL-12 FLAG AND AVOID

Resources ~~within the Warren-Alquist Public Use Area (in~~ just outside the northwestern ~~corner~~portion of the main facility circular footprint ~~will~~would be preserved through avoidance. Previously recorded resources along Western's Parker Dam-Blythe Transmission Line No. 2, subject to possible project impacts, shall be revisited prior to construction. In the event that new resources are discovered during construction or previously recorded resources would be additionally affected, where impacts can be reduced or avoided, the project owner shall:

1. Ensure that a CRS, alternate CRS or CRM re-establish the boundary of each site, add a 10-meter-wide buffer around the periphery of each site boundary, and flag the resulting space in a conspicuous manner;

2. Ensure that a CRM enforces avoidance of the flagged areas during RSEP construction; and

3. Ensure, after completion of construction, boundary markings around each site and buffer are removed so as not to attract vandals.

4. Site records for previously documented resources shall be updated.

Within 90 days of transmission line construction, the project owner shall submit for CPM review and approval, site record updates of resources subject to possible impacts.

Within 90 days of the completion of plant construction, the project owner shall submit for CPM review and approval a letter, with photograph and maps, evidencing the removal of boundary markings.

CUL-13 DOCUMENTARY (DTC/C-AMA SKY TOUR)

The project owner shall ensure the production of a high-definition, broadcast quality documentary of the Rice Army Airfield (Rice AAF), Camp Rice, and the surrounding DTC/C-AMA cultural landscape, focusing on the integration and contributions of the Rice AAF, Camp Rice, and other airfields and support facilities to the DTC/C-AMA WWII military training mission, from an aviation perspective.

1. Prior to the start of filming, the project owner shall provide the qualifications of the proposed production company to the Executive Director of the George S. Patton Museum for review and comment, and to the CPM for review and approval. The production company shall have experience in the creation of historic documentary-style videos, consistent with History Channel, Discovery Channel, and PBS production values, and shall provide evidence of the successful completion of at least three full-length videos from project development to release. A copy of any contract related to the production of the documentary shall be submitted to the CPM within 10 days of execution.

2. Prior to the start of filming, the project owner shall also submit the resume of a proposed production advisor to the CPM for review and approval. The production advisor, shall be a qualified historian, with training and experience consistent with the requirements of the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61. In addition, the advisor must have experience researching and documenting historic military resources, preferably within the DTC/C-AMA. The production advisor shall provide direction during production and post-production to ensure historical accuracy and to provide assistance obtaining historic WWII documentation (e.g., military film and training footage, news clips, still photos, audio and written transcripts of interviews) and the most recent information on Camp Rice and the Rice AAF in particular, and the DTC/C-AMA in general.

3. Prior to the start of site mobilization, the production company shall take the initial aerial footage of the remains of the Rice AAF and Camp Rice facilities and features and training fields surrounding the camp. In addition, aerial footage shall be taken of the remains of other facilities and features that are integral or contributing to the DTC/C-AMA cultural landscape, including airfields, camps, bombing ranges, and the King's Throne (where Patton sat to observe maneuvers) as soon as feasible, preferably prior to significant surface disturbance at the Blythe, Palen, and Genesis solar power project sites or other locations slated for development in the near future. Historic film; still photos; re-creations; interview footage and audio tracks; and compatible, high-quality video footage of the subject areas taken prior to current filming may also be integrated into the final product. The original acquisition format shall be high definition, 16X9, 1080p digital format, using broadcast-level cameras and lenses. The aerial documentation shall be photographed using a television motion picture, industry-accepted camera stabilization system, mounted to a helicopter.

4. Prior to the start of production editing, the project owner shall submit a first draft

script, storyboard, and description of other related project elements, including proposed finished length of the documentary (minimum 45 minutes of edited footage for the full-length version and 10 minutes for the abbreviated (excerpt) version), to the DTCCL PI-Historian, production advisor, and Executive Director of the George S. Patton Museum for review and comment, and to the CPM for review and approval.

5. Prior to the start of commercial plant operations, the project owner shall submit the final cut, with voice-over and background music track, along with packaging proofs, including sample cover, disk label, and packaging materials, to the DTCCL PI-Historian, production advisor, and Executive Director of the George S. Patton Museum for review and comment, and to the CPM for review and approval.

6. Concurrent with the start of commercial plant operations, the project owner shall provide the final approved full-length documentary to the George S. Patton Museum in a high definition format, suitable for mass market duplication, along with 500 DVD copies and 100 BluRay copies of the full-length packaged documentary, suitable for resale. Ten DVD copies and five BluRay copies of the packaged documentary shall also be provided to the BLM Palm Springs-South Coast Field Office, Western, and the CPM. The 10-minute excerpt shall be provided to all parties in a digital format compatible with display requirements of the Museum and webcasting requirements of BLM, Western, and the Energy Commission.

7. In conjunction with delivery of the final approved documentary in the designated format, the project owner shall provide a letter to the George S. Patton Museum confirming that the Museum is assigned and shall exclusively retain all DVD, BluRay, and video reproduction and sales rights, and broadcast television distribution rights of the production, both foreign and domestic, excepting use of excerpts from the documentary [including the 10-minute excerpt (short)] on any Bureau of Land Management, Western, or Energy Commission website related to DTC/C-AMA, southern California Desert history, or renewable energy projects within former DTC/C-AMA areas. The letter shall also confirm that the production company may retain copies of the production specifically for promotional and demonstration purposes only. Copies of the letter shall be sent to the CPM, BLM, Western, and the production company representative.

8. The project owner shall ensure that all raw footage acquired during the production of the documentary is submitted to the DTCCL PI-Historian for use in the DTCCL study. Use of the footage for research purposes shall not be restricted. Ten DVD copies and five BluRay copies of the packaged documentary shall also be provided to the DTCCL PI-Historian.

Verification:

1. At least 15 days prior to the start of filming, the project owner shall provide the qualifications of the proposed production company to the Executive Director of the George S. Patton Museum for review and comment, and to the CPM for review

and approval. A copy of any contract related to the production of the documentary shall be submitted to the CPM within 10 days of execution.

2. At least 15 days prior to the start of filming, the project owner shall also submit the resume of a proposed production advisor to the CPM for review and approval. The production advisor, shall be a qualified historian, with training and experience consistent with the requirements of the U.S. Secretary of Interior's Professional Qualifications Standards, as published in Title 36, Code of Federal Regulations, part 61. In addition, the advisor must have experience researching and documenting historic military resources, preferably within the DTC/C-AMA.

3. Prior to the start of site mobilization, the production company shall take the initial aerial footage of the remains of the Rice AAF and Camp Rice facilities and features and training fields surrounding the camp. In addition, aerial footage shall be taken of the remains of other facilities and features that are integral or contributing to the DTC/C-AMA cultural landscape as soon as feasible, preferably prior to significant surface disturbance at the Blythe, Palen, and Genesis solar power project sites or other locations slated for development in the near future. The original acquisition format shall be high definition, 16X9, 1080p digital format, using broadcast-level cameras and lenses. The aerial documentation shall be photographed using a television motion picture, industry-accepted camera stabilization system, mounted to a helicopter.

4. At least 30 days prior to the start of production editing, the project owner shall submit a first draft script, storyboard, and description of other related project elements, including proposed finished length of the documentary (minimum 45 minutes of edited footage), to the DTCCL PI-Historian, production advisor, and Executive Director of the George S. Patton Museum for review and comment, and to the CPM for review and approval.

5. At least 90 days prior to the start of commercial plant operations, the project owner shall submit the final cut, with voice-over and background music track, along with packaging proofs, including sample cover, disk label, and packaging materials, to the DTCCL PI-Historian, production advisor, and Executive Director of the George S. Patton Museum for review and comment, and to the CPM for review and approval.

6. Concurrent with the start of commercial plant operations, the project owner shall provide the final approved documentary to the George S. Patton Museum in a high definition format, suitable for mass market duplication, along with 500 DVD copies and 100 BluRay copies of the full-length packaged documentary, suitable for resale. Ten DVD copies and five BluRay copies of the packaged documentary shall also be provided to the BLM Palm Springs-South Coast Field Office, Western, and the CPM.

7. In conjunction with delivery of the final approved documentary in the designated format, the project owner shall provide a letter to the Executive Director of the George S. Patton Museum confirming that the Museum is assigned and shall exclusively retain all DVD, BluRay, and video reproduction and sales rights, and

broadcast television distribution rights of the production, both foreign and domestic, excepting use of excerpts from the documentary (including the 10-minute short referenced in CUL-14) on any Bureau of Land Management, Western, or Energy Commission website related to DTC/C-AMA, military history, or energy projects in the southern California desert. The letter shall also confirm that the production company may retain copies of the production specifically for promotional and demonstration purposes only. Copies of the letter shall be sent to the CPM, BLM, Western, and the production company representative.

8. Within 30 days from the start of construction, the project owner shall ensure that all raw footage acquired during the production of the documentary is submitted to the DTCCL PI-Historian for use in the DTCCL study. Use of the footage for research purposes shall not be restricted. Ten DVD copies and five BluRay copies of the packaged documentary shall also be provided to the DTCCL PI-Historian.

CUL-14 INTERPRETIVE MATERIALS

1. The project owner shall provide the design of at least one tri-fold brochure and one bi-fold pamphlet and an initial production run of both documents of at least 2,500 copies to the George S. Patton Museum for public distribution, interpreting the significance of Rice AAF and Camp Rice as individual historical features and as contributing features within the DTC/C-AMA cultural landscape.

   Prior to the final phase of plant construction, the project owner shall submit draft design proofs of the brochure and pamphlet to the Executive Director of the Museum for review and comment, and to the CPM for review and approval.

   Prior to the start of commercial plant operations, the project owner shall submit final design proofs of the brochure and pamphlet to the Executive Director of the Museum for review and comment, and to the CPM for review and approval.

   Prior to or concurrent with the start of commercial plant operations. the project owner shall submit a digital/electronic template of the brochure and pamphlet designs, along with 2,500 copies each of the brochure and pamphlet, suitable for public distribution, to the Executive Director of the Museum. The project owner shall also submit the final digital/electronic template of the brochure and pamphlet to the CPM, BLM Palm Springs-South Coast Field Office, and Western. The project owner, Museum, Energy Commission, BLM, and Western shall have authorized use of the initial (and any revised) templates for future production runs for distribution to the public or display on any of the parties' informational websites.

2. According to the Executive Director of the George S. Patton Museum (Museum), a new museum will be built within the next five to six years. Following completion of construction and opening of the new facility to the public, the project owner shall provide and install an interpretive display, related to the Rice AAF, Camp Rice, and the DTC/C-AMA, at the George S. Patton Museum. The display shall be designed consistent with interpretive displays existing at the time of installation and shall incorporate the documentary information on the Rice AAF and Camp Rice, in the context of the DTC/C-AMA military training operations in the California Desert

(including the 10-minute sky tour documentary excerpt).

Prior to the preliminary approval of the new Museum construction plans, the project owner shall consult with the Executive Director of the George S. Patton Museum and DTCCL PI-Historian (or Energy Commission Cultural Staff, if the DTCCL study is no longer in existence) regarding design parameters, content, and construction requirements of the interpretive display.

Prior to the final approval of new Museum construction plans, the project owner shall submit the draft exhibit design plans to the Executive Director of the Museum and DTCCL PI-Historian for review and comment, and the CPM for review and approval.

Prior to the start of new Museum construction, the project owner shall submit the final exhibit design and construction plans to the Executive Director of the Museum and DTCCL PI-Historian for review and comment, and the CPM for review and approval.

Prior to the completion of construction, the project owner shall ensure that the approved interpretive display is constructed and installed as an integral part of the new Museum public display area.

Annually, for each year following the installation of the display, and for the life of the project, the project owner shall contribute $10,000 to the Museum to offset the cost of the exhibit space; maintenance and upgrades to the display; curation of the display during times when it is being updated or is not on display; and to incorporate the information about Camp Rice, Rice AAF, and the DTC/C-AMA provided in the sky tour documentary, brochure, pamphlet, interpretive display, and on-going DTCCL research (see **CUL-1**) into teachers' Internet resources and Museum-sponsored podcast facilities for interactive learning.

Verification:

1. (a) At least 90 days prior to the completion of construction, the project owner shall submit draft design proofs of the brochure and pamphlet to the Executive Director of the Museum for review and comment, and to the CPM for review and approval.

   (b) At least 30 days prior to the start of commercial plant operations, the project owner shall submit final design proofs of the brochure and pamphlet to the Executive Director of the Museum for review and comment, and to the CPM for review and approval.

   (c) Within 30 days from the start of commercial plant operations, the project owner shall submit the final digital/electronic template of the brochure and pamphlet designs, along with 2,500 copies each of the brochure and pamphlet, suitable for public distribution, to the Executive Director of the Museum. The project owner shall also submit the final digital/electronic template of the brochure and pamphlet to the CPM, BLM Palm Springs-South Coast Field Office, and Western.

2. (a) At least one year prior to the preliminary approval of the new Museum

construction plans, the project owner shall consult with the Executive Director of the George S. Patton Museum and DTCCL PI-Historian, production advisor identified in **CUL-13**, or qualified Energy Commission Cultural Staff, regarding design parameters, content, and construction requirements of the interpretive display.

(b) At least 120 days prior to the final approval of new Museum construction plans, the project owner shall submit the draft exhibit design plans to the Executive Director of the Museum and DTCCL PI-Historian for review and comment, and the CPM for review and approval.

(c) At least 90 days prior to the start of new Museum construction, the project owner shall submit the final exhibit design and construction plans to the Executive Director of the Museum and DTCCL PI-Historian or production advisor identified in **CUL-13** for review and comment, and the CPM for review and approval.

(d) At least 30 days prior to the completion of construction, the project owner shall ensure that the approved interpretive display is constructed and installed as an integral part of the new Museum public display area.

(e) Prior to January 15 of each year following the installation of the display, and extending for the life of the project, the project owner shall contribute $10,000 to the Museum. The project owner shall provide a copy of a receipt or letter from the Museum acknowledging the contribution to the CPM within 10 days of receipt.

CONCLUSIONS AND RECOMMENDATIONS

With respect to CEQA, staff[19] concludes that the proposed Rice Solar Energy Project (RSEP) would have significant direct impacts to the features and artifact concentrations associated with the historic Rice Army Airfield (Rice AAF)[20] and the western periphery of Camp Rice (CA-SBA-10526H), as well as potential direct impacts to 23 other eligible or assumed eligible archaeological sites.

Staff finds that the RSEP construction impacts, when combined with impacts from the past, present, and reasonably foreseeable projects, contribute in a small but significant way to the cumulatively considerable adverse impacts to cultural resources at the regional level. Staff recommends the adoption of **CUL-1** , which would reduce RSEP's cumulative impacts to a less than significant level. The program established by this condition of certification would define, document, and nominate the Desert Training Center Cultural Landscape to both the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). Other solar projects in the southern desert, including Blythe Solar Power Project, Palen Solar Power Project, and Genesis Solar Energy Project, are also included in this regional effort.

Staff also recommends that the Energy Commission adopt Conditions of Certification **CUL-2** through **CUL-~~12~~14**, to mitigate RSEP's project-specific cultural resource impacts. These conditions of certification include the following:

[19] "Staff" means Energy Commission staff unless otherwise indicated.

[20] No primary number or trinomial has been assigned yet to this resource.

- **CUL-2** identifies the positions and qualifications of personnel responsible for implementing and monitoring the Energy Commission cultural resource conditions of certification .
- **CUL-3** specifies the information and project documentation to be supplied by the project owner.
- **CUL-4** requires the preparation and implementation of a Cultural Resources Monitoring and Mitigation Plan (CRMMP), which would structure and govern the implementation of the broader treatment program.
- **CUL-5** would require the preparation of a final Cultural Resources Report (CRR) that would analyze, interpret, and document the results of all field activities and research findings for the RSEP cultural resources management program.
- **CUL-6** would require training of all project personnel to identify, avoid, protect, and provide appropriate notice of potential cultural resources in the project construction area.
- **CUL-7** and **CUL-89** would provide construction monitoring and cultural resources discovery protocols.
- **CUL-9** identifies data recovery protocols for the Rice AAF/Camp Rice.
- **CUL-10** identifies a process for resolving any inconsistencies in impact significance and mitigation requirements, as it would relate to stipulations within an Energy Commission/Western/BLM Memorandum of Agreement (MOA), Section 106 consultation. The MOA may be included in the Western Final Environmental Impact Statement (FEIS) for the RSEP right-of-way application or be released as a separate document. However, the Energy Commission's Staff Assessment (SA) will be published in advance of the FEIS and completion of the MOA. Therefore, there is the possibility that staff's recommended conditions of certification may conflict with the mitigation measures or monitoring protocols identified in this document. A revised or supplemental SA may be needed to identify or clarify any differences between the energy Commission conditions of certification and proposed Federal cultural resources mitigation.
- **CUL-11** would require construction and maintenance of a ~~public use area on the~~ Historic Interpretive Roadside Stop, off SR 62 at the project site, as partial mitigation for the impacts to historic Rice AAF and Camp Rice, cumulative impacts to the DTC/C-AMA, and scenic values of the area, consistent with the requirements of Section 25529 of the Warren-Alquist Act.
- **CUL-12** would ensure previously documented and newly discovered cultural resources within Western's Parker Dam-Blythe Transmission Line No. 2 corridor and Historic Interpretive Area are flagged and avoided during proposed construction.
- **CUL-13** would provide public access to an aerial perspective of the Rice AAF, Camp Rice, and the surrounding DTC/C-AMA cultural landscape that is usually unavailable to the general public. This would provide additional mitigation for the impacts to the individual historic features and historic values of the area, reducing potential impacts to a less than significant level under CEQA and providing a form of public access consistent with the intent of Section 25529 of the Warren-Alquist Act.

- **CUL-14** would provide brochures, pamphlets, and an interpretive display, specific to Rice AAF and Camp Rice, to supplement existing information available to the public at the George S. Patton Museum. It would also provide an annual stipend to provide for upkeep of the display and incorporation of the historic information provided into Internet teaching materials and Museum-sponsored educational podcasts. This would also contribute to the mitigation for impacts to the individual historic features and historic values of the area, reducing potential impacts to a less than significant level under CEQA and providing a form of public access consistent with the intent of Section 25529 of the Warren-Alquist Act.

Implementation of the proposed conditions of certification included in this Cultural Resources section would satisfy the Energy Commission's responsibility to comply with CEQA, ensure consistency with the applicable LORS, and reduce impacts to cultural resources to a less than significant level. The identification of relevant and reasonable mitigation measures also conforms to NEPA requirements for the BLM/Western analysis that can be considered in the Record of Decision (ROD).

REFERENCES

Antevs 1948 — Antevs, E., "Climatic Changes and Pre-White Man," in *The Great Basin, With Emphasis on Glacial and Postglacial Times*, " pp. 167-191. Bulletin No. 38(20). University of Utah, Salt Lake City.

Altschul and Ezzo 1995—Altschul, J. H. and J. A. Ezzo, "Ceremony and Warfare Along the Lower Colorado River During the Protohistoric Period," *Proceedings of the Society for California Archaeology*, vol. 8, pp. 133–145.

Arnold et al. 2004—Arnold, J. E., M. R. Walsh, and S. E. Hollimon, "The Archaeology of California," *Journal of Archaeological Research*, vol. 12, no. 1, pp. 1–73.

Bailey and Aubury 1902 – Bailey, G.E., and L.E. Aubury, The Saline Deposits of California, California State Mining Bureau, Bulletin No. 24.

Bamforth 1990—Bamforth, D. B., "Settlement, Raw Material, and Lithic Procurement in the Central Mojave Desert," *Journal of Anthropological Archaeology*, vol. 9, pp. 70–104.

Bamforth 1992—Bamforth, D. B., "Quarries in Context: A Regional Perspective on Lithic Procurement," in *Stone Tool Procurement, Production and Distribution in California Prehistory,* J. E. Arnold, ed., pp. 131–150. Perspectives in California Archaeology, No. 2. University of California, Los Angeles: Institute of Archaeology.

Barrows 1900—Barrows, D. P., *The Ethnobotany of the Cahuilla Indians of Southern California.* Chicago, Ill.: University of Chicago Press, 1900.

Barlow and Metcalf 1996 — Barlow, K. R., and D. Metcalf, "Plant Utility Indices: Two Great Basin Examples," *Journal of Archaeological Science,* vol. 23, pp. 351-371.

Basgall 1993 — Basgall, M. E., *Early Holocene Prehistory of the North-Central Mojave Desert*. Unpublished Ph.D. dissertation. University of California, Davis: Department of Anthropology, 1993.

Basgall, 1995 — Basgall, M. E., "Obsidian Hydration Dating of Early-Holocene Assemblages in the Mojave Desert. *Current Research in the Pleistocene*, vol. 12, pp. 57-60.

Basgall 2000a — Basgall, M. E., "The Structure of Archaeological Landscapes in the North-Central Mojave Desert," in *Archaeological Passages: A Volume in Honor of Claude Nelson Warren,* J. S. Schneider, R. M. Yohe II, and J. K. Gardner, eds., pp. 123-138. Publications in Archaeology, No. 1. Hemet, Calif.: Western Center for Archaeology and Paleontology, 2000.

Basgall 2000b — Basgall, M. E., "Paterns of Toolstone Use in Late-Pleistocene/Early-Holocene Assemblages of the Mojave Desert," *Current Research in the Pleistocene*, vol. 17, pp. 4-6.

Baumhoff and Heizer 1965 — Baumhoff, M. A., and R. F. Heizer, "Postglacial Climate and Archaeology in the Desert West," in *The Quaternary of the United States*, H. E. Wright, Jr., and D. E. Frey, eds., pp. 697-707. Princeton, New Jersey: Princeton University Press, 1965.

Bayman et al. 1996—Bayman, HJ. M., R. H. Hevly, B. Johnson, K. J. Reinhard, and R. Ryan, "Analytical Perspectives on a Protohistoric Cache of Ceramic Jars from the Lower Colorado Desert," *Journal of California and Great Basin Anthropology*, vol. 18, pp. 131–154.

Bean 1972—Bean, L. J., *Mukats People: The Cahuilla Indians of Southern California*. Berkeley, Calif.: University of California Press, 1972.

Bean 1978—Bean, L. J., "Cahuilla," in *Handbook of North American Indians*, vol. 8, pp. 575–587, W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1978.

Bean and Lawton 1967—Bean, L. J., and H. W. Lawton, *A Bibliography of the Cahuilla Indians of California*. Banning, Calif.: Malki Museum Press, 1967.

Bean and Saubel 1972—Bean, L. J., and K. S. Saubel, *Temalpakh (From the Earth): Cahuilla Indian Knowledge and Usage of Plants.* Morongo Indian Reservation, Banning, Calif.: Malki Museum Press, 1972.

Bean and Smith 1978—Bean, L. J., and C. R. Smith, "Serrano," in *Handbook of North American Indians*, vol. 8, pp. 570–574, W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1978.

Beck and Jones 1997—Beck, C., and G. T. Jones, "The Terminal Pleistocene/Early Holocene Archaeology of the Great Basin," *Journal of World Prehistory*, vol. 11, pp. 161–236.

Bee 1983—Bee, R. L. "Quechan," in *Handbook of North American Indians*, vol. 10, pp. 86–98, A. Ortiz, ed. Washington, D.C.: Smithsonian Institution, 1983.

Benedict 1924—Benedict, R. F., A Brief Sketch of Serrano Culture, *American Anthropologist,* vol. 26, no. 3, pp. 366–392.

Benedict 1929—Benedict, R. F. "Serrano Tales," *Journal of American Folk Lore,* vol. 29, no. 151, pp. 1–17.

Bennyhoff and Hughes 1987—Bennyhoff, J.A., and R.E. Hughes, "Shell Bead and Ornament Exchange Networks between California and the Western Great Basin," *Anthropological Papers of the American Museum of Natural History*, vol. 64, no. 2, pp. 79–175.

Bettinger 1993 — Bettinger, R. L., "Doing Great Basin Archaeology Recently: Coping with Variability," *Journal of Archaeological Research*, vol. 1, pp. 43-66.

Bettinger 1999 — Bettinger, R. L., "What Happened in the Medithermal," in *Models for the Millenium: Great Basin Anthropology Today,* C. Beck, ed., pp. 62-74. Salt Lake City, Utah: University of Utah Press, 1999.

Bettinger and Baumhoff 1982 — Bettinger, R. L., and M. A. Baumhoff, "The Numic Spread: Great Basin Cultures in Competition," *American Antiquity*, vol. 47, no. 3, pp. 485-503.

Bettinger and Eerkens 1997 — Bettinger, R. L., and J. Eerkens, "Evolutionary Implications of Metrical Variation in Great Basin Projectile Points," in *Rediscovering Darwin: Evolutionary Theory and Archaeological Explanation,* C. M. Barton and G. Clark, eds., pp. 177-191. Archaeological Papers No. 7. Washington, D. C.: American Anthropological Association, 1997.

Bettinger and Eerkens 1999 — Bettinger, R. L. and J. Eerkens, "Point Typologies, Cultural Transmission, and the Spread of Bow-and-Arrow Technology in the Prehistoric Great Basin," *American Antiquity*, vol. 64, no. 2, pp. 231-242.

Bischoff 2000—Bischoff, M.C. The Desert Training Center/California-Arizona Maneuver Area, 1942–1944: Historical and Archaeological Contexts (Volume 1). Statistical Research, Inc., Technical Series 75. Prepared for the Bureau of Land Management, California Desert District.

Bischoff 2007—Bischoff, M.C. The Desert Training Center/California-Arizona Maneuver Area, 1942–1944: Historical and Archaeological Contexts for the Arizona Desert (Volume 2). Statistical Research, Inc.

Bouey 1979—Bouey, P. D., "Population Pressure and Agriculture in Owens Valley," *Journal of California and Great Basin Anthropology*, vol. 1, no. 1, pp. 162–170.

Broughton and Bayham 2003 — Broughton, J. M., and F. E. Bayham, "Showing Off,

Foraging Models, and the Ascendance of Large Game Hunting in the California Middle Archaic," *American Antiquity*, vol. 68, pp. 783-789.

Broughton, et al 2008 — Broughton, J. M., D. A. Byers, R. A. Bryson, W. Eckerie, and D. B. Madsen, "Did Climatic Seasonality Control Late Quaternary Artiodactyl Densities in Western North America," *Quatenary Science Reviews*, vol. 27, pp. 1916-1937.

Brown 1920—Brown J. S., *Routes to Desert Watering Places in the Salton Sea Region, California*. Water Supply Paper 490-A. Washington, D. C.: U.S. Geological Survey, 1920.

Brown 1923 — Brown, J. S., *The Salton Sea Region, California*. Water Supply Paper 497. Washington, D. C.: U.S. Geological Survey,

Bryant 1974 —Bryant, K. L., Jr., *A History of the Atchison, Topeka, and Santa Fe Railway*. New York: McMillan Publishing Company, Inc.

Burns 2010—Burns, A., "The Atchison, Topeka, and Santa Fe Railway, *Santa Fe All the Way!*," The American Railroads: A Long and Storied History. www.american-rails.com/atchison-topeka-and-santa-fe.html.

Byers and Broughton 2004 — Byers, D. A., and J. M. Broughton, "Holocene Environmental Change, Artiodactyl Abundances, and Human Hunting Strategies in the Great Basin," *American Antiquity,* vol. 69, pp. 235-255.

Byers and Smith 2007 — Byers, D. A., and C. S. Smith, "Ecosystem Controls and the Archaeofaunal Record: An Example from the Wyoming Basin, USA," *The Holocene,* vol. 17, pp. 1171-1184.

Byers, Smith, and Broughton 2003 — Byers, D. A., C. S. Smith, and J. M. Broughton, "Holocene Artiodactyl Population Histories and Large Game Hunting in the Wyoming Basin, USA," *Journal of Archaeological Science*, vol. 32, pp. 125-142.

California State Mineralogist 1919—California State Mineralogist. Mines and Mineral Resources of Portions of California, Chapters of State Mineralogist's Report, Biennial Period 1915–1916. Sacramento: California State Printing Office, 1919.

Campbell 1931—Campbell, E. W. C., "An Archaeological Survey of the Twenty-nine Palms Region," *Southwest Museum Papers*, vol. 7, pp. 1–93.

Campbell 1936—Campbell, E. W. C., "Archaeological Problems in the Southern California Deserts," *American Antiquity*, vol. 1, no. 4., pp. 295–300.

Campbell and Campbell 1935—Campbell, E. C., and W. H. Campbell. The Pinto Basin Site. *Southwest Museum Papers 9*. Highland Park, California: Southwest Museum, Highland Park, 1935.

Campbell et al. 1937—Campbell, E. W. C., W. H. Campbell, E. Antevs, C. A. Amsden, J. A. Barbieri, and F. D. Bode. The Archeology of Pleistocene Lake Mohave. *Southwest Museum Papers 11*. Los Angeles, California: Southwest Museum, 1927.

Castetter and Bell 1951—Castetter, E. F. and W. H. Bell, *Yuman Indian Agriculture, Primitive Subsistence on the Lower Colorado and Gila Rivers*, Albuquerque, New Mexico: University of New Mexico Press.

CH2M HILL 2009—CH2M HILL, Rice Solar Energy Project, Riverside County, California, Application for Certification, vol. 1. Submitted by SolarReserve with Technical Assistance by CH2M HILL to the California Energy Commission.

Cleland 2005—Cleland, J. H., "The Sacred and the Mundane: Cultural Landscape Concepts and Archaeological Interpretation in the Colorado District," *Proceedings of the Society for California Archaeology* vol. 40, pp. 131–136.

Cleland 2007—Cleland, J.H., "Ethnographic Trail Systems as Large-Scale Cultural Landscapes: Preservation and Management Issues". *Proceedings of the Twenty-ninth Annual Meeting of the Alliance for Historic Landscape Preservation*, pp. 41–55.

Cleland and Apple 2003—Cleland, J.H., and R.M. Apple, A View Across the Cultural Landscape of the Lower Colorado Desert. EDAW, Inc., San Diego.

Codding and Jones — 2004 Codding, B. F., and T. L. Jones, "Man the Showoff? Or the Ascendance of a Just-So-Story: A Comment on Recent Applications of Costly Signaling Theory in American Archaeology," *American Antiquity* vol. 72, no. 2, pp. 349-357.

Cole 1986—Cole, K. L., "The Lower Colorado River Valley: A Pleistocene Desert," *Quaternary Research*, vol. 25, pp. 392–400.

Cordell 1997—Cordell, L., *Archaeology of the Southwest*. New York: Academic Press, Inc., 1997.

Crabtree 1980—Crabtree, R.H., "Chapter III—Archaeology," in *A Cultural Resources Overview of the Colorado Desert Planning Units*, pp. 25–54. von Till Warren et al. eds. Prepared for the U.S. Department of the Interior, Bureau of Land Management. Eastern Information Center, University of California, Riverside, Report No. RI-1211, 1081359.

Crossley 1997—Crossley, R., "The Desert Training Center in World War II," *La Posta*, vol. 28, no. 5.

Davis 1961—Davis, J.T., "Trade Routes and Exonomic Exchange among the Indians of California." *University of California Archaeological Survey Reports*, No. 54, Berkeley.

Davis and Winlsow 1965—Davis, E.L., and S. Winslow, "Giant Grand Figures of the Prehistoric Desert," *American Philosophical Society,* vol. 109, pp. 8–21.

Dillon 2002—Dillon, B. D., California Paleoindians: Lack of Evidence, or Evidence of Lack?, in *Essays in California Archaeology: A Memorial to Franklin Fenenga*, W. J. Wallace and F. A. Riddell, eds., pp. 110–128. Contributions of the University of California Archaeological Research Facility, No. 60, 2002.

Dorn et al. 1992—Dorn, R.I., P.B. Clarkson, M.F. Nobbs, L.L. Loendorf, and D. S. Whitley, "New Approach to Radiocarbon Dating of Organic Matter Encapsulated by Rock Varnish, with Examples from Archeology and Geomorphology," *Annals of the Association of American Geographers*, vol. 82, pp. 36–151.

Drucker 1937—Drucker, P., "Culture Element Distributions: V. Southern California," *University of California Anthropological Records*, vol. 1, no. 1, pp. 1–52.

Duke 1999—Duke, C., "Cultural Resources Assessment for Pacific Beel Mobile Services Facility CM-688-01, County of San Bernardino, California." San Bernardino Archaeological Information Center, San Bernardino County Museum, Report No. SB-5332.

Duke and Kistler, 1963 —Duke, D., and S. Kistler, *Santa Fe...Steel Rails Through California,* San Marino, California; Golden West Books, 1963.

Earle 2006 — Earle, D. D., "The Mojave River and the Central Mojave Desert: Native Settlement, Travel, and Exchange in the Eighteenth and Nineteenth Centuries," *Journal of California and Great Basin Anthropology,* vol. 25, no. 1, pp. 1-38.

Easter et al. 1999—Easter, P., C. Inoway, J. George, J. Paniagua, Site Record for Site CA-SBR-9853-H. On file, San Bernardino Archaeological Information Center, San Bernardino County Museum, Redlands, California.

Eerkens 1999 — Eerkens, J. W., "Common Pool Resources, Buffer Zones, and Jointly Owned Territories: Hunter-Gatherer Land and Resource Tenure in Fort Irwin, Southeastern California," *Human Ecology*, vol. 27, no. 2, pp. 297-318.

Eerkens 2001 — Eerkens, J. W., *The Origins of Ceramics Among Late Prehistoric Hunter-Gatherers of the Western Great Basin*, Ph.D. Dissertation, University of California, Santa Barbara: Department of Anthropology, 2001.

Eerkens 2002a — Eerkens, J. W., "Typologies and Classification of Great Basin Pottery: A New Look at Death Valley Brownwares," in *Ceramic Production and Circulation in the Greater Southwest*, Monograph No. 40, D. M. Glowacki and H. Neff, eds., pp. 141-151, University of California, Los Angeles: Cotsen Institute of Archaeology, 2002.

Eerkins 2002b—Eerkens, J. W., "Ceramic Production among Small-Scale and Mobile Hunters and Gatherers: A Case Study from the Southwestern Great Basin," *Journal of Anthropological Archaeology*, vol. 21, pp. 200–229.

Eerkens 2003a—Eerkens, J. W., "Towards a Chronology of Brownware Pottery in the Western Great Basin: A Case Study from Owens Valley," *North American Archaeologist*, vol. 24, pp. 1–27.

Eerkens 2003b—Eerkens, J. W., "Residential Mobility and Pottery Use in the Western Great Basin," *Current Anthropology*, vol. 44, no. 65, pp. 728–738.

Eerkens 2003c—Eerkens, J. W., "Sedentism, Storage, and the Intensification of Small Seeds: Prehistoric Developments in Owens Valley, California," *North American Archaeologist*, vol. 24, pp. 281–309.

Eerkens 2004—Eerkens, J. W., "Privatization, Small-Seed Intensification, and the Origins of Pottery in the Western Great Basin," *American Antiquity*, vol. 69, no. 4, pp. 653–670.

Eerkens and Rosenthal 2004— Eerkens, J. W., and J. S. Rosenthal, "Are Obsidian Subsources Meaningful Units of Analysis?: Temporal and Spatial Patterning of Subsources in the Coso Volcanic Field," *Journal of Archaeological Science*, vol. 31, pp. 21-29.

Eerkins et al. 1999—Eerkins, J. W., H. Neff, and M. D. Glascock, "Early Pottery from Sunga'va and its Implications for the Development of Ceramic Technology in Owens Valley, California," *Journal of California and Great Basin Anthropology*, vol. 21, pp. 275–285.

Elston 1982 — Elston, R. G., "Good Times, Hard Times: Prehistoric Culture Change in the Western Great Basin," in *Man and Environment in the Great Basin*, D. B. Madsen and J. F. O'Connell, eds., pp. 186-206, Washington D. C.: Society for American Archaeology Papers 2, 1982.

Elston 1986 — Elston, R. G., "Prehistory of the Western Area," in *Great Basin,* W. L. D'Azevedo, ed., pp. 135-148, Handbook of the North American Indians, vol. 11, W. C. Sturtevant, general ed., Washington D. C. : Smithsonian Institution.

Elston and Zeanah 2002 — Elston, R. G., and D. W. Zenah, "Thinking Outside the Box: A New Perspective on Diet Breadth and Sexual Division of Labor in the Prearchaic Great Basin," *World Archaeology*, vol. 34, no. 1, pp. 103-130.

Enzel et al 1992 — Enzel, Y., W. J. Brown, R. Y. Anderson, L. D. McFadden, and Stephen G. Wells, "Short-duration Holocene Lakes in the Mojave River Drainage Basin, Southern California," *Quaternary Research,* vol. 38, pp. 60-73.

Enzel et al 2003 — Enzel, Y., D. R. Cayan, R. Y. Anderson, and S. G. Wells, "Late Pleistocene Lakes Along the Mojave River, Southeast California,"in

Paleoenvironments and Paleohydrology of the Mojave and Southern Great Basin Deserts, Special Paper 368, Y. Enzel, S. G. Wells, and N. Lancaster, eds., pp. 61-77. Boulder, Colorado: Geological Society of America, 2003.

Ericson 1989 — Ericson, J. E., "Toward Flow-Specific Obsidian Hydration Rates: Coso Volcanic Field, Inyo County, California," in *Current Directions in California Obsidian Studies*, R. E. Hughes, ed., Contributions No. 48, pp. 13-22. University of California, Berkeley: Archaeological Research Facility, 1989.

Erlandson et al. 2007—Eerkens, J.W., J.S. Rosenthal, D.C. Young, and J. King, "Early Holocene Landscape Archaeology in the Coso Basin, Northwestern Mojave Desert, California," *North American Archaeologist*, vol. 28, no. 2, pp. 87–112.

Ezzo and Altschul 1993—Ezzo, J.A., and J. Altschul, "An Archaeological Survey of Pilot Knob, Imperial County, California: A Class III Cultural Resources Survey and Evalatioon," in *Glyphs and Quarries of the Lower Colorado River Valley*, J.A. Ezzo and J.H. Altschul, eds. SRI Technical Series No. 44(4). Tucson, Arizona: Statistical Research Inc.

Fagan 2000—Fagan, B., *The Little Ice Age: How Climate Change Made History, 1300–1850.* New York: Basic Books, 2000.

Fergusson and Calvit 2009—Fergusson, A. and E. Calvit, Cultural Resources Inventory Report for the Rice Solar energy Project Riverside County, California. Submitted by SolarReserve with Technical Assistance by CH2M HILL to the California Energy Commision.

Fitzgerald et al. 2005—Fitzgerald, R.T., T.L. Jones, and A. Schroth, "Ancient Long-Distance Trade in Western North American: New AMS Radiocarbon Dates from Southern California." *Journal of Archaeological Science*, vol. 32, pp. 423–434.

Ford 1983—Ford, R. J., "Inter-Indian Exchange in the Southwest," in *Southwest*, Vol. 10, Handbook of North American Indians, pp. 711–742. W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1983.

Forde 1931—Forde, C. D. "Ethnography of the Yuma Indians," University of California Publications in American Archaeology and Ethnology, vol. 28, no. 4, pp. 83–278.

Fowler 1986 — Fowler, C. S., "Subsistence," in *Great Basin*, W. d'Azevedo, ed., pp. 64-97, Handbook of North American Indians, W. C. Sturtevant, general ed., vol. 11, Washington D.C.: Smithsonian Institution, 1986.

Fowler 1994 — Folwer, C. S., "Material Culture and the Proposed Numic Expansion," in *Across the West: Human Population Movement and the Expansion of the Numa*, D. B. Madsen and D. Rhode, eds., pp. 103-113, Salt Lake City, Utah: University of Utah Press, 1994.

Fowler 1995—Fowler, C. S., "Some Notes on Ethnographic Subsistence Systems in Mojavean Environments in the Great Basin," *Journal of Ethnobiology* vol. 15, no. 1, pp. 99–117.

Fowler 1996 — Fowler, C. S., "Historical Perspectives on Timbisha Shoshone Land Management Practices, Death Valley, California," in *Case Studies in Environmental Archaeology*, E. J. Reitz, L. A. Newsom, and S. J. Scudder, eds., pp. 87-101, New York: Plenum Press, 1996.

Freeman 2010—Freeman, P. "Abandoned and Little-Known Airfields: California: Southeastern San Bernardino County, www.airfields-freeman.com/Ca/Airfields_CA_SanBernardino_SE.htm#rice.

Frickstad 1955 — Frickstad, W. N., *A Century of California Post Offices, 1848 to 1954*, Oakland, California: Walter M, Frickstad, 1955.

Gallegos et al. 1980—Gallegos, D., J. Cook, E.L. Davis, G. Lowe, F. Norris, and J. Thesken, *Cultural Resources Inventory of the Central Mojave and Colorado Desert Regions, California.* Cultural Resources Publications, Bureau of Land Management.

Garfinkel and Yohe 2004 — Garfinkel, A. P., and R. M. Yohe, II, "Antiquity and Function: Humboldt Basal-notched Bifaces in the Southwestern Great Basin, *Journal of California and Great Basin Anthropology*, vol. 24, no. 1, pp. 103-126.

Garthoff 2001—Garthoff, R.L., A Journey through the Cold War: A Memoir of Containment and Coexistence. Brookings Institution Press.

Gifford 1918—Gifford, E. W., "Clans and Moieties in Southern California," *University of California Publications in Archaeology and Ethnology*, vol. 14, no. 2, pp. 55–219.

Gilreath 2007—Gilreath, A.J., "Rock Art in the Golden State: Pictographs and Petroglyphs, Portable and Panoramic," in, *California Prehistory: Colonization, Culture, and Complexity*, pp. 273–289, T.L. Jones, and K. Klar, eds. Lanham, Md: Academic Press, 2007.

Gilreath an Hildebrandt 1997 — Gilreath, A. J., and W. R. Hildebrandt, *Prehistoric Use of the Coso Volcanic Field*, Contributions No. 56, University of California, Berkeley, Calif.: Archaeological Research Facility.

Golla 2007—Golla, V., "Linguistic Prehistory," in *California Prehistory: Colonization, Culture, and Complexity,* pp. 71–82, T. L. Jones and K. A. Klar, eds. Lanham, Md: Academic Press, 2007.

Graf and Schmitt 2007—Graf, K. E. and D. N. Schmitt (editors), *Paleoindian or Paleoarchaic? Great Basin Human Ecology at the Pleistocene/Holocene Transition.* Salt Lake City: The University of Utah Press, 2007.

Grayson 1993—Grayson, D. K., *The Desert's Past, A Natural Prehistory of the Great Basin*. Washington D. C.: Smithsonian Institution Press, 1993.

Gregory 2005—Gregory, C., "Introduction: A View Across the Cultural Landscape of the Lower Colorado Desert," *Proceedings of the Society for California Archaeology*, vol. 40, pp. 79–82.

Grinnell and Miller 1944 — Grinnell, J., and A. H. Miller, *The Distribution of the Birds of California*. Pacific Coast Avifauna No. 27, Berkeley, California :Cooper Ornithological Club, 1944.

Griset 1986—Griset, S. (editor), "Pottery of the Great Basin and Adjacent Areas," *Anthropological Papers No. 111*, University of Utah, Salt Lake City.

Griset 1996 — Griset, S., *Southern California Brown Ware*, Ph.D. Dissertation University of California, Davis, Calif.: Department of Anthropology, 1996.

Grove 1988—Grove, J. M., *The Little Age.* London, England: Methuen and Company, 1988.

Hague 1976—Hague, H.H., "The Search for a Southern Overland Route to California," *California Historical Quarterly*, vol. 55, no. 2, pp. 150–161.

Harner 1953—Harner, M.J., "Gravel Pictographs of the Lower Colorado River Region," *University of California Archaeological Survey Reports*, vol. 20, pp. 1–29.

Harrington 1962—Harrington, R.E., "Souvenirs of the Palm Springs Area," Simi, California: Peg Wilson.

Hart 1965 — Hart, H. M., *Old Forts of the Far West*, New York: Bonanza Books, 1965.

Hart 2009—Hart, H.M., "Historic California Posts: Camp Cady," in California State Military Department: The California State Military Museum. http://www.militarymuseum.org/CpCady.html.

Harwell and Kelly 1983—Harwell, H. O. and M. C. S. Kelly. "Maricopa," in *Handbook of North American Indians*, vol. 10, pp. 71–85, A. Ortiz, ed. Washington, D.C.: Smithsonian Institution, 1983.

Hedges 2005—Hedges, K., "Rock Art Sites at Palo Verde Point," *Proceedings of the Society for California Archaeology*, vol. 40, pp. 95–105.

Henley 1992—Henley, D.C., "The Land that God Forgot...The Saga of General George Patton's Desert Training Camps," The Western Military History Association.

Hildebrandt and McGuire 2002 — Hildebrandt, W. R., an K. R. McGuire, "The Ascendance of Hunting During the California Middle Archaic," *American Antiquity*, vol. 67, no. 2, pp. 231-256.

Hildebrandt and Ruby 2006 — Hildebrandt, W. R., and A. Ruby, "Prehistoric Pinyon Exploitation in the Southwestern Great Basin: A View from the Coso Range," *Journal of California and Great Basin Anthropology*, vol. 26, pp. 11-31.

Hockett and Murphy 2009 — Hockett, B., and T. W. Murphy, "Antiquity of Communal Pronghorn Hunting in the North-Central Great Basin," *American Antiquity,* vol. 7, no. 4, pp. 708-734.

Hockett 2005 — Hockett, B.S., "Middle and Late Holocene Hunting in the Great Basin: A Critical Review of the Debate and Future Prospects," *American Antiquity*, vol. 70, pp. 713-731.

Hockett 2007 — Hockett, B. S., "Nutritional Ecology of Late Pleistocene to Middle Holocene Subsistence in the Great Basin; Zooarchaeological Evidence from Bonneville Estates Rockshelter," in *Paleoindian or Paleoarchaic? Great Basin Human Ecology at the Pleistocene/Holocene Transition,* K. E. Graff and D. N. Schmitt, eds., pp. 204-230, Salt Lake City, Utah: University of Utah Press, 2007.

Hooper 1920—Hooper, L., "The Cahuilla Indians," *University of California Publications in American Archaeology and Ethnology*, vol. 16, no. 6, pp. 315–380.

Howard 1985—Howard. G. W., "The Desert Training Center/California-Arizona Maneuver Area," *Journal of Arizona History*, vol. 26, pp. 273–294.

Hubbs and Miller 1948 — Hubbs, C. L., and R. R. Miller, "The Zoological Evidence: Correlation Between Fish Distributions and Hydrographic History in the Desert Basins of Western United States," in *The Great Basin: With Emphasis on Glacial and Post Glacial Times*, Bulletin 38, no. 20, pp. 17-166, Salt Lake City, Utah: University of Utah, 1948.

Hughes 1986—Hughes, R. E., "Trace Element Composition of Obsidian Butte, Imperial County, California," *Bulletin Southern California Academy of Sciences*, vol. 85, no. 1, pp. 33–45.

Hughes 1988 — Hughes, R. E., "The CosoVolcanic Field Reexamined: Implications for Obsidian Sourcing and Hydration Dating Research. *Geoarchaeology*, vol. 3, pp. 243-265.

Hughes and True 1983—Hughes, R.E., and D.L. True, "Perspectives on the Distribution of Obsidians in San Diego County," *North American Archaeologist*, vol. 6, pp. 325–339.

Hundley 2001 — Hundley, N., Jr. , *The Great Thirst, Californians and Water: A History.* Berkeley, Calif.: University of California Press, 2001.

Ikes 1942—Ikes, H.L., Use Permit. Addressed to the Secretary of War, Honorable Henry L. Stimson, Secretary of the Interior, April 24. On file, General Patton Memorial Museum, Chiriaco Summit, California.

Ingles 1965 — Ingles, L. G., *Mammals of the Pacific States: California, Oregon, and Washington*. Stanford, California: Stanford University Press, 1965.

James 1960—James, H. C., *The Cahuilla Indians: The Men Called Master*. Los Angeles, Calif.: Westernlore Press, 1960.

Jenkins 1987 — Jenkins, D. L., "Dating The Pinto Occupation at Rogers Ridge: A Fossil Spring Site in the Mojave Desert, California," *Journal of California and Great Basin Anthropology*, vol. 9, No. 2, pp. 214-231.

Jenkins and Warren 1984 — Jenkins, D. L., and C. M. Warren, "Obsidian Hydration and the Pinto Chronology in the Mojave Desert," *Journal of California and Great Basin Anthropology*, vol. 6, no. 1, pp. 44-60.

Johnson 1985—Johnson, B., "Earth Figures of the Lower Colorado and Gila River Desert: A Functional Analysis," Phoenix: Arizona Archaeological Society.

Johnson 2003—Johnson, B., "Geoglyphs Associated with the Xam Kwatan Trail in the Palo Verde Point Area, South of Blythe, California," in *A View Across the Cultural Landscape of the Lower Colorado Desert: Cultural Resource Investigations for the North Baja Pipeline Project*, J.H. Cleland and RM. Apple, eds. Prepared for Tetra Tech FW, Santa Ana, California and North Baja Pipelines LLC, Portland Oregon.

Johnson 1980 — Johnson, F. J., "Two Southern California Trade Trails," *Journal of California and Great Basin Anthropology,* vol. 2, no. 1, pp. 88-96.

Johnson and Johnson 1957 — Johnson, F. J. and P. M. Johnson, "An Indian Trail Complex of the Colorado Desert: A Preliminary Study," in *Papers on California Archaeology: 47-49,* pp. 22-39. Reports No. 37, Berkeley, Calif.: University of California Archaeological Survey, 1957.

Johnson and Haarklau 2005 — Johnson, L., and L. Haarklau, "Results of the Regional Obsidian Projectile Point Sourcing Study," in *Fingerprints in the Great Basin: The Nellis Air Force Base Regional Obsidian Sourcing Study*, L. Haarklau, L. Johnson, and D. L. Wagner, eds., pp. 115-150, U.S. Army Corps of Engineers, Fort Worth District, Austin, Texas: Morgan Printing, 2005.

Johnson and Wagner 2005 — Johnson, L., and D. L. Wagner, "Obsidian Source Characterization Study" in *Fingerprints in the Great Basin: The Nellis Air Force Base Regional Obsidian Sourcing Study*, L. Haarklau, L. Johnson, and D. L. Wagner, eds., pp. 25-50, U.S. Army Corps of Engineers, Fort Worth District, Austin, Texas: Morgan Printing, 2005.

Johnston 1965—Johnston, F. J., *The Serrano Indians of Southern California.* Banning, Calif.: Malki Museum Press, 1965.

Jones and Beck 1999 — Jones, G. T., and C. Beck, "Paleoarchaic Archaeology in the Great Basin," in *Models for the Millennium: Great Basin Anthropology Today*, Beck, ed., pp. 83-95, Salt Lake City, Utah: University of Utah Press.

Jones, et al 2003 — Jones, G. T., C. Beck, E. Jones, and R. Hughes, "Lithic Source Use and Paleoarchaic Foraging Territories in the Great Basin, *American Antiquity*, vol. 68, no. 1, pp. 5-58.

Keeler-Wolf 2007 — Keeler-Wolf, T., "Mojave Desert Scrub Vegetation," in *Terrestrial Vegetation of California*, Third Edition, M.G. Barbour, T. Keeler-Wolf, and A.A. Schoenherr, eds., pp. 609-656. Berkeley, Calif.: University of California Press, 2007.

Kelly 1934—Kelly, I. T. "Southern Paiute Bands," *American Anthropologist*, vol. 36, no. 4, pp. 548–560.

Kelly 1936—"Chemehuevi Shamanism," in *Essays in Anthropology, Presented to A. L. Kroeber in Celebration of his Sixtieth Birthday*, pp. 129–142. Berkeley, Calif.: University of California Press, 1936.

Kelly 1964—Kelly, I. T., *Southern Paiute Ethnography*, Anthropological Papers, no. 69 (Glen Canyon Series no. 21), University of Utah, Salt Lake City, 1964.

Kelly 1995 — Kelly, R. L., *The Foraging Spectrum; Diversity in Hunter-Gatherer Lifeways*. Washington, D. C.: Smithsonian Institution, 1995.

Kelly 1997—Kelly, R. L., "Late Holocene Great Basin Prehistory," *Journal of World Prehistory*, vol. 11, no. 1, pp. 1–49.

Kelly 2001 — Kelly, R. L., *Prehistory of the Carson Desert and Stillwater Mountains: Environment, Mobility, and Subsistence in the Great Basin Wetland,* Anthropological Papers No. 123, Salt Lake City, Utah: University of Utah Press, 2001.

Kelly and Fowler 1986—Kelly, I. T. and C. S. Fowler, "Southern Paiute," in *Handbook of North American Indians*, vol. 11, pp. 368–397. W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1986.

Koerper and Hedges 1996—Koerper, H. C., and K. Hedges "Patayan Anthropomorphic Figurines from an Orange County Site," *Journal of California and Great Basin Anthropology*, vol. 18, no. 2, pp. 204–220.

Kroeber 1908—Kroeber, A. L., "Ethnography of the Cahuilla Indians," *University of California Publications in American Archaeology and Ethnology*, vol. 8, no. 2, pp. 29–68.

Kroeber 1925—Kroeber, A. L., *Handbook of the Indians of California,* Bulletin 78. Washington, D. C., Bureau of American Ethnology, 1925; also, New York: Dover Publications, 1925.

Kuchler 1977 — Kuchler, A. W., *Inland Fishes of California*, Revised and Expanded, Berkeley, Calif.: University of California Press, 1977.

Laird 1974a—Laird, C. "Chemehuevi Religious Beliefs and Practices," *Journal of California Anthropology,* vol. 1, no. 1, pp. 19–25.

Laird 1974b—Laird, C., "The Buffalo in Chemehuevi Folklore," *Journal of California Anthropology*, vol. 1, no. 2, pp. 220–224.

Laird 1975a—Laird, C., "Two Chemehuevi Teaching Myths," *Journal of California Anthropology*, vol. 2, no. 1, pp. 18–24.

Laird 1975b—Laird, C., "Duck Magic (Poem)," *Journal of California Anthropology*, vol. 2, no. 2, p. 147.

Laird 1976—Laird, C., *The Chemehuevis.* Banning, Calif.: Malki Museum Press.

Laird 1977a—Laird, C., "Intimation of Unity," *Journal of California Anthropology,* vol. 4, no. 1, pp. 50–54.

Laird 1977b—Laird, C., "Chemehuevi Myth as Social Commentary," *Journal of California Anthropology*, vol. 4, no. 2, pp. 191–195.

Laird 1977c—Laird, C., "Behavioral Patterns in Chemehuevi Myths," in *Flowers of the Wind: Papers on Ritual, Myth, and Symbolism in California and the Southwest*, pp. 97-103, T. C. Blackburn, ed.. Anthropological Papers, no. 8. Socorro, N.M.: Ballena Press, 1977.

Laird 1978a—Laird, C., "The Androgynous Nature of Coyote," *Journal of California Anthropology*, vol. 5, no. 1, pp. 67–72.

Laird 1978b—Laird, C., "Origin of the Horse," *Journal of California Anthropology*, vol. 5, no. 2, pp. 251–255.

Laird 1984—Laird, C., *Mirror and Pattern: George Laird's World of Chemehuevi Mythology.* Banning, Calif.: Malki Museum Press, 1984.

Lamb n.d.—Lamb, B.P., "Travelers on the California Leg of the Southern Route 1849–1852," www.parks.ca.gov/?page_id=24680. Accessed 2/1/2010.

Larson 1987 — Larson, D. O., *An Economic Analysis of the Differential Effects of Population Growth and Climatic Variability Among Hunter-Gatherers,* Ph.D. Dissertation, University of California, Santa Barbara, Calif.: Department of Anthropology.

Larson 1996 — Larson, D. O., "Population Growth, Agricultural Intensification, and Culture Change Among the Virgin Branch Anasazi, Nevada, *Journal of Field Archaeology*, vol. 23, pp. 55-76.

Larson and Michaelsen 1990 — Larson, D. O., and J. Michaelsen, "Impacts of Climatic Variability and Population Growth on Virgin Branch Anasazi Cultural Developments, *American Antiquity*, vol. 55, pp. 227-249.

Lawton et al. 1976—Lawton, H.W., P.J. Wilke, M. DeDecker, and W.M. Mason, "Agriculture Among the Paiute of Owens Valley," *The Journal of California and Great Basin Anthropology,* vol. 3, no. 1, pp. 13–50.

Laylander and Christenson 1988—Laylander, D., and L.E. Christenson, "Corral Canyon and Late Prehistoric Exchange in Inland San Diego County," *Proceedings of the Society for California Archaeology*, vol. 1, pp. 135–157.

Liljeblad and Fowler 1986—Liljeblad, S., and C. S. Fowler, "Owens Valley Paiute," in *Great Basin*, Vol. 10, Handbook of North American Indians, pp. 412–434. W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1986.

Lingenfelter 1978 — Lingenfelter, R. E., *Steamboats on the Colorado River, 1852-1916.* Tucson, Arizona: University of Arizona Press, 1978.

Lippencott 1981—Lippenscott, K., "A Cultural Resources Survey of Two Proposed Uranium Exploration Sites in Rice Valley, Riverside County, California." Eastern Information Center, University of California, Riverside, Report No. RI-1210.

Love and Dahdul 2002—Love, B., and M. Dahdul, "Desert Chronologies and the Archaic Period in the Coachella Valley," *Pacific Coast Archaeological Society Quarterly*, vol. 38, nos. 2–3, pp. 65–86.

Lyneis 1988—Lyneis, M. M., "Tizon Brown Ware and the Problems Raised by Paddle-and-Anvil Pottery in the Mojave Desert," *Journal of California and Great Basin Anthropology*, vol. 10, no. 2, pp. 146–155.

Lyneis 1992 — Lyneis, M. M., *The Main Ridge Community at Lost City: Virgin Anasazi Architecture, Ceramics, and Burials*, Anthropological Papers No. 117, Salt Lake City, Utah: University of Utah Press, 1992.

Lyneis 1994 — Lyneis, M. M., "East and Onto the Plateus? An Archaeological Examination of the Numic Expansion in Southern Nevada, Northern Arizona, and Southern Utah," in *Across the West: Human Population Movement and the Exansion of the Numa*, D. B. Madsen and D. Rhode, eds., pp. 141-149, Salt Lake City, Utah: University of Utah Press, 1994.

Lyneis, 1995 — Lyneis, M. M., "The Virgin Anasazi, Far Western Pueblos," *Journal of World Prehistory*, vol. 9, pp. 199-242.

MacMahon 1985—MacMahon, J.A., "Deserts," in *The Audubon Society Nature Guides.* New York: Alfred A. Knopf.

MacMullen 1944 — MacMullen, J., *Paddlewheel Days in California*, Stanford, California: Stanford University Press, 1944.

Madsen 2002 — Madsen, D. B., "Great Basin Peoples and Late Quaternary Aquatic History," in *Great Basin Aquatic Systems History*, R. Hershler, D. B. Madsen, and D. R. Curry, eds., pp. 387- 405. Contributions to Earth Sciences 33. Washington, D. C.: Smithsonian Institution, 2002.

Madsen and O'Connell (eds). 1982 — Madsen, D. B., and J. F. O'Connell, *Man and Environment in the Great Basin.* SAA Papers No. 2, Washington, D. C.: Society for American Archaeology, 1982.

Marshall 1945 — Marshall, J., *Santa Fe: The Railroad That Built an Empire,* New York: Random House, 1945.

Mazer, Stevenson, Ebert, and Bates, 1991 — Mazer, J. J., C. M. Stevenson, W. L. Ebert, and J. K. Bates, "Experimental Hydration of Obsidian as a Function of Relative Humidity and Temperature," *American Antiquity*, vol. 56, pp. 504-513.

McCarthy 1993—McCarthy, D., Site form for CA-Riv-893-T. On file at the Eastern Information Center, Riverside, California.

McCarty 1980—McCarty, R., "Environmental Background," in *A Cultural Resources Overview of the Colorado Desert Planning Units*, E. Warren, R.H. Crabtree, C.N. Warren, M. Knack, and R. McCarty, eds. Prepared for the U.S. Department of Interior, Bureau of Land Management.

McFarland 2000—McFarland, S.L., "Changes in Obsidian Exchange in Southern California." Master's thesis, Department of Anthropology, San Diego State University, 2000.

McGuire 2002 — McGuire, K. R., *Boundary Lands: Archaeological Investigations Along the California-Great Basin Interface,* Anthropological Papers No. 24, Carson City, Nevada: Nevada State Museum, 2002.

McGuire, Delacorte, and Carpenter 2004 — McGuire, K. R., M. G. Delacorte, and K. Carpenter, *Archaeological Excavations at Pie Creek and Tule Valley Shelters, Elko County, Nevada*, Anthropological Papers No. 25, Carson City, Nevada: Nevada State Museum, 2004.

McGuire and Hildebrandt 2005 — "Re-Thinking Great Basin Foragers: Prestige Hunting and Costly Signaling During the Middle Archaic Period," *American Antiquity*, vol. 79, pp. 695-712.

McGuire, Hildebrandt, and Carpenter 2007 — McGuire, K. R., W. R. Hildebrandt, and K. L. Carpenter, "Cost Signaling and the Ascendance of No-Can-Do Archaeology: A Reply to Codding and Jones," *American Antiquity* vol. 72, no. 2, pp. 358-365.

McGuire and Schiffer 1982—McGuire, R.H., and M.B. Schiffer (editors), "Hohokam and Patayan: Prehistory of Southwestern Arizona," New York: Academic Press, 1982.

Meko et al. 2001—Meko, D. W., M. D. Therell, C. H. Baisan, and M. K. Hughes, "Sacramento river flow Reconstructed to A. D. 869 from Tree Rings," *Journal of the American Water Resources Association,* vol. 37, pp. 1029–1039.

Meller 1946—Meller, S.L., "The Army Ground Forces: The Desert Training Center and CAMA," *Historic Section Study 15.*

Mendenhall 1909 — Mendenhall, W. C., *Some Desert Watering Places in Southeastern California and Southwestern Nevada.* Water Supply Paper 223. Washington, D.C.: U. S. Geological Survey, 1909.

Metcalfe and Barlow 1992 — Metcalfe, D., and K. R. Barlow, "A Model for Exploring the Optimal Trade-off Between Field Processing and Transport," *American Anthropologist,* vol. 94, pp. 340-356.

Metropolitan Water District of Southern California 1941 — The Metropolitan Water District of Southern California, *The Great Aqueduct: TheStory of the Planning and Building of the Colorado River Aqueduct*, Los Angeles, Calif.: Metropolitan Water District of Southern California, 1941.

Miller and Miller 1967—Miller, R. D., and P. J. Miller. *The Chemehuevi Indians of Southern California,* Malki Museum Brochure no. 3. Banning, Calif.: Malki Museum Press, 1967.

Minckley and Brown 1994—Minckley, W.L., and D.E. Brown, "Wetlands," in Biotic Communities Southwestern United States and Northwestern Mexico, D.E. Brown, ed., pp. 223–287. Salt Lake City: University of Utah Press.

Mohave 1975—The Mohave: Supplement to the Kingman Daily Minor, "Twenty Miles South of Lake Havasu City Steamers Docked at Aubrey's Landing," October-November 1975.

Moratto 1984—Moratto, M. *California Archaeology.* New York: Academic Press, 1984.

Moyle 2002 — Moyle, P. B., *Inland Fishes of California*, Revised and Expanded. Berkeley , Calif.: University of California Press, 2002.s

Mulholland 2000 — Mulholland, C., *William Mulholland and the Rise of Los Angeles.* Berkeley, Calif.: University of California Press, 2000.

Murbarger 1964 — Murbarer, N., *Ghosts of the Adobe Walls*, Los Angeles, California:

Westernlore Press, 1964.

Murdoch 1956 – Murdoch, J., and R.W. Webb, Minerals of California, Division of Mines, Bulletin 173.

Myrick 1963 — Myrick, D. F., *Railroads of Nevada and Eastern California, volume Two – The Southern Roads,* Berkeley, Calif.: Howell-North Books, 1963.

Nystrom 2003—Nystrom, E.C., "From Neglected Space to Protected Place: An Administrative History of the Mojave National Preserve." Prepared for the U.S. Department of Interior, National Park Service Mojave National Preserve.

Pletka 2003—Pletka, N., "Cultural Resources Assessment for the AT&T Wireless Services Facility No. 25006A, Unincorporated Riverside County, California." Eastern Information Center, University of California, Riverside, Report No. RI-7172

Plymale-Schneeberger 1993—Plymale-Schneeberer, S., *Petrographic and Geochemical Analysis on Prehistoric Ceramics from Three Riverside County [California] Archaeological Sites, CA-Riv-722, CA-Riv-1864, CA-Riv-222*, Salinas, California: Coyote Press.

Prose and Wilshire 2000—Prose, D.V., and H.G. Wilshire, "The Lasting Effects of Tank Maneuvers on Desert Soils and Intershrub Flora," U.S. Geological Survey Open-File Report OF 00-512.

Raven 1966—Raven, P.H., *Native Shrubs of Southern California*, Berkeley: University of California Press, 1966.

Reisner 1993 — Reisner, M., *Cadillac Desert: The American West and Its Disappearing Water,* Revised and Updated, New York: Penguin Books, 1993.

Rhode 1999 — Rhode, D., "The Role of Paleoecology in the Development of Great Basin Archaeology, and Vice-Versa," in *Models for the Millennium: Great Basin Anthropology Today*, C. Beck, ed., pp. 29-49, Salt Lake City, Utah: University of Utah Press, 1999.

Rhode 2000 — Rhode, D., "Review of Prehistoric Use of the Coso Volcanic Field," *Journal of California and Great Basin Anthropology*, vol. 20, pp. 285-289.

Rice et al. 1996—Rice, R.B., W.A. Bullough, and R.J. Orsi, *The Elusive Eden, A New History of California.* New York: The McGraw-Hill Companies, Inc., 1996.

Rogers 1939—Rogers, M. J., "Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas," *San Diego Museum of Man Papers* 3. San Diego, California: San Diego Museum of Man, 1939.

Rogers 1945—Rogers, M. J., "An Outline of Yuman Prehistory," *Southwestern Journal of Anthropology*, vol. 1, no. 2, pp. 167–198.

Rondeau et al. 2007—Rondeau, M. F., J. Cassidy, and T. L. Jones, "Colonization Technologies: Fluted Projectile Points and the San Clemente Island Woodworking/Microblade Complex," in *California Prehistory: Colonization, Culture and Complexity*, T. L. Jones and K. A. Klar, eds., pp. 63–70. New York: Alta Mira Press, 2007.

Rosen 1995—Rosen, M. D., "IMP-6427, A Lake Cahuilla Shell Bead Manufacturing Site," *Proceedings of the Society for California Archaeology*, vol. 8, pp. 87–104.

Roth 1976—Roth, G., *Incorporation and Changes in Ethnic Structure: The Chemehuevi Indians*. Ph.D. dissertation, Northwestern University, Evanston, Ill., 1976.

Roth 1977—Roth, G., "The Calloway Affair of 1880: Chemehuevi Adaptation and Chemehuevi–Mohave Relations," *Journal of California Anthropology*, vol. 4, no. 2, pp. 273–286.

Ruhge 2005 — Ruhge, J. M., *The Military History of California*, Lompoc, California: Quantum Imaging Associates, 2005.

Sample 1950—Sample, L. L., *Trade and Trails in Aboriginal California*. University of California Archaeological Survey Reports, No. 8. University of California, Berkeley: Department of Anthropology, 1950.

Schaefer 1992—Schaefer, J., "The Chronology and Distribution of Site Types at Tahquitz Canyon." Paper presented at the annual meeting of the Society for California Archaeology, Pasadena.

Schaefer 1994—Schaefer, J., "The Challenge of Archaeological Research in the Colorado Desert: Recent Approaches and Discoveries," *Journal of California and Great Basin Anthropology*, vol. 16, no. 1, pp. 60–80.

Schaefer 1998—Schaefer, J., "A Cultural Recourses Inventory and Evaluation of the Parker-Blythe 161 kV Transmission Line No. 2, Riverside and San Bernardino Counties, California." Eastern Information Center, University of California, Riverside, Report No. RI-7753.

Schaefer and Laylnder 2007—Schaefer, J., and D. Laylander, "The Colorado Desert: Ancient Adaptations to Wetlands and Wastelands," in *California Prehistory: Colonization, Culture, and Complexity*, T. L. Jones and K. A. Klar, eds., pp. 247–257. New York: Alta Mira Press, 2007.

Schneider et al. 1995—Schneider, J. S., M. Lerch, and G. A. Smith, "A Milling-Implement Quarry at Elephant Mountain, California," *Journal of Great Basin Anthropology*, vol. 17, pp. 191–219.

Schoenherr 1992—Schoenherr, A.A., *A Natural History of California*. Berkeley: *University of California Press*, 1992.

Schoenherr and Burk 2007 — Schoenherr, A. A., and J. H. Burk, "Colorado Desert Vegetation," in *Terrestrial Vegetation of California*, Third Edition, M.G. Barbour, T. Keeler-Wolf, and A.A. Schoenherr, eds., pp. 657-682. Berkeley, Calif.: University of California Press, 2007.

Schroeder 1958—Schroeder, A.H., "Lower Colorado Buffware," in, *Pottery Types of the Southwest*, H.S. Colton ed. Ceramic Series No. 3D. Flagstaff: Museum of Northern Arizona, 1958.

Schroeder 1979—Schroeder, A. H., "Prehistory: Hakataya," in *Southwest*, Vol. 9, Handbook of North American Indians, pp. 100–107. W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1979.

Schroth 1994 — Schroth, A. B., *The Pinto Point Controversy in the Western United States*, Ph.D. Dissertation, University of California, Riverside: Department of Anthropology, 1994.

Scuderi 1987a — Scuderi, L. A., "Late Holocene Upper Timberline Variation in the Southern Sierra Nevada, *Nature*, vol. 325, pp. 242-244.

Scuderi 1987b — Scuderi, L. A., "Glacier Variations in the Sierra Nevada, Califoria, As Related to a 1200-Year Tree-Ring Chronology," *Quaternary Research*, vol. 27, pp. 220-231.

Scuderi 1990 — Scuderi, L. A., "Tree-Ring Evidence for Climatically Effective Volcanic Eruptions," *Quaternary Research*, vol. 34, pp. 67-85.

Scuderi 1993 — Scuderi, L. A., "A 2000-Year Tree Ring Record of Annual Temperatures in the Sierra Nevada Mountains," *Science*, vol. 259:1433-1436.

Setzler and Marshall 1952—Setzler, F.M., and G.C. Marshall, "Seeking the Secret of the Giants," *National Geographic*, September, pp. 389–404.

Shackely 1988—Shackley, M. S., "Sources of Archaeological Obsidian in the Southwest: An Archaeological, Petrological, and Geochemical Study," *American Antiquity*, vol. 53, no. 4, pp. 752–772.

Shackley 1994 — Shackley, M. S., "Intersource and Intrasource Geochemical Variability in Two Newly Discovered Archaeological Obsidian Sources in the Southern Great Basin: Bristol Mountains, California and Devil Peak, Nevada," *Journal of California and Great Basin Anthropology*, vol. 16, pp. 118-129.

Shackley 1995—Shackley, M. S., "Sources of Archaeological Obsidian in the Greater American Southwest: An Update and Quantitative Analysis," *American Antiquity*, vol. 60, no. 3, pp. 531–551.

Shackley 2005—Shackley, M. S., *Obsidian: Geology and Archaeology in the North American Southwest.* Tucson, Arizona: the University of Arizona Press, 2005.

Shaul and Hill 1998—Shaul, D.L., and J.M. Andresen, "A Case for Yuman Participation in the Hohokam Regional System," *Kiva,* vol. 54, pp. 105–126.

Sherman and Sherman 1969 — Sherman, J. E., and B. H. Sherman, *Ghost Towns of Arizona*, Norman, Oklahoma: University of Oklahoma Press, 1969.

Shipley 1978—Shipley, W. F., "Native Languages of California," in *Handbook of North American Indians*, vol. 8, pp. 80–90, W. C. Sturtevant, ed. Washington, D. C.: Smithsonian Institution, 1978.

Shumway et al. 1980—Shumway, G.L., L. Vredenburgh, and R. Hartill, "Desert Fever: An Overview of Mining in the California Desert Conservation Area." Prepared for U.S. Department of the Interior, Bureau of Land Management, Desert Planning Staff.

Simms 1985a — Simms, S. R., "Pine Nut Use in Three Great Basin Cases: Data, Theory, and a Fragmentary Material Record," *Journal of California and Great Basin Anthropology*, vol. 7, pp. 166-175.

Simms 1985b — Simms, S. R., "Acquisition Cost and nutritional Data on Great Basin Resources," *Journal of California and Great Basin Anthropology*, vol. 7, pp. 117-125.

Simms 1986 — Simms, S. R., "New Evidence for Fremont Adaptive Diversity," *Journal of California and Great Basin Anthropology*, vol. 8, pp. 204-216.

Simms 1987 — Simms, S. R., *Behavioral Ecology and Hunter-Gatherer Foraging: An Example from the Great Basin*, B.A.R. International Series 381, Oxford, England: B.A.R., 1987.

Smith and Street-Perrott 1983 —Smith, G. I., and F. A. Street-Perrott, "Pluvial Lakes of the Western United States," in *Late Quaternary Environments of the United States, Volume I, The Late Pleistocene,* H. E. Wright, Jr., ed., pp. 190-214, Minneapolis, Minnesota: University of Minnesota Press, 1983.

Small 1994 — Small, A., *California Birds: Their Status and Distribution.* Vista, California: Ibis Publishing Company, 1994.

Solari and Johnson 1982—Solari, E. M., and B. Johnson, "A Synthesis of Known Information and Recommendations for Management," in *Hohokam and Patayan: Prehistory of Southwestern Arizona*, R. H. McGuire and M. B. Schiffer, eds., pp. 417–432. New York: Academic Press, 1982.

Spaulding 1990—Spaulding, W. G., "Vegetational and climatic Development of the Mojave Desert: the Last Glacial Maximum to the Present," in *Packrat Middens: The Last 40,000 Years of Biotic Change*, J. L. Betancourt, T. R. Van Devender, and P. S. Martin, eds., pp. 166–199. Tucson, Arizona: University of Arizona Press, 1990.

Starr 1990 — Starr, K., *Material Dreams: Southern California Through the 1920s*, New York: Oxford University Press, 1990.

Starr 1996 — Starr, K., *Endangered Dreams: The Great Depression in California.* New York: Oxford University Press, 1996.

Stevens 1988 — Stevens, J. E., *Hoover Dam: An American Adventure,* Norman, Oklahoma: University of Oklahoma Press, 1988.

Stevenson et al. 1993 — Stevenson, C. M., E. Knaus, J. J. Mazer, and J. K. Bates, "Homogeneity of Water Content in Obsidian from the Coso Volcanic Field: Implications for Obsidian Hydration Dating," *Geoarchaeology*, vol. 8, pp. 371-384.

Stevenson and Sheetz 1989 — Stevenson, C. M. and B. E. Sheetz, "Induced Hydration Rate Development of Obsidians from the Coso Volcanic Field: A Comparison of Experimental Procedures," in *Current Directions in California Obsidian Studies*, R. E. Hughes, ed., pp. 23-30. Contributions No. 48, University of California, Berkeley, Calif.: Archaeological Research Facility, 1989.

Steward 1930—Steward, J. H., "Irrigation Without Agriculture," *Papers of the Michigan Academy of Science, Arts, and Letters,* vol. 12, pp. 149–156.

Steward 1933—Steward, J. H., "Ethnography of the Owens Valley Paiute," *Publications in American Archaeology and Ethnology*, vol. 33, no. 3, pp. 233–350.

Steward 1938—Steward, J. H., *Basin-Plateau Aboriginal Sociopolitical Groups.* Washington, D. C., Bureau of American Ethnology Bulletin 120, 1938.

Steward 1940 — Steward, J. H., "Native Cultures of the Intermontane (Great Basin) Area," in *Essays in Historical Anthropology of North America, Published in Honor of John R. Swanton in Celebration of His Fortieth Year with the Smithsonian Institution*, Smithsonian Institution, ed., pp. 445-502. Smithsonian Miscellaneous Collection 100. Washington, D. C.: Smithsonian Institution, 1940.

Steward 1941—Steward, J. H., "Culture Element Distributions, XIII: Nevada Shoshoni," *University of California Anthropological Records*, vol. 4, no. 2, pp. 209–360.

Steward 1970—Steward, J. H., "The Foundation of Basin-Plateau Shoshonean Society," in *Languages and Cultures of Western North America: Essays in Honor of Sven S. Liljeblad,* E. H. Swanson, Jr., ed., pp. 113–151. Pocatello, Idaho: Idaho State University Press, 1970.

Stewart 1983a—Stewart, K. M. "Yumans: Introduction," in *Handbook of North American Indians*, vol. 10, pp. 1–12, A. Ortiz, ed. Washington, D.C.: Smithsonian Institution, 1983.

Stewart 1983b—Stewart, K. M. "Mojave," in *Handbook of North American Indians*, vol. 10, pp. 55–70, A. Ortiz, ed. Washington, D.C.: Smithsonian Institution, 1983.

Stine 1994—Stine, S., "Extreme and Persistent Drought in California and Patagonia During Mediaeval Time," *Nature*, vol. 369, pp. 546–549.

Stine 1996 — Stine, S., "Climate, 1650-1850," in *Sierra Nevada Ecosystem Project, Final Report to Congress, Status of the Sierra Nevada, Volume II, Assessments and Scientific Basis for Management Options*, SNEP Science Team and Consultants, eds., pp. 25-30. Report No. 3. University of California, Davis, Calif.: Centers for Water and Wildland Resources, 1996.

Stine 1998 — Stine, S., "Medieval Climatic Anomaly in the Americas," in *Water, Environment, and Society in Times of Climatic Change: Contributions, from an International Workshop within the Framework of International Hydrological Program (IHP) UNESCO, Held at Ben-Gurion University, Sede Boker, Israel from 7-12 July 1996,* A. S. Issar and N. Brown, eds., pp. 43-67, Dordrecht, The Netherlands: Kluwer Academic Publishers, 1998.

Stine 2000 — Stine, S., "On the Medieval Climatic Anomaly, *Current Anthropology*, vol. 41, pp. 627-628.

Strong 1929—Strong, W. D., "Aboriginal Society in Southern California," *University of California Publications in American Archaeology and Ethnology*, vol. 26, no. 1, pp. 1–358.

Sutton 1988 — Sutton, M. Q., *An Introduction to the Archaeology of the Western Mojave Desert, California*, Archives of California Prehistory No. 14, Salinas, Calif.: Coyote Press, 1988.

Sutton 1995 — Sutton, M. Q., "The Current Status of Archaeological Research in the Mojave Desert," *Journal of California and Great Basin Anthropology*, vol. 8, pp. 65-82.

Sutton et al. 2007—Sutton, M. Q., M. A. Basgall, J. K. Gardner, and M. W. Allen, "Advances in Understanding Mojave Desert Prehistory," in *California Prehistory: Colonization, Culture and Complexity*, T. L. Jones and K. A. Klar, eds. pp. 229–245. New York: Alta Mira Press, 2007.

Swenson 1984—Swenson, J. D., "A Cache of Mesquite Beans from Mecca Hills, Salton Basin, California," *Journal of California and Great Basin Anthropology*, vol. 6, no. 2, pp. 246–252.

Tausch 2004—Tausch, R. J., C. L. Nowak, and S. A., Mensing, "Climate Change and Associated Vegetation Dynamics during the Holocene: the Paleoecological Record," in *Great Basin Riparian Ecosystems: Ecology, Management, and Restoration*, J. C. Chambers and J. R. Miller, eds., pp. 24–48. Washington, D. C.: Island Press, 2004.

Tennyson and Apple 2009—Tennyson, M., and R. Apple, Cultural Resources Class III Report for the Proposed Palen Solar Power Project, Riverside County, California. Prepared for Solar Millennium, LLC and Chevron Energy Solutions, August 2009.

Terracon 2009—Terracon Consultants, Inc., "Preliminary Geotechnical Engineering Report: Rice Solar Energy Project former Rice Airfield Highway 62, Mile Marker 109 Rice, California. Prepared for Rice Solar Energy, LLC.

Thomas 1983a — Thomas, D. H., *The Archaeology of Monitor Valley 2. Gatecliff Shelter*, Anthropological Papers, vol. 59, no. 1, New York: American Museum of Natural History, 1983.

Thomas 1983 b — Thomas, D. H., *The Archaeology of Monitor Valley 1. Epistemology*, Anthropological Papers, vol. 58, no. 1, New York: American Museum of Natural History, 1983.

Thomas, 1988 — Thomas, D. H., *The Archaeology of Monitor Valley 3. Survey and Additional Excavations*, Anthropological Papers, vol. 66, no. 2, New York: American Museum of Natural History.

Thomas 2005—Thomas, Taylor. "Draft Historic Context Statement for the Southern California Transmission/Distribution Line Systems in the Angeles National Forest [Blythe-Eagle Mountain Transmission Line]."

Thompson 1921—Thompson, D.G., *Routes to Desert watering Places in the Mojave Desert Region, California*, U.S. Geological Survey Water Supply Paper 490-B, Washington, D.C. : U.S. Geological Survey, 1921.

Thompson 1990—Thompson, R. S., "Late Quaternary Vegetation and Climate in the Great Basin," in *Packrat Middens: The Last 40,000 Years of Biotic Change,* J. L. Betancourt, T. R. Van Devender, and P. S. Martin, eds., pp. 200–239. Tucson, Arizona: University of Arizona Press, 1990.

Ugan and Bright 2001 — Ugan, A., and J. Bright, "Measuring Foraging Efficiency with Archaeological Faunas: The Relationship Between Relative Abundance indices and Foraging Returns," *Journal of Archaeological Science* vol. 28, pp.1309-1321.

USACOE 1993—U.S. Army Corps of Engineers, Findings of Fact: Desert Center, Division Camp, Desert Center, California, Site No. J09CA034200. Defense Environmental Restoration Program, Formerly Used Defense Sites, Findings and Determination of Eligibility. Manuscript on file, National Archives, Pacific Region, Laguna Niguel.

Van Devender 1990—Van Devender, T. R., "Late Quaternary Vegetation and Climate of the Sonoran Dessert, United States and Mexico," in *Packrat Middens: The Last 40,000 Years of Biotic Change,* J. L. Betancourt, T. R. Van Devender, and P. S. Martin, eds., pp. 134–165. Tucson, Arizona: University of Arizona Press, 1990.

Ver Planck 1952 — Ver Planck, W. E., *Gypsum in California.* Bulletin 163. San Francisco, California : State of California, Department of Natural Resources, 1952.

Ver Planck, 1958 — Ver Planck, W. E., *Salt in California.* Bulletin 175. San Francisco, California: California Division of Mines, 1958.

Von Till Warren et al. 1980—Von Till Warren, E., R.H. Crabtree, C.N. Warren, M. Knack, and R. McCarty, "A Cultural Resources Overview of the Colorado Desert Planning Uits. Institude for American Research. RI-1211.

Von Werlhof 1987—Von Werlhof, J., "Spirits of the Earth, A Study of Earthen Art in the North American Deserts, Volume I: The North Desert". Ocotillo, California: Imperial Valley College Museum, 1987.

Von Werlhof 1988—Von Werlhof, J., "Trails in Eastern San Diego County and Imperial County: An Interim Report." *Pacific Coast Archaeological Society Quarterly,* vol. 24, no. 1, pp. 51-75.

Von Werlhof 1995—Von Werlhof, J., "Geoglyphs in Time and Space," *Proceedings of the Society for California Archaeology,* vol. 8, pp. 61–68.

Von Werlhof 2004—Von Werlhof, J., "That They May Know and Remember Volume 2: Spirits of the Earth," *Imperial Valley College Desert Museum Society.* Ocotillo, California: Self-published, 2004.

Waitman 1954 — Waitman, L. B., "The History of Camp Cady," *The Historical Society of Southern California Quarterly,* vol. 36, no. 1, pp. 49-91.

Waitman 1968 — Waitman, L. B., *Horse Soldier Forts of the Mojave Desert.* Bloomington, Colorado: San Bernardino County Museum Association, 1968.

Wallace 1980—Wallace, W. J., "Death Valley Indian Farming," *Journal of California and Great Basin Anthropology*, vol. 2, no. 2, pp. 269–272.

Walsh 2000—Walsh, M. R., "Beyond the Digging Stick: Women and Flaked Stone Tools in the Desert West," in *Archaeological Passages: A Volume in Honor of Claude Nelson Warren*, J. K. Gardner, ed., pp. 198–212. Publications in Archaeology, No. 2. Hemet, California: Western Center for Archaeology and Paleontology, 2000.

Warren 1980—Warren, E. "History," in A Cultural Resources Overview of the Colorado Desert Planning Units, pp. 83–137, Warren, E., R.H. Crabtree, C.N. Warren, M. Knack, and R. McCarty. eds. Prepared for the U.S. Department of Interior, Bureau of Land Management. Eastern Information Center, University of California, Riverside, Report No. RI-1211, 1081359.

Warren 1984—Warren, C. N. "The Desert Region," in *California Archaeology*, pp. 339–430, M. Moratto, ed. San Diego: Academic Press, 1984.

Warren and Crabtree 1986 – Warren, C.N., and R.H. Crabtree, "Prehistory of the Southwestern Area," in *Great Basin*, W. d'Azevedo, ed., pp. 183-193. Handbook of North American Indians, vol. 11, W. C. Sturtevant, general editor, Washington D. C.,: Smithsonian Institution, 1986.

Waters 1950 — Waters, L. L., *Steel Trails to Santa Fe*. Lawrence, Kansas: University of Kansas Press, 1950.

Waters 1982—Waters, M. R., "The Lowland Patayan Ceramic Typology," in *Hohokam and Patayan: Prehistory of Southwestern Arizona*, R. H. McGuire and M. B. Schiffer, eds. pp. 537–570. New York: Academic Press, 1982.

West et al. 2007—West, G. J., W. Woolfender, J. A. Wanket, and R. S. Anderson, "Late Pleistocene and Holocene Environments," in *California Prehistory: Colonization, Culture, and Complexity*, T. L. Jones and K. A. Klar, eds., pp. 11–34. New York: AltaMira Press, 2007.

Whitley 2000—Whitley, D.S., *The Art of the Shaman: Rock Art of California*. Salt Lake City: University of Utah Press, 2000.

Wilcox 2000—Wilcox, L. *Desert Dancing: Exploring the Land, the People, the Legends of the California Deserts.* Edison, New Jersey: Hunter Publishing, Inc., 2000.

Wigand and Rhode 2002—Wigand, P. E. and D. Rhode, "Great Basin Vegetation History and Aquatic Systems: The last 150,000 Years," in *Great Basin Aquatic Systems History*, R. Hershler, D. B. Madsen, and D. R. Currey, eds., pp. 309–367. Smithsonian Contributions to Earth Sciences, 33. Washington D. C.: Smithsonian Institution, 2002.

Wildfang 2005—Wildfang, F.B., *Images of America: Lake Havasu City*. Charleston, South Carolina: Arcadia Publishing, 2005.

Wilke 1978a—Wilke, P. J., *Late Prehistoric Human Ecology of Lake Cahuilla, Coachella Valley, California*. Contributions, No. 38. Berkeley, California: University of California Archaeological Research Facility, 1978.

Wilke 1978b—Wilke, P. J., "Cairn Burials of the California Deserts," *American Antiquity*, vol. 43, pp. 444–448.

Wilke 1983—Wilke, P.J., "Negative Letter Report to BLM from the Archaeological Research Unit of the University of California Riverside" Eastern Information Center, University of California, Riverside, Report No. RI-1690.

Wilke and McDonald 1989—Wilke, P. J. and M. McDonald, "Prehistoric Use of Rock-Lined Cache Pits: California Deserts and Southwest," *Journal of California and Great Basin Anthropology*, vol. 11, no. 1, pp. 50–73.

Wilke and Schroth 1989—Wilke, P. J., and A. B. Schroth, "Lithic Raw Material Prospects in the Mojave Desert, California," *Journal of California and Great Basin Anthropology*, vol. 11, no. 2, pp. 146–174.

Wilke et al. 1977—Wilke, P. J., T. W. Whitaker, and E. Hattori, "Prehistoric Squash (*Curcurbita pepo* L.) from the Salton Basin," *Journal of California Anthropology*, vol. 4, pp. 55–59.

Williams and Bedinger 1984 — Williams, T. R., and M. S. Bedinger, *Selected Geologic and Hydrologic Characteristics of the Basin and Range Province, Western United States Pleistocene Lakes and Marshes.* Miscellaneous Investigations Series, Map I-1522-D, Washington, D. C.: U. S. Geological Survey, 1984.

Willig et al. 1988—Willig, J. A., C. M. Aikens, and J. L. Gagan (editors), *Early Human Occupation in Far Western North America: The Clovis-Archaic Interface.* Nevada State Museum of Anthropology Papers, No. 21. Carson City, Nevada, 1988.

Winter and Hogan 1986—Winter, J. C. and P. F. Hogan, "Plant Husbandry in the Great Basin and Adjacent Northern Colorado Plateau," in *Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings,* C. J. Condie and D. D. Fowler, eds. pp. 117–144. Anthropological Papers, No. 110. Salt Lake City, Utah, University of Utah, 1986.

Woods et al. 1986—Woods, C.M., S. Raven, and C. Raven, "The Archaeology of Creation: Native American Ethnology and the Cultural Resources at Pilot Knob." Document on file, EDAW, Inc., San Diego.

Yohe 1992 — Yohe, II, R. M., *A Reevaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California Based on New Excavation at the Rose Spring Site (CA-INY-372)*, Ph.D. Dissertation, University of California, Riverside, Calif.: Department of Anthropology.

Yohe 1997—Yohe II, R. M., "Archaeological Evidence of Aboriginal Cultigen Use in Late Nineteenth and Early Twentieth Century Death Valley, California," *Journal of Ethnobiology*, vol. 17, no. 2, pp. 267–282.

Yohe 1998 — Yohe II, R. M., "The Introduction of the Bow and Arrow and Lithic Resource Use at Rose Spring (CA-INY-372)," *Journal of California and Great Basin Anthropology*, vol. 20, no. 1, pp. 26-52.

Yohe 2000 — Yohe II, R. M., "'Rosegate' Revisited: Rose Spring Point Temporal Range in the Southwestern Great Basin," in *Archaeological Passages; A Volume in Honor of Claude Nelson Warren*, J. S. Schneider, R. M. Yohe II, and J. K. Gardner, eds., pp. 213-224, Publications in Archaeology No. 1, Hemet, Calif.: Western Center for Archaeology and Paleontology.

Zeanah 2004 — Zeanah, D. W., "Sexual Division of Labor and Central Place Foraging: A Model for the Carson Desert of Western Nevada," *Journal of Anthropological Archaeology*, vol. 23, pp. 1-32.

Zeanah and Simms 1999 — Zeanah, D. W., and S. R. Simms, "Modeling the Gastric: Great Basin Subsistence Studies Since 1982 and the Evolution of General Theory," in *Models for the Millennium: Great Basin Anthropology Today*, C. Beck, ed., pp. 118-140, Salt Lake City, Utah: University of Utah Press, 1999.

Zeiner et al. 1990a — Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (editors), *Birds, California's Wildlife, Volume II*. Sacramento, Calif.: California Department of Fish and Game, 1990a.

Zeiner et al. 1990b — Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (editors), *Mammals, California's Wildlife, Volume III*. Sacramento, Calif.: California Department of Fish and Game, 1990b.s

GLOSSARY

CULTURAL RESOURCES ACRONYM GLOSSARY

AD	After the Birth of Christ
AFC	Application for Certification
ARMR	Archaeological Resource Management Report
BC	Before the Birth of Christ
RSEP	the proposed project, Palen 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
EIC	Eastern Information Center (CHRIS), University of California, Riverside
FAR	Fire-Affected Rock
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
PAA	Project Area of Analysis consists of 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.
SHPO	State Historic Preservation Officer
Staff	Energy Commission cultural resources technical staff
SA	Staff Assessment
WEAP	Worker Environmental Awareness Program

THIS PAGE IS INTENTIONALLY LEFT BLANK

DECLARATION OF
Kristin Ford, Planner I

I, Kristin Ford, declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Office of the Siting, Transmission & Environmental Protection Division as a Planner I.

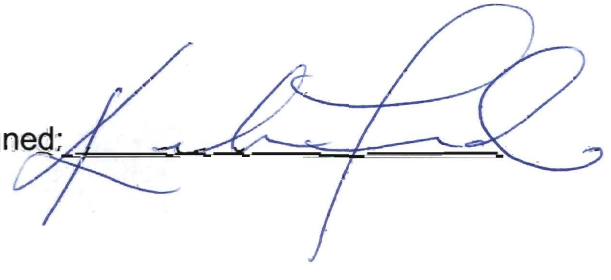
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the staff supplemental testimony on Socioeconomics for the Rice Solar Energy Power Project 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 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 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: 10/21/10 Signed: 

At: Sacramento, California

Result in Substantial Physical Impacts to Government Facilities

As discussed under the subject headings below, the RSEP would not cause significant impacts to recreation facilities or schools. Fire protection impacts, including; service ratios, response times, or other performance objectives relating to emergency medical services is further analyzed in the **Worker Safety and Fire Protection** section.

Emergency Medical Services

The project site is within the Riverside County Fire Department's jurisdiction (http://www.rvcfire.org). The closest fire stations are located in La Paz County, Arizona and San Bernardino County, California. There is a mutual aid agreement with these counties upon request and availability. The mutual aid agreement does not include first response; therefore, response from neighboring counties is not guaranteed (SR2009a, 5.10-13). The first responding fire station is Lake Tamarisk Fire Station (#49) located on 43880 Lake Tamarisk, Desert Center, California 92239. The response time for the first responder is 30 minutes with one engine and three paramedic-trained personnel. Based on the nature of the emergency situation, Blythe Fire Station (#43) and Blythe Air Base Fire Station (#45) can be mobilized, with response times ranging from 45 to 60 minutes. Air ambulance services from Mercy Air Ambulance based in Banning, California can be mobilized with a response time of 45 minutes. Depending on availability, the PHI Air Medical based in Lake Havasu City, Arizona can be mobilized in 30 minutes (SR2009a, 5.10-13).

Jason Neuman, Captain of the Strategic Planning Division, Riverside County Fire Department, in a May 4, 2010 letter, (Riverside 2010b) states the response time for Lake Tamarisk Fire Station (#49) would be one hour after dispatch, and Blythe Fire Station (#43) would be approximately one hour, 15 minutes. Captain Jason Neuman further states the proposed project would have a cumulative adverse impact on the Fire Department's ability to provide an acceptable level of service. These impacts would include an increased number of emergencies and public service calls dues to the proposed presence of structures, traffic and hazardous materials storage.

In addition, a letter from Jason Neuman, Capitan of the Strategic Planning Division, Riverside County Fire Department dated August 4, 2010 (Riverside 2010f) further states the response time for a third unit, Blythe Air Base, Station #45. Station #45 would respond to the project area in approximately one hour, 15 minutes. The letter also states that the San Bernardino County Fire Department, Big River Station 17, has a mutual aid agreement and is located closer geographically to the RSEP. However, the mutual aid does not guarantee equipment would be available, nor does the agreement require the department to release the resources to respond. If the Big River Station 17 was dispatched and the request honored, the Lake Tamarisk Station #49 would also respond. The Riverside County Fire Department is the Authority Having Jurisdiction (AHJ) and would provide the primary response to the project area.

The cumulative adverse impact on response time is further analyzed in the **Worker Safety and Fire Protection** section of this document. Condition of Certification

WORKER SAFETY-7 would require funding for Riverside County Fire Department shared with funding from other solar energy developers to build and staff a new fire station and ensure that the Rice Solar Power Project would create a less than significant impact to Emergency Medical Services.

The applicant has proposed there would be onsite fire protection systems which are designed to protect personnel and limit property loss and plant downtime from fire or explosion (SR2009a, 2-46). The proposed project would use the following emergency systems; steam turbine oil areas water spray system, fire hydrants/hose stations, and fire extinguishers (SR2009a, 2-46).

In addition, the applicant states in the **Worker Health and Safety** section of the AFC (SR2009a, 5.16-17) if hazardous materials were involved in the incident, Lake Tamarisk Fire Station 49 would be the first onsite, requesting additional resources from the Riverside County Fire Department and the Riverside County Hazardous Materials Emergency Response (HazMat) Team. The program is a joint agency team staffed by the Riverside County Department of Environmental Health (RCDEH) Hazardous Materials Management Division (HMMD) and Riverside County Fire/California Department of Forestry. This team would respond to incidents involving hazardous materials, 24 hours per day and seven days a week.

For emergency services, trauma patients would be transported to Desert Regional Medical Center, which is located in Palm Springs, California, approximately 127 miles from the project location. For burn injuries, patients would be transported to Arrowhead Regional Medical Center in Colton, California, which is 180 miles from the project location. The two hospitals are designated as Level II trauma centers and patients can be transported by air ambulance. La Paz Regional Hospital is located approximately 23 miles from the project site in Parker, Arizona. The La Paz Regional Hospital has an emergency room, but no trauma center (SR2009a, 5.10-14).

As discussed in AFC Section 2.0 - Project Description, Section 5.16 - Worker Health and Safety, and Section 5.5 - Hazardous Materials Handling, the RSEP would be designed to meet all applicable standards to reduce the risk of an accidental hazardous materials release and operate in a manner that complies with safety standards and practices to provide a safe workplace for plant personnel. In addition, a hazardous materials risk management plan would include all information necessary to allow fire-fighting and other emergency response agencies to plan and implement safe responses to fires, spills, and other emergencies.

The applicant's proposed safety procedures and employee training would minimize potential unsafe work conditions and the need for outside emergency medical response. Along with any necessary conditions of certification which is further analyzed in the **Worker Safety and Fire Protection** section of this document, staff concludes that with the Condition of Certification, **WORKER SAFETY-7**, the emergency medical services provided the by the above mentioned agencies would be adequate during construction and operation.

Law Enforcement

As stated in the AFC and verified by staff (www.riversidesheriff.org), the proposed project is located with the Riverside County Sheriff's Department's (RCSD) jurisdiction. The RCSD serves several small cities and unincorporated areas within Riverside County. The Colorado River Station, nearest to the project location, 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. The Colorado River Station is located approximately 41 miles from the project site with two deputies routinely onsite. The response time from the Colorado River Station to an emergency located at the project site would be approximately forty-five minutes if the deputies were not located at the station (SR2009a, 5.10-13).

The California Highway Patrol (CHP) is the primary law enforcement agency for state highways and roads. Services include law enforcement, traffic control, accident investigation and the management of hazardous material spill incidents. The nearest CHP office is located approximately 42 miles from the project site in Blythe, California.

In comparison to residential or commercial developments, power plants do not attract large numbers of people and thus require little in the way of law enforcement. Because of this factor and the proposed onsite safety and security measures, staff concludes that the existing law enforcement resources would be adequate to provide services to the RSEP during construction and operation.

Project operation would not result in significant demands being made on public services or facilities. The RCSD has not expressed any concerns about a need for increased services during plant operations (SR2009a, 5.10-25).

Education

The project site is located within the boundaries of the Desert Center Unified School District (SR2009a, 5.10-11). The district includes one school in the district, Eagle Mountain School, which has classes from kindergarten to eighth grade. Eagle Mountain School is located in Desert Center, which is located 62 miles from the proposed RSEP site. The current enrollment is fourteen students, and has the capacity for 140 students (SR2009a, 5.10-12). Students from ninth to twelfth grade attend Palo Verde High School (in the Palo Verde Unified School District) in Blythe, California, approximately 40 miles from the project site.

Due to the commuting habits of construction workers, staff does not expect any construction workers to relocate their families to the area. Staff does not expect a significant adverse impact to the schools from construction of the proposed project.

A total of 47 operation workers are needed to operate the RSEP. As previously stated, the applicant expects to hire the operation workforce from within the area. If all 47 operation workers relocate within the Desert Center Unified School District, an average family size of 3.059 persons per household in Riverside County (SR2009a, 5.10-24)

would result in the addition of approximately 50 children to the local schools. This would constitute approximately 5% increase in school enrollment for the two schools closest to the project. Given the capacity for students in the two above mentioned schools, staff does not expect a significant adverse impact from the possible addition of 50 school children.

As previously noted in **Socioeconomics Table 1**, other than the requirement authorized under Section 17620 of the Education Code, the Energy Commission cannot impose developer fees to mitigate the cost of school facilities. However, the Desert Center Unified School District is located within a closed mining area. The Kaiser steel Eagle Mountain Mine closed in 1983, and consequently three of four schools closed. The high school was converted to a K-8th grade school (CEC 2010b). The district is classified as a "basic aid" school. When a district has a decline in student enrollment, the total revenue limit (based on student enrollment) declines. When school funding is not determined based on student enrollment or attendance, the school is guaranteed a revenue allotment that is collected from local property taxes. The basic aid designation is determined annually with property tax fluctuations and school revenue changes accordingly. The revenue may exceed or fall short of that revenue limit. The district's revenue for the 2009-10 school year was $370,000 and for 2008-09 was $390,000 (CEC 2010b).

The applicant for the proposed project would not be responsible to pay school impact fees to the Desert Center Unified School district because of the procedure described above. In addition, the applicant would not responsible for the payment of school impact fees to the Palo Verde Unified School District because the RSEP would not be located within the Palo Verde Unified School District boundaries.

~~As previously noted in **Socioeconomics Table 1**, other than the requirement authorized under Section 17620 of the Education Code, the Energy Commission cannot impose developer fees to mitigate the cost of school facilities. Because the project is proposed on BLM-administered lands, school impacts fees would not be applicable.~~

Given the small number of students who potentially could relocate to schools within the DCUSD, staff does not expect the construction or operation of the project to have a significant adverse impact on schools.

DECLARATION OF
Alan Lindsley, AIA, IESNA, LEED GA

I, Alan Lindsley, declare as follows:

1. I am presently Owner of Lindsley Architectural Lighting.

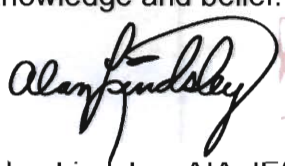
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I helped prepare the Intrusive Light analysis in the Traffic and Transportation section of the Rice Supplement Staff Assessment based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared original and supplemental testimony is valid and accurate with respect to the issues addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony 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.



Digitally signed by Alan Lindsley
DN: cn=Alan Lindsley, o=Lindsley Architectural Lighting, ou, email=alindsley@lindsleylighting.com, c=US
Date: 2010.10.21 10:43:12 -07'00'

Alan Lindsley, AIA, IESNA, LEED GA

Heliostat Positioning Plan

TRANS-6 The project owner shall prepare a Heliostat Positioning Plan in coordination with the Avian Protection Plan specified in Condition of Certification **BIO-25** that would minimize potential for human health and safety hazards and bird injury or mortality from solar radiation exposure.

Verification: Within 90 days before RSEP commercial operation, the project owner shall submit a Heliostat Positioning Plan (HPP) to the CPM for review and approval. The project owner shall also submit the plan to potentially interested parties that may include CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group for review and comment and forward any comments received to the CPM. The Heliostat Positioning Plan shall accomplish the following:

1. Identify the heliostat movements and positions (including reasonably possible malfunctions) that could result in potential exposure of observers at various locations including in aircraft, motorists, pedestrians and hikers in nearby wilderness areas to reflected solar radiation from heliostats;
2. Describe within the HPP how programmed heliostat operation would address potential human health and safety hazards at locations of observers, and would limit or avoid potential for harm to birds;
3. Prepare a monitoring plan that would: a) obtain field measurements in candela per meters squared and watts per meter squared to validate that the Heliostat Positioning Plan would avoid potential for human health and safety hazards consistent with the methodologies detailed in the 2010 Sandia Lab document presented by Clifford Ho, et al[1] including those referenced studies and materials within related to ocular damage, and b) provide requirements and procedures to document, investigate and resolve legitimate human health and safety hazard complaints prioritizing localized response (e.g. screening at location of complaint) regarding daytime intrusive light.
4. The monitoring plan should be made available to interested parties including ~~that may include~~ CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group and be updated on an annual basis for the first 5 years, and at 2-year intervals thereafter for the life of the project.

1 C.K. Ho, C.M. Ghanbari, and R.B. Diver, 2010, Methodology to Assess Potential Glare Hazards from Concentrating Solar Power Plants: Analytical Models and Experimental Validation, ES2010-90053, in proceedings of the ASME 2010 4th International Conference on Energy Sustainability, Phoenix, AZ, May 17-22, 2010.

4. Post-mitigation verification; Within 30 days following the implementation of mitigation measures designed to reduce localized impact of the solar receiver tower, the project owner shall repeat the luminance measurements to demonstrate the effectiveness of mitigation measures and provide the new measurement data for review and comment by interested parties that may include CalTrans, CHP, FAA, and the Department of Defense (DOD) Southwest Renewable Energy Work Group, and for review and approval by the CPM.

DECLARATION OF SHAELYN STRATTAN

I, **Marsha L. (Shaelyn) Strattan**, 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**.

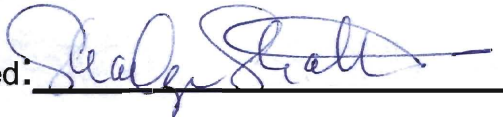
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.

3. I prepared the supplemental staff testimony on **Land Use, Recreation, and Wilderness** for the **Rice Solar Energy Project,** 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 supplemental testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the supplemental testimony 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: October 21, 2010 Signed: 

At: Sacramento, California

- Wilderness and recreation areas.
- Permanent loss of lands within a portion of the proposed project footprint for agriculture, natural resources, and recreation.
- Recreational use of and access to a portion of the proposed project site and surrounding BLM-managed federal lands.
- The historic significance and potential National Register eligibility of Camp Rice.
- Future land use and development.

The proposed project would have a less than significant impact, with full implementation of the applicable conditions of certification, on:

- Agricultural use (grazing) and access in an established federal rangeland area within the CDCA.
- Consistency with most applicable land use plans, policies, and regulations of an agency with jurisdiction, or that would normally have jurisdiction, over the project.

The proposed project would have the following significant/substantial, unavoidable impacts :

- Result in a loss of scenic character, both project-specific and cumulative.
- ~~Result in the loss of a historic resource with potential National Register eligibility (Rice Army Airfield) (NEPA).~~
- Contribute substantially to cumulative loss of visual/scenic character.

The proposed project would not be consistent with the following laws, ordinances, regulations, and standards, even with implementation of proposed conditions of certification:

- Riverside County General Plan Land Use Element policies: LU 6.1, LU 13.1, LU 13.3, LU 20.1, LU 20.2, LU 20.4, LU 30.1. Inconsistency with these General Plan polices are primarily the result of the significant impacts to visual/scenic impacts identified above.
- Riverside County General Plan Multipurpose Open Space Element policy OS 21.1

<u>The proposed project would have the following residual impacts under NEPA:</u>

- <u>Limited loss of access to the BLM-managed MUC-M lands along the existing 5.4-mile length of Rice Valley Road.</u>
- <u>Result in the loss of a historic resource with potential National Register eligibility (Rice Army Airfield)</u>
- <u>Contribution to the potential cumulative visual impacts to nearly one-third of the 1.6 million acres of public lands in the Rice and Ward Valleys and along SR 62 with the construction of all the existing renewable energy projects currently licensed or pending on BLM lands.</u>

- The proposed project's overall contribution to local and regional cumulative recreational impacts would be less than significant.
- Use of either public or private lands for renewable energy projects would have a less than significant impact on future land use and development in the project area, either individually or cumulatively.
- The addition of the RSEP would further extend the visual intrusion along SR62, as well as impact the scenic vista to the south of SR62 and into the previously undisturbed Rice Valley. This would contribute substantially to the significant and unavoidable cumulative impacts to the scenic resources along an eligible state scenic highway.
- Although glare shields and other conditions of certification have been recommended to reduce lighting impacts (see **VISUAL RESOURCES** section of this document), the proposed project would still contribute significantly and unavoidably to the cumulative impact to existing scenic and dark sky conditions throughout the Rice and Ward Valleys.
- Significant, unavoidable project-specific visual/scenic resource impacts could potentially contribute to cumulatively significant, unavoidable temporary and/or permanent impacts, especially if most of the proposed solar and wind projects within the local or regional area are actually constructed. Simultaneous or overlapping timelines would further exacerbate the temporary construction-related impacts.

NEPA COMPLIANCE

Under Alternative 1:

- The effects on the agricultural resource value of established federal rangelands within the California Desert Conservation Area are minor, both locally and regionally and would not contribute to the substantial loss or fragmentation of existing grazing allotments or future grazing opportunities.
- The effects on recreational activities and resources would be temporary and relatively minor from both a local and regional perspective. Limited loss of access to the MUC-M lands along the existing 5.4-mile length of Rice Valley Road would occur during construction of the transmission line and interconnection substation at the connection point with the Western 161/230kV transmission corridor.
- The effects on recreational use of established Wilderness areas and public access to those resources would be limited to noise and visual intrusion on the wilderness experience during project construction. Wilderness resources would not be impacted.
- Project activities at all phases of construction, operation, and closure would conform with BLM plans, policies, and procedures, through approval of the ROW application and implementation of the NEPA and CDCA Amendment process. Staff has also proposed condition of certification **LAND-3** that, if fully implemented, would ensure consistency with applicable federal (BLM) land use requirements.
- If all the proposed renewable energy projects currently licensed or pending on BLM lands along SR 62 and in the Rice and Ward Valleys are actually constructed, the

loss of multiple use lands would equal nearly 1/3 of the 1.6 million acres of public lands in that area. Substantial cumulative impacts to ~~biological, cultural, and~~ visual resources would be unavoidable.

PROJECT ALTERNATIVES

The setting and existing conditions detailed above apply to the proposed project (Alternative 1) and Alternatives 2, 4, and 5. Project differences are noted in the general description of each alternative. The Setting and Existing Conditions section is not repeated for Alternatives 2, 4, and 5. Recommended conditions of certification apply to the proposed project and all other alternatives unless otherwise noted. The assessment of impacts that are identical to the proposed project (Alternative 1) will be noted, but are not repeated.

Staff's analysis of the proposed project's consistency with applicable federal, state, and local land use LORS is presented in **LAND USE Table 6,** and applies to the proposed project and all alternatives. The Land Use compatibility discussion as presented in the proposed project (Alt. 1) above also applies to Alternatives 2 and 4. As with the setting and existing conditions, project differences are noted in the general description of the alternative. Setting, existing conditions, and land use compatibility will be discussed in greater detail for Alternative 3, as this project site is more than 50 miles from the proposed project.

Land use alternatives to the proposed project (Alternative 1), as identified in the following table, are analyzed below:

LAND USE Table 6
Project Alternatives

	Proposed Alternative	Acres	MW	Federal Nexus
1	Proposed Project	1,410 acres + 10.0 mile long transmission line corridor	150	Yes
2	Reduced Acreage (same site location)	1,270 acres + 10.0 mile long transmission line corridor	~148	Yes
3	North of Desert Center (alternate location), includes realignment and reconductoring of existing SCE 161/230kV line.	1,410 acres + 4.6 mile long transmission line corridor	150	Yes
4	Rice Valley Road Transmission Line	1,410 acres + 13.9 mile long transmission line corridor	250	Yes
5	No Project/No Action	0	0	No

Alternative 2 (Reduced Acreage)
The RSEP Reduced Acreage Alternative would be located on the same project site as the proposed project, but would have a 7.2 percent smaller footprint. Although the

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE *RICE SOLAR ENERGY POWER PLANT PROJECT*

Docket No. 09-AFC-10

PROOF OF SERVICE
(Revised 8/5/2010)

APPLICANT
Jeffrey Benoit
Project Manager
Solar Reserve
2425 Olympic Boulevard, Ste. 500 East
Santa Monica, CA 90404
Jeffrey.Benoit@solarreserve.com

APPLICANT'S CONSULTANTS
Andrea Grenier
Grenier and Associates
1420 East Roseville Parkway, Ste. 140-377
Roseville, CA 95661
andrea@agrenier.com

Douglas Davy
CH2MHILL
2485 Natomas Park Drive, Ste. 600
Sacramento, CA 95833
ddavy@ch2m.com

COUNSEL FOR APPLICANT
***Scott Galati**
Marie Mills
Galati & Blek, LLP
455 Capitol Mall, Suite 350
Sacramento, CA 95814
sgalati@gb-llp.com
mmills@gb-llp.com

INTERESTED AGENCIES
California ISO
E-mail Preferred
e-recipient@caiso.com

Liana Reilly
Western Area Power Administration
PO Box 281213
Lakewood CO 80228-8213
reilly@wapa.gov

Allison Shaffer
Bureau of Land Management
Palm Springs/South Coast Field Office
1201 Bird Center Drive
Palm Springs, Ca 92262
allison_shaffer@blm.gov

INTERVENORS

ENERGY COMMISSION
ROBERT WEISENMILLER
Commissioner and Presiding Member
rweisenm@energy.state.ca.us

KAREN DOUGLAS
Chairman and Associate Member
kldougla@energy.state.ca.us

Kourtney Vaccaro
Hearing Officer
kvaccaro@energy.state.ca.us

John Kessler
Siting Project Manager
jkessler@energy.state.ca.us

Deborah Dyer
Staff Counsel
ddyer@energy.state.ca.us

***Jennifer Jennings**
Public Adviser's Office
E-mail preferred
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, Chester Hong, declare that on October 21, 2010, I served and filed copies of the attached **"Staff's Opening Testimony"** dated October 21, 2010. 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/ricesolar].**

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:

__x__ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery;

__x__ 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:

__x__ 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-10
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, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

CHESTER HONG
Chief Counsel's Office

*indicates change