Tessera Solar
power from stirling energy systems

DOCKET
08-AFC-13
DATE FEB 24 2010
RECD. FEB 24 2010

February 24, 2010

Mr. Christopher Meyer
CEC Project Manager
Attn: Docket No. 08-AFC-13
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Mr. Jim Stobaugh
BLM Project Manager
Attn: Docket No. 08-AFC-13
Bureau of Land Management
P.O. Box 12000
Reno, NV 89520

RE: Calico Solar (Formerly Solar One) Project
Applicant's Responses to CEC Data Requests Set 1, Part 2—Data Requests 102 and 103

Dear Mr. Meyer and Mr. Stobaugh,

Tessera Solar hereby submits the Responses to CEC Data Requests Set 1, Part 2—Data Requests 102 and 103. I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge.

Sincerely,

Felicia Bellows
Vice-President of Development

CALICO SOLAR

Responses to CEC Data Requests Set 1, Part 2, Data Requests 102-103

Application for Certification (08-AFC-13)

February 2010

Submitted to:
Bureau of Land Management
2601 Barstow Road
Barstow, CA 92311

Submitted to:
California Energy Commission
1516 9th Street, MS 15
Sacramento, CA 95814-5504

Submitted by:
SES Solar Three, LLC
SES Solar Six, LLC

Stirling Energy Systems
4800 N. Scottsdale Road, Suite 5500
Scottsdale, AZ 85251

SES Solar One
Responses to CEC Data Requests
Set 1, Part 2 – Data Requests 102-103
08-AFC-13

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 102.

Using the *Ethnography* subsection of the April 2009 Technical Report as a point of departure, please provide a discussion of potential traditional use areas in or near the proposed project area. Please include considerations of

a. the types of domestic, economic, and ritual use areas that are known for the Serrano, the Vanyume, the Chemehuevi, and other Native American groups that have associations with the project area,

b. the material character of such use areas, and

c. the patterns of such use areas across the local landscape, and the potential archaeological signature of such use areas.

Response:

In November, 2009 the Applicant provided the following response. In accordance with the response prepared, please see the report for the follow-up response to Data Request 102 provided behind this response as attachment CUL-1.

This Data Request is in process and will require contact and coordination with local Native Americans to fully address the issues. This continued coordination will be ongoing and especially be advanced through the Section 106 consultation process. However, it is anticipated that a preliminary response will be provided during the first quarter of 2010. Response to Data Request 102 will identify types of domestic, economic, and traditional ritual areas used by Native American groups that were associated with the Calico Solar Project area. These include the Serrano/ Desert Serrano (Vanyume) and Chemehuevi, who occupied portions of the Project area in prehistoric or historic times, and the Mojave, who traveled through the area and recognized natural and cultural features within the region as having supernatural significance for them. Traditional ritual areas include places considered sacred or spiritually significant due to supernatural events and other traditional religious associations that native people have recognized for these localities. Domestic, economic, and traditional ritual areas include: desert spring and riverine habitation sites; supernaturally significant mountain promontories; cave sites; desert bighorn, deer, and pronghorn hunting localities; rock art sites; mortuary areas; trails and trail shrines; flaked stone and ground stone quarry sites; and carrizo grass sugar, mesquite, and salt gathering areas, as well as tule rush and basketry materials gathering sites.

Research and preparation of this report component will be completed by David Earle, principal of Earle and Associates, and will involve review of Mr. Earle's extensive archives regarding ethnographic/ethnohistorical research on Native American occupation and traditional use of the central Mojave Desert, as well as other archival and contemporary Native American ethnographic sources. Important ethnographic sources include field notes collected by John P. Harrington on the Serrano/Desert Serrano, Chemehuevi, and Mojave, and Isabel Kelly's Chemehuevi field notes. Information collected by Alfred Kroeber from Mojave and other consultants, including Mojave and Chemehuevi sacred song texts, will also provide important information about native use of the Calico Solar Project region. As part of Data Request 102, the archaeological signatures of different classes of traditional use areas will also be discussed.

DATA REQUEST 102 RESPONSE
David Earle, Earle and Associates

The Lower Mojave River Region and Adjacent Areas: The Ethnographic Background and Types of Native Use of the Region

I INTRODUCTION

The region of the lower Mojave River Valley, the Pisgah Crater, and adjacent areas was located in a zone of interaction between several neighboring native ethnic groups in the late eighteenth century. These included the Mountain and Desert (Vanyumé) divisions of the Serrano, the Chemehuevi, the Desert division of the Kawaiisu, and the Mojave. Native testimony from various groups, however, also suggests that a rather mysterious group of "Land Mojaves" or "Like Mojaves" had formerly lived in the Mojave Desert to the west of the Colorado River, and even as far west as the Project area and the lower Mojave River valley. The terminal date for the presence of this group in the region is uncertain, although the Chemehuevi and other groups claim that the so-called "Like Mojaves" were driven from the desert in relatively recent times. We discuss this group further below.

The area to the south of the riverbed of the lower Mojave River itself was noted in both ethnohistoric and ethnographic sources as nominally assigned territory of the Desert Serrano (Vanyumé) and certain clan or sib groupings of the Serrano proper of the San Bernardino Mountains. The archaeological literature for the Mojave River drainage and the central Mojave Desert region has frequently reflected uncertainty about the relationship between the desert and mountain divisions of the Serrano and the nature and timing of Desert Serrano (Vanyumé) occupation of the area – whether, for example, the Vanyumé were replaced by the mountain Serrano on the Mojave River in the eighteenth century (Sutton and Schneider 1997:3, Wlodarsky 1997: IV.2-26–IV.2-27). Recent ethnohistorical research has resolved many of these uncertainties (Earle 1990, 2004a, 2004b, 2004c, 2005).

II. THE CULTURAL CONTEXT OF NATIVE USE OF THE PROJECT REGION

II.1 The Project Region, 1770s–1820s

The Project area is located in the vicinity of the southeast end of the lower Mojave River Valley. Both the lower and upper course of the Mojave River had been visited by Spanish Franciscan missionary explorer Father Francisco Garcés in 1776. Garcés had traveled west from the Mojave villages in the Needles area toward the Providence Mountains and the easterly lower end of the Mojave River (Earle 2005:7–8). He was seeking a direct land route from Arizona and the Colorado River to Monterey. He was accompanied by Mojave guides who had previously traveled to the coast, and a southern California native who had lived at Mission San Gabriel. Thus, the information in his diary about native ethnic territories is particularly reliable.

After reaching the lower eastern outlet of the Mojave River—the so-called Mojave Sink—Garcés and his guides journeyed westward and southward up the Mojave River. Garcés' guides placed the eastern limit of the Vanyumé (Desert Serrano) territory several Spanish leagues (5–6 mi [8–9.5 km]) to the east of the Mojave Sink.

Elsewhere his passage through the Desert Serrano settlements on the lower and upper Mojave River has been described as follows:

> Traveling up the Mojave River from its terminus just to the southwest of Soda Lake, Garcés appears to have first camped at the eastern end of Afton Canyon. His next camp was probably located around the intersection of Manix Wash with the river. The next day he camped at what he called a Beñemé ranchería, two to three mi [3-4.6 km] upriver. This place featured grass, water, mesquite and screwbean trees, wild grapes, and tule reeds, the latter being eaten by the inhabitants. Winter weather at the time prevented them from hunting. This place was probably located in the general vicinity of later Camp Cady, where a riparian woodland stretched along the river. A second ranchería, abandoned, was observed along the Mojave River two leagues (5-6 mi, [8-10 km]) to the west in a place without tule reeds, perhaps half way between Camp Cady and "Forks of the Road." There was then a long journey to the next Beñemé settlement, located along the river some five leagues (circa 15 mi [24 km.]) to the southwest of the Lenwood-Barstow area. This was probably in the Helendale – "Point of Rocks" region. It had a population estimated at 40 people, and here he was fed acorn porridge. Another village perhaps three mi [4.6 km] to the south was the residence of a chief who provided him with an elaborate ritual greeting involving acorns and shell beads. Garcés then traveled two and a half leagues south to the Victorville area, and five more leagues to another village of 70 people, very likely Atongaibit, on the river just east or southeast of Hesperia, where the ritual greeting was repeated. He later visited a ranchería of 80 residents further upriver in Summit Valley, clearly Guapiabit, before crossing the mountains southward en route to Mission San Gabriel [Earle 2004b:30].

Garcés' descriptions of the villages on the lower and upper Mojave River highlight the fact that the Mojave River villages served as hosts to Mojave bead traders who traveled from the Colorado River to coastal southern California to acquire shell beads that were eventually traded to the Southwest (Earle 2005:12–13). Garcés had shell beads poured over him as a ritual greeting. These beads appear to have been retained by local village chiefs as part of the trade. In addition, Garcés noted that acorns as a food resource were being transported down the Mojave River from the San Bernardino Mountains at least as far as the Barstow area. Both the bead trade and the import of acorns may have been factors in the Serrano-speakers having been successful in occupying the length of the Mojave River.

After 1805, several Spanish expeditions visited the upper Mojave River (Earle 2004b:175; Palomares 1808). By this time, some Serrano-speakers from the Mojave River region were being absorbed into Mission San Gabriel. Some villages in the area were accused by the Spanish of involvement in supporting an attempted revolt at Mission San Gabriel in the autumn of 1810 (Earle 2005:19–20). As a result, military raids in the Mojave River region led to apparent forced removal of some Serrano-speaking villagers to Mission San Gabriel in 1811. Some native residents of this region were also baptized at Mission San Fernando at this time.

Father Pascual Nuez traveled with a military expedition down the Mojave River in 1819 (Earle 2005:21–23; Walker 1986:260–267). This was in the wake of an abortive attempt by the Mojave to attack Mission San Gabriel by way of the Mojave River. Nuez visited the Serrano-speaking villages of Topipabit, Cacaumeat, and Sisugenat on the river between modern Victorville and Barstow. Nuez mentioned a native milling stone or metate quarry, which was located at Elephant Mountain, across the river from modern Daggett. A village site called Angayaba was located to the northeast down the river from Daggett, less than a full day's march. This might

have been located either at "Forks of the Road," where the Salt Lake wagon road later left the river to the northeast, or in the vicinity of Camp Cady, further to the east.

To the east of Angayaba, the Mojave River trail continued down the river to Soda Lake at the Sinks of the Mojave. The next village down the river mentioned by Nuez was Asambeat, which had abundant water and feed. It may have been located in the Afton Canyon area, since it was placed on the river but in "the mountains" to the east of the Daggett area, these presumably being the Cady Mountains. To the east of Asambeat was Guanachique. This place had a water hole dug "in pure sand," and lacked water and feed sufficient for saddle stock. This place may have been located in the vicinity of Soda Lake or elsewhere to the east of Afton Canyon. Several places mentioned by Nuez to the east of Guanichique were located in Chemehuevi territory.

In 1826, American trapper Jedediah Smith ascended the Mojave River. He was guided by several native people he called Vanyumé who were living with the Mojaves on the Colorado River, having fled from Mission San Gabriel (Brooks 1977:91–92). These mission runaways had relatives still living somewhere along the middle portion of the Mojave River. Further up the river, in the general vicinity of Victorville or Hesperia, Smith encountered another Vanyumé settlement, where imported acorns and pine nuts from the mountains to the south, as well as juniper berries, provided important food sources.

At least six villages located on the upper or lower Mojave River appear to have contributed residents as baptized converts at Missions San Gabriel and San Fernando (Earle 2004a:178). Several other known communities in the upper Mojave River region that intermarried with these villages were located near, but not on the river.

Anthropologist Alfred Kroeber noted information from the Mojave suggesting that the Vanyumé or Desert Serrano had been living along the Mojave River all the way to its headwaters (Kroeber 1925:614). His Mojave consultant, Jo Nelson had clarified this point during fieldwork shortly after 1900 (Kroeber n.d.: Reel 104: Fr. 169). Kroeber also spoke to an aged Vanyumé survivor named Moha who was married among the Mojave. According to Kroeber, she claimed that the upper river was Serrano (Kroeber 1925:614). Kroeber treated the Vanyumé and the Serrano of the San Bernardino Mountains as perhaps ethnically distinct groups, although a vocabulary collected from Moha suggested to him that they were closely related in speech (Kroeber 1959:300–302). He also speculated that the Vanyumé must have been very poor. He had not noted the significance of Garcés' observations, backed by other sources, about the importing of tree crop foods down the river and the abundance of shell bead wealth in Mojave River communities.

Other evidence suggests that the identification of communities on both the lower Mojave River and upper Mojave River south of Barstow as Vanyumé by Garcés' Mojave guides was correct. Moha herself referred to Vanyumé occupation of places along the river between Barstow and Victorville. Evidence from the Mission San Gabriel sacramental registers indicate that Mojave River native villages located between Victorville and the region east of Barstow had maintained marriage ties to upstream communities. Individuals from these downstream rancherías were missionized during the 1805-1826 era, and Serrano-like personal names can be found among them (Mission San Gabriel n.d., Earle 2004a:178). Other ethnohistorical and ethnographic sources also indicate that native communities along the lower and upper Mojave River were politically and socially linked to one another, and to the Serrano-speakers living in and to the south and east of the San Bernardino Mountains. These were the people that were called the

HanguwetS[a] by the Mojaves (Harrington 1986:III: Reel 131: Fr. 142). The distinction between the Vanyumé as a desert division of the Serrano and the HanguwetS[a] as a mountain division was important for the Mojaves because the Vanyumé were thought of by the Mojaves as allies, while the HanguwetS[a] were not. Members of the latter mountain group were considered by the Mojaves to be allies and trading partners of the Mojave's mortal enemies, the Colorado River dwelling Halchidhomas of the Palo Verde Valley region. On the other hand, the Mojaves who traveled to the southern California coast and the southern San Joaquin Valley by way of the lower Mojave River were guests of the desert division of the Serrano (the Vanyumé) when in their territory.

II.2 The Desert Kawaiisu, Chemehuevi, and Mojave

As of the early nineteenth century, the desert division of the Kawaiisu was placed by ethnographic testimony just to the north of the Calico Mountains on the north side of the lower Mojave River (Earle 2005:76). The territory of the Desert Kawaiisu extended northward to the southern half of the Panamint Mountain range, and northwestward and westward to the Fremont Valley and the El Paso Mountains areas, just east of the home territory of the mountain division of the Kawaiisu in the Tehachapi region. These areas were definitely occupied by the Desert Kawaiisu in the early and mid-nineteenth century. No eyewitness testimony for the late eighteenth century is available for this area. Nevertheless, it is assumed that desert Kawaiisu occupation of the area was traditional and predated the nineteenth century.

About the areas occupied by Chemehuevi bands in the Mojave Desert to the west of the Colorado River in the 1770s we have reliable information, particularly on account of Fr. Garcés' travels during that decade. As noted above, Garcés' Mojave guides placed the western boundary of Chemehuevi territory in 1776 just to the east of Soda Lake and the Sinks of the Mojave. Further south, to the west and southwest of the Providence and Granite Mountains, the Chemehuevi ranged westward to the Bristol Mountains, within 25 to 30 miles of the Project area. The Bristol Mountains were located just within the traditional territory of the Chemehuevi. Hunting parties of Chemehuevi, in their distinctive moccasins, hide shirts, and quail feather decorated hunting caps, sometimes ranged further southwestward across the desert.

As previously noted, during the era of Garces's journey through the Project region in the 1770s, and even as late as the mid-nineteenth century, Mojave travelers and traders living on the Colorado River used the travel corridor that ascended the lower Mojave River to reach either the southern San Joaquin Valley or coastal southern California. These travelers reached destinations over a wide area of southern California and were familiar with native groups closer to the coast. They recognized sacred places associated with their routes of travel, places located far from their Colorado River homeland. These Mojave travelers were often involved in exchanging items brought from the Southwest for shell beads, particularly *Olivella* beads. The Mojave were based in villages in the Mojave Valley on the lower Colorado River in the vicinity of Needles, and formed a link in an exchange network that linked the southern California coast with the Southwest. Access to this trade network may have been a principal motivation for native settlement in the upper and lower Mojave River Valley regions.

II.3 The Desert Mojave (Tɨɨra'ayatawɨ) and Native Occupation of the Project Area

Also important in the history of the Project region were the so-called Desert Mojaves, also called Land Mojaves or Like-Mojaves (Kroeber 1959:294–298, 304–307). These were called the

T~~i~~ira'ayataw~~i~~ by the Chemehuevi, who claimed that they had fought the Desert Mojaves in relatively recent times and extirpated them from a large territory extending westward from the New York and Providence mountains to the Mojave River (Earle 1996, 2005:6–7, 2009:26–35; Lerch n.d.). The Desert Mojaves were described to various ethnographers by Chemehuevi consultants as a group which was of Mojave cultural affiliation, but dressed like the Chemehuevi, had bows like them, and hunted like them. They were said to have spoken Mojave and cremated their dead. Chemehuevi accounts described in some detail a war of extermination between the Desert Mojave and the Chemehuevi (Kelly 1953:17-24–27; Van Valkenburgh 1976:5–7). This war was recalled as having occurred circa five generations before that of the elderly native consultants.

Pioneering California desert archaeologist Malcolm Rogers had proposed in the 1930s that native groups of Mojave or other Yuman cultural affiliation had occupied parts of the lower Mojave River drainage until approximately A.D. 1450 (Rogers 1945:173–176). Warren (1984:420–428) has proposed the penetration of the lower and upper Mojave River drainage by what he calls Hakataya (Yuman) cultural influence as early as ca. A.D. 800. This influence was seen as following the initial presence of Anasazi turquoise miners at mines at Halloran Springs, 15 miles to the northeast of Soda Lake and the Sinks of the Mojave, at sometime around A.D. 500–700 (Warren 1984:422). The Hakataya or Yuman cultural complex he saw as reflected in the presence of lower Colorado River ceramics as well as Cottonwood Triangular and Desert Side-Notched projectile points. He discusses the work of Drover (1979) in the Cronese Basin, at the lower easterly end of the Mojave River, which provided further evidence for Yuman cultural influence on the river, especially after circa A.D. 1350–1400. Drover (1979:221–222) hypothesized that the lower Mojave River drainage was actually occupied by Yuman-speakers. Warren pointed out that Yuman (Hakataya) cultural influences, particularly in respect to ceramics, can be found all the way up the Mojave River to Deep Creek in the San Bernardino Mountains, and right up through the era of Spanish contact. He recognized that at that late date the Mojave River was populated by Serrano-speakers rather than Yuman groups, and noted that Yuman influence on the Mojave River may not have involved direct Yuman settlement. However, Warren (personal communication 2005) has been interested in the problem of whether Chemehuevi and other accounts of a relatively recent extermination of the Land Mojaves can be reconciled with archaeological evidence for a relatively late "Yuman" cultural influence or occupation of some kind in the Mojave River Valley.

At the time of the outbreak of the Chemehuevi – Desert Mojave war, the latter were said by several Chemehuevi sources to have lived in the region of the Providence and Granite mountains and as far west as the Sinks of the Mojave River and the Soda Mountains. It was mentioned by one Chemehuevi consultant of Isabel Kelly's that the Desert Mojave might have occupied the Mojave River as far to the west as Daggett, and one of Van Valkenbergh's consultants put them as far west as Barstow (Kelly 1953:17–11, 24–27). J. P. Harrington also recorded considerable information about the Desert Mojaves from the Mojave, who placed them in the vicinity of Newberry Springs, adjacent to the Project area. It was noted that this group had last been seen at 'Avi-kwaθ'utuf^{a}, what the Mojaves called the promontory at the northeast end of the Newberry Mountains next to Newberry Springs. They were said to have been headed directly north, and were never seen again (Harrington 1986:III:167:363). The various Chemehuevi and Mojave accounts also suggest that the Desert Mojave population in question had close ties with the Mojaves of the Needles region.

In 1844, explorer John C. Frémont had met a party of Mojaves approximately in the vicinity of later Camp Cady, among which was an apparent Vanyumé Serrano survivor, a man who had gone to live with the Mojaves after returning from years of residence at one of the Franciscan missions. Fremont was told in Spanish by this native that:

> Formerly, a portion of them [the Mojaves] lived upon this [Mojave] river, and among the mountains which had bounded the River Valley to the northward during the day, and that here along the river they had raised various kinds of melons [Jackson and Spence 1970:676].

This suggests than the lower Mojave River region had been occupied by the Desert Mojave at some point in the past. This source is also particularly important in suggesting that the desert Mojave were practicing horticulture. Chemehuevi accounts, however, deny this. Kroeber had also collected what he called a Mojave historical epic from elderly Mojave consultants. This account contained reference to the temporary migration of a Mojave population to an area on or east of the Mojave River upstream from Barstow (Kroeber 1951:77).

Chemehuevi and Mojave accounts of the expulsion of the so-called Desert Mojaves create the impression that this event was relatively recent in the framework of regional tribal histories (Earle 2005:6–7, 2009:34–35). Native individuals interviewed in the early twentieth century provided information on the number of ancestral generations removed, from which the time of the event could be placed. The accounts suggest a date of perhaps the mid- or late-eighteenth century. At the same time, Garcés' journey of exploration through the region in 1776 clearly seems to post-date the expulsion of the Mojaves, if the native accounts of Desert Mojave territorial occupation and of their removal are at all trustworthy. It is known that the Mojaves of the Colorado River carried out raids across the Mojave Desert toward the Spanish coastal settlements in 1810 and 1819, but it is hard to see these raids transformed into the story of widespread desert occupation by a foraging-based Desert Mojave population (Earle 2005:19–23).

II.4 Movements of Native Groups into the Project Region After 1820

Between the 1820s and the end of the 1860s, both coastal and interior southern California experienced native or Indian raids, which focused on the seizure of livestock. These raids took a number of different forms. Nevertheless, they have tended to be lumped together in the testimony of the non-Indian observers of that era.

Through the mid-1840s, this raiding was for the most part carried out by native people living beyond the effective limits of Spanish/Mexican authority. In this, however, they were assisted in some cases by native people who had formerly lived at the various missions or ranchos on the coast. The stealing of horses for purposes of consumption had occurred before the 1830s. However, it was the opening of the Old Spanish Trail to trader caravans from New Mexico in 1829-1830 that quickly set off a boom in native raiding for horses and mules. While the New Mexico traders bought some California stock legally, they also contrived to induce interior natives to steal stock for barter to them. The blankets, textiles, and metal goods they offered in return were highly prized. This trade was the driving force behind the raiding (Phillips 1993:102–103).

A different kind of raiding was carried out by Chemehuevis/Southern Paiutes during the mid-nineteenth century. The latter did not travel nor raid on horseback. They were more principally

interested in the sequestering of livestock from the standpoint of eating rather than selling it. The Mojave Desert had a lower forage and water capacity for supporting cimarron stock than did the San Joaquin Valley. This was particularly so in the eastern Mojave. Thus, wild stock was not abundant east of the Mojave River, and even west of it herds of wild horses and cattle were not common until the 1850s. This meant that stock raiding as a means of procuring food continued to be important, whereas in the San Joaquin Valley the abundance of feral stock by the 1840s would have made it unnecessary to raid the settlements to procure livestock to eat. Thus, the Chemehuevi stock raiding was more a means of exploiting a new subsistence resource within the context of the limits of desert provisioning than a link to international commodity markets. The mobility of these raiders was limited, so theft of large numbers of horses was not the goal. Rather, smaller quantities of stock, including cattle, were driven off, particularly at night, following foot trails which made pursuit difficult.

The westward movement of Chemehuevi residential groups into the former territory of the desert or Vanyumé division of the Serrano appears to have begun in the late 1820s (Earle 2004c). During his second journey up the Mojave River in 1827, Jeddediah Smith found "Paiuches" encamped near the lower end of the river in what had formerly been Serrano territory (Brooks 1977:91-92). Vanyumé Serrano were still living on the river in the vicinity of Barstow – Camp Cady and upstream in the Victorville – Hesperia – Atongaibit region in the late 1820s and perhaps in the early 1830s. One group of Vanyumé that occupied the region between Barstow and Camp Cady (east of Daggett) was attacked by Mojaves, probably during the 1830s, because the latter suspected that Mojave travelers on the river corridor trail had been murdered by this group. A number of Vanyumé Serrano belonging to this group was taken as captives to the Needles area by the Mojaves. Some of them settled there, while others eventually made their way to the multi-ethnic native settlement at the Tejon Ranch in the southern San Joaquin Valley (Earle 2005:23–26).

The Vanyumé Serrano had long maintained social and political ties with the Mojave on the Colorado River, and the latter frequently visited the Mojave River villages. Military alliances had been sporadically established between Mojave River Serrano villages and the Mojave as efforts to resist Spanish missionization were organized from time to time before 1820. However, the Mojaves also attacked some Serrano communities on the river in 1819, after they had been largely missionized. During the era of Spanish rule, prior to 1822, colonial authorities considered the densely populated Mojave settlements on the Colorado River to be a potentially dangerous presence beyond their frontier, while the much less numerous Chemehuevi/Southern Paiute were not taken account of until after 1830. Neither the Chemehuevi/Southern Paiute nor the Mojave show up at Missions San Gabriel or San Fernando as neophytes during the 1820–1840 era. The missionization effort that pulled in Serrano-speakers from the lower Mojave River during the teens and twenties did not penetrate to the adjacent Chemehuevi local groups.

By the 1840s, Chemehuevis had moved up the Mojave River, and had begun to occupy camps in the Antelope Valley region to the west. Other groups of Chemehuevi had also followed a different migration strategy, moving southeastward and eastward from the desert to the Colorado River, where they adopted flood farming. By the beginning of the 1830s, the Mojave River travel corridor had become a route of travel for Mexican caravans on the Old Spanish Trail bound to and from New Mexico (Earle 2009:139–141). This further increased the insecurity of any native settlement located along this trail route on the Mojave River. During the 1840s–1860s there were some groups of native stock raiders, perhaps mixed ex-mission Serrano and Chemehuevi, who resided at camps in the Təmtak area, south of the Mojave River and north of the San Bernardino Mountains. The Ord Mountains and Old Woman Springs were both places where these groups occupied temporary

camps. Clashes with armed ranchers attempting to retrieve their stolen stock, and later with the U.S. Army, took place in this region (Casebier 1972a, 1972b). An example of this was an attack by Chemehuevi/Southern Paiute stock raiders on a muleteer accompanying the Whipple railroad expedition in 1854, between Afton Canyon and Camp Cady. In pursuit of the culprits, a native camp was later raided in the Cady Mountains south of the river (Mollhausen 1969:287–300).

White settlement had begun to creep down the Mojave River beginning in the mid-1850s, motivated largely by the objective of offering accommodations and forage to travelers taking either the road from the Mojave River to Salt Lake, or the road to the Colorado River and Arizona, where Camp (later Fort) Mojave was established in 1859 (Waitman 1954). During the 1860s, real or imagined raiding by the Chemehuevi along the Mojave River brought the sporadic presence of U.S. troops at Camp Cady, near the Project area. These conditions were related to the continuing stock raiding and to a war between the Chemehuevi and Mojave on the Colorado River. However, by the early 1870s, armed confrontations between Chemehuevi and non-native white settlers had ended. Although the lower Mojave Valley saw additional settlement in the 1880s with the building of a transcontinental railroad through the region, native settlement by Chemehuevis, both in the towns and in rural camps, continued in the valley. As is noted below, there were Chemehuevis still following a traditional way of life in the lower Mojave River Valley as late as 1904.

III. TYPES OF POTENTIAL DOMESTIC, ECONOMIC, AND TRADITIONAL RITUAL USE/ASSOCIATION AREAS IN OR NEAR THE PROJECT AREA, BASED ON ETHNOGRAPHIC DATA

III.1 Ethnographically-Attested Cultural Landscape Features in the Project Region

For native groups living in the Project region in the past and their contemporary descendants, a number of cultural landscape features, as well as classes of landscape features, can be identified in the Project region that are culturally significant. These include what can be called Traditional Cultural Properties (TCPs), as defined in respect to National Register eligibility of historic properties of cultural significance (Parker and King 1990; Sebastian 1993). Native American TCPs can be characterized as places or classes or categories of places that are of religious and supernatural significance to specific Native American groups. In this section, data are presented concerning the religious and supernatural significance of elements of the cultural landscape in the Project region for the Serrano, Chemehuevi, and Mojave, based on their ethnographic testimony.

III.1.1 Traditional Religiously Significant Areas and Sites: Sacred Songs and Stories and the Cultural Geography of the Project Region

Mojave, Chemehuevi, and Vanyumé (Desert Serrano) Sacred Song Cycles and Religiously Significant Areas

Among the Mojave, the singing of lengthy song cycles incorporating many individual songs served to recount the adventures and geographically indexed journeys of supernatural beings of various kinds. This was a principal expression of religious belief and feeling. The style and substance of these lengthy song cycles were admired and adopted by other California groups, including the Luiseño, the Vanyumé or Desert Serrano, and the Chemehuevi (Laird 1974, 1976:9–21, 1984:276–296). The latter two groups in fact exchanged and intermixed songs directly with the Mojaves themselves.

This type of sung recitation of supernatural travel specified sites, localities, and geographical features known to the listener that were associated with the travels and related activities and observations of the supernatural beings. Songs such as the salt and deer songs, as sung by the Mojave, not only involved the itineraries of travel of sacred beings, but also identified the locations of resources such as salt deposits or places where game animals might browse or otherwise be found. The geographical features themselves, frequently observed by the Mojave, Chemehuevi, or other singers or listeners of the songs as they traveled about the landscape, were thus imbued with supernatural significance. Among the Mojave, these song cycle travel itineraries were believed to have been acquired through dreaming rather than learned from another singer, so that their content could be highly personal and variable from one singer to the next.

Chemehuevi Hunting Songs

The Chemehuevi, in addition to their Mojave-style song cycles, had a series of "game animal" songs, including "mountain sheep" and "deer" songs that were inherited by members of a so-called "song group," composed of patrilineal kinsmen with common rights in a geographically defined hunting territory. Thus, for example, deer songs among the Chemehuevi were different in origin and structure from deer songs among the Mojave.

Travel Itineraries in the Project Region

Several of the sacred songs of the Mojave and Chemehuevi involved the travel of supernaturals through the Project region. There were two travel routes of particular importance for supernatural travel itineraries in the region. The first was the trail following the lower Mojave River from the Sinks of the Mojave (Soda Lake) through Afton Canyon to Camp Cady, Daggett, and Barstow. Supernatural travel might be continued from the Barstow either southerly up the river or westward in the direction of the Tehachapi Mountains. This travel route figures in a number of Mojave song cycles. This travel corridor lay just over four miles to the north of the north end of Troy Lake. A second route of travel ran in an east-west direction through the low pass between the Cady Mountains on the north and the Bullion Mountains on the south. This low pass was located west of Ludlow and east of Pisgah, and connected the Broadwell and Bristol basins to the east with the southeasterly end of the lower Mojave River Valley. This route also appears to have figured in several Mojave and Chemehuevi song cycles.

A song sung by the Chemehuevi and mentioned by Carobeth Laird included a Mountain Sheep Song itinerary (Laird 1976:128–130, 159–160). The song features an itinerary of travel that headed downward on the West Bank of the Colorado River from the Eldorado Mountains north of the Mohave Valley to reach the Needles, and then looping southward on the west side of the Colorado River through the Whipple, Turtle, and Riverside mountains to the Maria Mountains. Then the itinerary jumps north to the vicinity of the Mojave National Preserve to the Ivanpah Mountains, then south to the New York Mountains and the Piute Range, then southwest to the Providence Mountains, and the Old Dad and Granite mountains, then southwest to the San Bernardino Mountains. This travel route would probably have crossed the Cady and Bullion mountains region in the vicinity of the Project area before heading southwest to the San Bernardino Mountains. Daisy Smith described a mountain sheep song that was sung by the Las Vegas group. It began at a mountain apparently in Cahuilla country, with the sheep then traveling past the San Bernardino Mountains to 'Timpisaxwats' (Providence Mountains), 'Kaiba' (New York Mountains), and Charleston Peak (Kelly 1953:28:33b[18–121]). This itinerary also probably passed through the Project region.

A Mojave "salt" song cycle involved "two salt men" who traveled eastward into Arizona from the Mohave Valley, apparently recrossing the Colorado River somewhere above Fort Mojave. They went west to Uqaliho (an unidentified place), then further west to the Providence Mountains. From there they looked west to a "big lake" of tule reeds, the Lake Country of the Southern Valley Yokuts of the San Joaquin Valley. There is a reference here to shells of the Yokuts, apparently on account of the traditional trade of shell beads from the coast to the Mojaves by way of the Yokuts. The pair then travels west to Hayekwire-nye-ma'tāre ("Rattlesnake's Playground" at Rogers Dry Lake at Edwards Air Force Base), where the Southern Valley Yokuts are also viewed at a distance, according to Kroeber (1972:37). The pair then returned from the Rogers Dry Lake region across the lower Mojave River Valley area and southeasterly to reach Amboy and the Iron Mountains. They reach a salt place in the desert west of the Colorado River at about the same latitude as Parker, Arizona, probably Danby Lake at the south end of the Cadiz Valley, just east of the Iron Mountains. The return journey of the salt men from Rogers Dry Lake appears to follow a route along desert valleys where salt deposits were found, taking them past Troy Lake and Pisgah en route to Amboy and the Bristol Dry Lake salt deposits.

The second route following the vicinity of the lower Mojave River travel corridor that was used by Mojave travelers and traders figures in a number of Mojave sacred song cycles in a narrative that Kroeber identified as an historical epic rather than a sacred song itinerary (Kroeber 1951:77). This story recounted the movements of former or ancient Mojave clan leaders who left the Mohave Valley when the Mojave were still exclusively foragers. They lived near the Mojave River upriver from Barstow for some years and then journeyed south to the Colorado Desert and the Colorado River Delta, where they learned how to farm. They later returned north and expelled invading groups from the Mohave Valley and resettled there. The narrative mentions the Mojave groups initially leaving the Mohave Valley as having passed westward by way of the Providence Mountains and Arrowweed Water before reaching the east end of the Mojave River and traveling upriver and through the lower Mojave River Valley before reaching the vicinity of Barstow. The narrative of the further migrations of this group southeastward past the San Bernardino Mountains to eventually enter Cahuilla territory may have taken them through the vicinity of the Project area.

The Mojave Deer Song also recorded by Kroeber (1948:42), described how two deer were created by Jaguar and Mountain Lion in the San Bernardino region, and traveled northward from the Cajon Pass area to near Daggett on the Mojave River, then eastward down the Mojave River Valley to the vicinity of Afton Canyon. From there they made their way to the Providence Mountains.

Additional sacred song cycles of the Mojaves also referred to a route of travel following the Mojave exchange and travel corridor that passed from the Colorado River to the lower Mojave River Valley by way of the Providence Mountains. From the east end of the Mojave River Valley, a supernatural travel itinerary typically led west along the lower Mojave River past the Project area to the Barstow area, then west to Hayekwire-nye-ma'tāre ("Rattlesnake's Playground" at Rogers Dry Lake, Edwards Air Force Base) and further west to one of the most sacred Mojave sites of all—Avi Hamoka (Three Mountains)—near Tehachapi. Avi Hamoka was one of the key places in Mojave mythology. Mojave traders and travelers en route to the southern San Joaquin Valley passed up the lower Mojave River Valley and traveled westward

past Hayekwire-nye-ma'tāre and Avi Hamoka, observing and recalling the sacred geography along their path of travel.

Chemehuevi Hunting and Mountain Spirits

Chemehuevi stories also referred to a class of supernatural beings associated with mountains—these were called "little mountain spirit men" or "mountain spirits"—Kainimpavits (Kelly 1953:[17-54–17-58]29:9–29:11b). In one account these were described as two-foot tall little men wearing moccasins and the quail feather cap of the Chemehuevi hunter. These mountain spirits had the power to turn into mountain sheep, and could thus deceive hunters in pursuit of sheep. Hunters would leave offerings to the mountain spirits while in the mountains—sometimes cane or arrows—to seek success in hunting. The mountain spirits were said to be responsible for the making of rock art. The volcanic crater at Amboy was called tuntuxub ï ("lava"), and it contained mountain spirits. It was recounted to Isabel Kelly that mountain spirits at the Amboy crater gambled with the mountain spirit on a nearby mountain for the control of mountain sheep. It was also noted that whirlwinds in that region were caused by the mountain spirits there playing the hoop and pole game.

III.1.2 Springs

About the religious and sacred associations of desert springs among the Southern Paiute/ Chemehuevi, Katherine Fowler has noted the following:

> Thus, springs, and water in general, take on symbolic as well as life sustaining functions. Water itself is a sacred substance to Southern Paiute people, and it must always be approached as a living thing, which means prayerfully. It has its own spirit, and there may also be other specific spirits that live in springs and other water sources that need to be carefully considered. Some of these can be harmful to humans, and thus they, and their water homes, need to be approached with great caution and respect. Springs are viewed as interconnected, with water in many ways being like the blood of the earth, flowing in veins under the ground and emerging to the surface only occasionally. The Doctors and other men of power could often travel on these underground trails. Water was their mechanism, and the interconnection of springs their pathways. Water spirits can do the same, although the Old People used to say that they, like people, had preferred homes – certain springs that they preferred and where they stayed. People knew where these were and always approached these very cautiously and with the utmost respect [Fowler 2002:7–8].

Springs were also associated with the in-dwelling of specific supernatural beings or phenomena. These might contribute to the particular designation given to a specific spring.

III.1.3 Playas

Mojave sacred stories included reference to desert dry lake playas, sometimes as the site of interactions or fights between supernaturals, and sometimes as sources of salt. Rogers Dry Lake, for example, at Edwards Air Force Base, (Hayekwire-nye-ma'tāre, "Rattlesnake's Playground") was the scene of battles between various supernaturals. One of the dry lakes in the Sinks of the Mojave, perhaps Silver Lake, was also mentioned as a playground where supernaturals played shinny. Dry lakes were sometimes also "called out" during the itineraries of the different versions of the Salt Song as places where salt could be obtained.

III.1.4 Volcanoes, Lava Fields, Etc.

The volcanic crater at Amboy, located 35 miles east of the Project area, was called tuntuxub ï ("lava") by the Chemehuevi. As I have noted elsewhere, it was associated with mountain spirits. These mountain spirits, who often took the form of diminutive hunters, were associated with mountain sheep, with the creation of rock art, and with acting as spirit familiars for shamans. Basalt rock areas in lava flows are sometimes associated with rock art, as is the case in the Rodman Mountains, just southwest of the Project area. The Pisgah Crater, in the Project area, was undoubtedly considered a spiritually significant place by the Chemehuevi, a place associated with mountain spirits.

III.1.5 Caves

Caves were used for temporary and sometimes longer-term shelter, and portions of caves were also sometimes used as locations for caches of foodstuffs. Caves also sometimes featured rock art. Caves were also reported in Mojave, Chemehuevi, and Kawaiisu sacred stories and song cycles as places where supernaturals would commence routes of travel across the desert or pause on their journeys. The Chemehuevi and Kawaiisu also recognized caves as places of contact between mortals and the supernatural (Garfinkel et al. 2009; Laird 1976:38–39). Like springs, caves were seen as portals to the underworld, and also as places where supernaturals might dwell. Caves were also in some cases associated with the activities of people-animals at the time of creation. Cases are known where rock art found at such cave locations has been identified by native people as having been made by the first people-animals. At some caves with supernatural associations, prayers were made and offerings were left, which sometimes included beads and seeds.

III.1.6 Rock Art Sites

Ethnographic testimony about rock art sites in interior California has provided context for interpreting the cultural concepts and processes that are embodied in surviving rock art of the Mojave Desert region. In the central Mojave Desert both pictographic and petroglyphic rock art is found. Both pictographs and petroglyphs may be observed in locations ranging from isolated boulders or rock outcrops to rock shelters and cave settings. However, in another respect the archaeological contexts of pictographs and petroglyphs tend to vary. In at least some areas of southern California, the majority of pictographs were painted on rock surfaces at least partially exposed to long-term weathering processes. These surfaces include large boulders and exposed rock faces. In such locations, painted pictographs enjoyed a relatively short span of visibility. With polychrome pictographs, color elements such as black and white tended to fade before red pigments would. At many southern California pictograph sites, only the color red is now visible. Thus, both polychrome paintings and pictographs that date from before the very late prehistoric tend to be found in sheltered cave locations, where pigment preservation is much better.

Petroglyphs, on the other hand, may be preserved on exposed rock surfaces for many millennia. Within different regions of the Mojave Desert, different styles of petroglyphs can be found, some of them apparently dating to many thousands of years before the era of Euro-American contact. Several different styles are represented in the Project region.

The Great Basin Representational Petroglyph Style

This style is found in the Great Basin region of eastern California, including desert areas to the east of Victorville and to the north and east of Barstow; it is also found in southern Inyo County. The mountain sheep is the defining design element for this kind of rock art. Other elements proposed as associated with hunting magic in the hunting of mountain sheep are also found. The rock art found at Big and Little Petroglyph Canyons in the Coso Mountains represents one distinctive variant of this style (Garfinkel et al. 2009). It has been dated as covering a time range from 1000 B.C. to A.D. 1500, although new dating methods being developed for rock art may change this.

The Great Basin Abstract Petroglyph Style

This style is found over a wide area in Great Basin eastern California. This style includes both rectilinear and curvilinear elements, the latter being the more common. These include circles and concentric circles, wavy lines, rectangular grids, cross-hatching, bisected circles and triangles, chains and strings of small circles, and aggregated masses of irregular-outline shapes, sometimes roughly rectangular and sometimes made up of curved lines. In the general vicinity of the Project area, a number of petroglyph sites have been recorded that have elements of this Great Basin Abstract Style. Sites have been found in the Newberry, Rodman, and Bullion mountains, at Camp Cady north of Hector Lake, and at Elephant Mountain near Daggett, for example (Cottrell et al. 2001; McCarthy 1979; Smith and Turner 1975:33–45).

The Dating of Rock Art and Native Ethnographic Commentary

In the case of petroglyphic rock art, the degree of formation of a layer of desert varnish over inscribed rock surfaces may provide a clue as to the antiquity of the rock art. Variable degrees of desert varnish repatination at a single site or rock art panel may indicate multiple episodes of petroglyph inscription. Efforts at perfecting physical-chemical tests to determine the age of desert varnish are ongoing. In the Mojave Desert, surviving pictographic rock art is less frequently encountered, and the more exposed elements of rock art of this type are considered to be of relatively recent age. For both types of rock art the problem of dating has been a vexing one in respect to interpreting changes in the cultural context and meaning of rock art.

Students of the native rock art of southern California have been frustrated by an apparent lack of ethnographic testimony about the interpretation and meaning of rock art sites and motifs. In fact, there is ethnographic commentary on the production of pictographic rock art among Takic groups like the Serrano and Cahuilla and also among the Chemehuevi and Kawaiisu.

Rock Art of the Serrano and Related Takic-Speaking Groups

The Serrano, Cahuilla, and other Takic-speaking groups in southern California are associated with the so-called Southern California Rectilinear Abstract Style of pictographic rock art. Much of this genre of pictograph is found in locations that are fairly exposed to weathering, suggesting that at least some examples of this style cane be associated with ethnographically-known groups. This is also suggested by the frequent association of this type of pictograph with native habitation and village sites occupied in protohistoric and historic times. This style is found from the southern Antelope Valley southward through southwestern San Bernardino County, Riverside, Los Angeles, Orange and San Diego counties (Freers and Smith 1994; Smith and Turner 1976). The pictographs are painted mostly in red, with black and white sometimes used. The designs found in this style include chevrons, zig zags, straight lines, chains of diamonds, crosshatching, diamond nets, crosses, and patterns of dots or circles. Highly stylized “stick figure” or silhouette representations of living creatures are also sometimes found. These,

however, are usually solid-color outline figures without any interior details. These designs are usually painted on plainly visible boulder or rock faces near camps or village sites, rather than in inaccessible places.

This style has been called the Southern California Rectilinear Abstract Style or the "San Luis Rey" style, after a variant found in northern San Diego County. The style is found in the territories of native people speaking related languages who were missionized into the southern California Franciscan missions after the arrival of the Spanish in 1769. These were formerly called the "Mission Indians"—the Serrano, Cahuilla, Gabrielino (Tongva), Juaneño, Luiseño, and Cupeño. Some paintings of this style are associated with Indian village or camp sites that were lived in by these groups during the last several centuries.

Research and native testimony suggests that this rock art was associated with religious rites held at native villages. These included the girl's and boy's puberty or coming-of-age ceremony. In the girl's puberty ceremony, at the conclusion of the months-long rite of passage, the girls being honored or another female would make a rock painting. The characteristic diamond designs in this style of rock art were a "rattlesnake" pattern associated with the ending of the girls puberty ceremony. It is said that design motifs painted on the girls' faces at various stages of the puberty ceremony cycle, which lasted for months, were reflected in designs painted on rock faces. Sparkman commented:

> At the conclusion of the period during which the girl remained in the pit, her face was painted, and a similar painting was also made on a rock. At the end of a month the girl's face was painted in a different manner, and a similar painting was added to the first painting made on the rock. This was repeated every month for a year, each month a different painting being placed on the girl's face, and a similar one added to the original one on the rock [Sparkman 1908:225].

J. P. Harrington's Serrano ethnographic consultant, Santos Manuel (known to Harrington as Manuel Santos) also made reference to girls and women, female relatives of his, painting rock art at sites in the San Bernardino Mountains. This practice was also recalled by Cahuilla elder Katherine Siva Saubel and demonstrated by her in an educational film made in the 1950s.

For the process of initiation to adulthood involving boys, the ceremony involving the drinking of a toloache or Jimson weed decoction, followed by ritual dancing, passage through a special ritual sand painting on the ground, and the imparting of instructions from elders. After further ritual activity, Du Bois (1908) states that the boys raced to a designated rock to create paintings. This was followed in the ritual calendar by an ant ordeal, which involved the initiate being covered by biting ants. After this ordeal was completed, the initiates passed through another sand painting. So-called "bell rocks," large rock masses that rang or resounded when struck by a percussion rock, were then struck as songs were sung. Then the male initiates raced to nearby rocks, where the winner would paint a rock face with red and black paint.

The notion that puberty ceremonies left painted rock art behind suggests that the Southern California Style rock paintings we see today may in some cases be recent. Given the relative scarcity of rock paintings of this kind, it can be argued that if such paintings had lasted for many centuries there should be a very much larger amount of it associated with permanent villages. These villages are known to have been lived in for many centuries, and successive generations of

girls or women should have left a great deal of rock art behind. Only weathering and fading can explain why more of it would not be visible today.

Chemehuevi and Kawaiisu Ethnographic Commentary on Rock Art

Several ethnographic sources from the early twentieth century refer to Chemehuevi comments on "picture writing" found at caves and rock shelters within Chemeheuvi territory. Richard Van Valkenburgh was told by Chemehuevi/Southern Paiute elders in the 1930s that rock paintings were the work of dwarf supernaturals that had painted pictures at places like Old Woman Cave in the Old Woman Mountains (Harrington 1986:III: Reel 147: Fr. 501). Kelly was told that the Kainimpavits—mountain spirits—previously mentioned, would make rock art. The sound of their pecking to make petroglyphs was mentioned. These spirits sometimes served as shamans' familiars as well. Laird (1976:123) mentions that the tutuguuviwɨ or shaman's familiar or spirit-helper was believed to have been the author of the pictographs and petroglyphs found on rock faces. As noted elsewhere, these familiars were sometimes associated with caves containing great supernatural power, where prospective shamans might go to learn or re-learn the songs that would give them their shamanic powers and to find a familiar. Laird's Chemehuevi husband and consultant, George Laird, recalled that such caves also contained a separate class of cave spirits about the size of a three or four year old child (Laird 1976:38–39).

Rock Art of the Eastern Mojave Desert Possibly Associated With the Chemehuevi

A number of rock art sites within or in the vicinity of the Mojave National Preserve, to the northeast of the Project area, contain pictographs. The westerly boundary of the Preserve approaches within approximately 30 miles of the Project area. Some of the more exposed pictographic rock art within that region may be relatively recent in origin, and may be associated with Chemehuevi occupation of the region in the late eighteenth and nineteenth centuries, and perhaps earlier in time as well. Various sites display pictographs where red pigment predominates. However, motifs are different from those of the distinctive San Luis Rey Style found at sites in Serrano, Cahuilla, Gabrielino/Tongva, and Luiseño territory. What has been called the Southern Great Basin pictograph style sometimes includes distinctive stylized zoomorphs ("anchor"-shaped figures) as well as what appear to be painted versions of petroglyph motifs associated with the Great Basin Abstract Petroglyph Style. Some sites, such as Wood's Wash, have red painted motifs such as sunbursts and "rakes" that appear in a somewhat different form in the San Luis Rey Style. Other motifs at these sites are quite different. It is interesting to note that some Mojave Desert motifs from these sites also appear to be present in at least one Southern California littoral site—CA-RIV-155—where pictographs unlike those of the San Luis Rey style are present.

Rock Art in the Vicinity of the Project Area

Several petroglyphs sites are found near the eastern margin of a lava flow located in the center of the Rodman Mountains, in the northeast quarter of Sections 18 and 30, respectively, T7N/R4E, SBBM, several miles to the southwest of Troy Dry Lake. This lava flow and the associated cinder cone form part of the Lavic Lake Volcanic Field. Rock art is also found at Newberry Cave, south of Newberry Springs, at Newberry Springs itself, and also at Elephant Mountain, near Daggett, and in the vicinity of Camp Cady. The only ethnographic commentary possibly relevant to these rock art sites is the mention that Chemehuevi shamanic activity was carried out at Elephant Mountain.

III.1.7 Trails and Trail Shrines

Trails in the Mojave Desert

Networks of native trails linked springs and other sites across the Mojave Desert. Laird (1976:135-136) noted that with the exception of hunting parties Chemehuevi travel across the Mojave Desert followed defined trails. Some trails were recalled as suited to fast travel by specially trained messenger runners and others with a need to travel quickly:

> In aboriginal times, a pool of highly trained swift runners would have been useful to High Chiefs needing to exchange messages of peace or war, or perhaps to bear the knotted string on occasions of great importance. In the last two decades of the nineteenth century they [the runners] ran simply for the joy of running in each other's company, taking the old trails well back from the [Colorado] River, well out of enemy territory, and making use of short cuts which slower travelers would have done well to avoid because of the distance between watering places [Laird 1976:47].

The messenger system was used to call distant groups to the mourning ceremonies and other gatherings. Both messenger travel and other movement across the desert landscape were organized in a cultural system which served to defeat the apparent geographical isolation that Julian Steward thought had so constrained Chemehuevi/Southern Paiute social life. The trained messengers and mnemonic devices (tapítsukat) to reckon time and high-speed trails were only one part of this cultural adaptation. Children were trained to run, and females were also trained to act as messengers and scouts, and to retrieve water from distant springs when on the march. Small springs were sometimes sealed over with rocks from interference by animals and other human groups (Fowler 2004). As previously noted, journeys were measured by the cuukuti~~i~~rav*i* or "Indian mile" (Laird 1976:11, 87).

Both the Chemehuevi/Southern Paiute and the Mojaves had trained runners, and both traversed the Mojave Desert. The Mojaves were well-known for their visits to coastal California, but the Chemehuevi were said by Chemehuevi consultants to have traveled there as well. Garcés marveled at the Mojaves traveling for weeks with no more gear than a bow and a water bottle. The Chemehuevi were known to have ranged in historic times across the breadth of the Mojave and Colorado deserts and down to Cocopa country, and to have visited the Pueblo of Los Angeles in the company of the Cahuilla. Both Mojave and Chemehuevi/Southern Paiute travelers recognized traveler's "shrines" along their routes of travel. For Mojaves traveling near the Colorado River, Stewart was told that there were special places along the journey route where offerings were put for a safe trip – beads, handkerchiefs, etc. This would give the traveler a safe journey. Without the offerings, the traveler would get tired or "give out" (Stewart n.d.).

Tom Painter mentioned to Isabel Kelly cairns of rocks found along trails in the mountain areas traveled by the Chemehuevi. Older travelers would seek to restore themselves by placing creosote branches with a stone on top on the pile, and stand on the stone for some moments. They would make a request to the cairn to be restored or rejuvenated. Painter stated that the powers of shamans were what gave the cairns this property (Fowler 2004).

Alternative trail routes that featured spring sites that were located closer together were used by family groups that had to move more slowly. Fowler (2004) has noted a comment by Matavium that the travel of groups had to be timed so that there would be water available at the less abundant water sources. He said that water jars were carried in a burden basket or carrying net.

Some of the water sources, such as the tinajas or "tanks" that were only seasonally replenished, were limited such that watering horses or other stock from them in historic times presented supply problems.

Trails in the Vicinity of the Project Area

George Laird described the principal trail passing from the Colorado River to the Mojave River and San Bernardino by way of the lower Mojave River. It started from Wiyaan$^{?}$nik^{y}aati (~~i~~) ("Adobe Hanging like Tears"), the southernmost settlement of the Northern Chemehuevis on the Colorado River, four miles north of Fort Mojave. It then passed by way of Muhunangkavik^{y}avo$^{?}$o ("Owl Ear Tank"), to the northwest, and continued on westward across Piute Wash Valley to Paas*a* ("Piute Spring"). Laird then described the trail as continuing westward to Tooyagah ("Rock Spring"), through the pass through the Mid-Hills, and then onward to $^{?}$Aipavah and Soda Lake at the Sinks of the Mojave River. The trail to the San Bernardino region then passed up the lower and upper Mojave River to eventually reach the San Bernardino area.

As mentioned above, it is likely that another trail connected the Project area with the Granite Mountains region to the east by way of the pass south of the Cady Mountains later followed by the Santa Fe railroad.

In the nineteenth century, trails also ran southward from Newberry Springs by way of Kane Wash to reach Rabbit Springs to the southwest and Old Woman Springs to the south, en route to the San Bernardino Mountains. These routes appear to have been based on native trail routes.

III.1.8 Mortuary Practices

Serrano Mortuary Behavior and the Mourning Ceremony

Strong states that it is probable that the Serrano shared with other Takic-speaking groups such as the Cahuilla the custom of cremating their dead (Strong 1929:32). Kroeber (1925:618) also mentions cremation. The Serrano version of the religious account of the death and cremation of a culture hero named Kukitat at Big Bear Lake, appears to have provided a cultural charter for the practice of cremation. The Serrano recalled origin stories which commemorated two brothers, Pakrokitat and his younger brother Kukitat, who created the human race and quarreled over how humans were to be endowed. Pakrokitat withdrew from the world of men, and Kukitat divided mankind into warring groups, and created death. He was then slowly poisoned by disgruntled followers, and cremated at a site at Big Bear Lake. A part of his body is stolen by Coyote during the cremation. This story, like those of Cahuilla clans, is reminiscent of the origin accounts of Colorado River Quechan groups, which mention founding brothers who quarrel. It also bears certain similarities to a coastal southern California religious tradition which speaks of a culture hero, Wiyot, created from the union of Earth and Sky. Wiyot also rules a body of followers who become unhappy under his tutelage and conspire to slowly kill him. He is then cremated at the shores of a lake, where Coyote steals part of his body. The Serrano stories reflect beliefs which may have been shared with other groups in both the Colorado River and coastal areas. Versions of this story are also found among other Takic-speaking groups. Strong surmises that after Spanish contact the Serrano interred their dead, a change of custom which he attributes to missionary influence.

However, the information collected by Benedict, on which some of Strong's discussion of mourning customs is based, appears to treat burial as a traditional practice. Body preparers were hired by the bereaved family. She noted that large quantities of lengths of shell beads had been

traditionally placed in the burials of the dead. She said that this practice had been followed for at least a hundred years (Benedict 1924:382, 389). One thus might expect to encounter both cremations and burials in connection with locations occupied by Serranos continuously in both prehistoric and historic times.

After a person's death, some of his or her personal property was immediately destroyed. The deceased's house was burned. An additional ceremony called the *mamakwot*, was held soon after the death, perhaps a week to a month later (Benedict 1924:382). This was sponsored by the bereaved family. A feast was held, and the personal property of the deceased, with a few exceptions, was burned or broken up. It was believed that if this were not done, the deceased could not be left in peace.

As was the case with other southern California groups, a mourning ceremony was also held periodically by a clan to honor all the clan's members who had died since the last ceremony. The mourning observance was the major ceremonial event on the ritual calendar. It appears to have been held on a regular annual basis, and involved reciprocal obligations between different clans. A significant number of clans might be invited to the mourning ceremony. Benedict was told, for instance, that in former times the hosts of the ceremony she attended might have invited some six other clans. The ceremony was held after the close of the fall acorn and pinyon harvests. It was important for the harvesting tasks of autumn to be completed so that the investment of time necessary to host the ceremony could be made. It was also necessary that foodstuffs be available to underwrite the feasting. It is particularly important to keep in mind that a considerable block of time in late fall and early winter was taken up almost exclusively with either hosting or attending the mourning ceremonies, as the various clans held their ceremonies in succession.

Chemehuevi Mortuary Practices

Ethnographic information collected by Isabel Kelly suggests that the Chemehuevi may have traditionally practiced both internment and at least sometimes cremation. The data presented by Carobeth Laird indicate burial without cremation (Kelly 1953 [18–89] 29:48). Of particular interest here are several traditional stories she recorded making reference to mortuary behavior. A mythic charter for the practice of internment is provided in one of these stories. Burial underneath a basket or rocks is described. In other accounts of burial, the obligation to cover the burial well with rocks, cacti, or other impediments to prevent coyotes from disinterring the deceased is mentioned. Another story which suggests the traditional nature of internment has to do with a bereaved husband holding vigil at the grave of his wife, who comes back to life (Laird 1976:41; 1984:61, 131). Laird stated that the Chemehuevi had buried their dead from time immemorial, but that several cases of burning of the dead did show up in myths—one of these cases she discussed had to do with burning a corpse in his house. This case of the burning of the dead is described as an exercise in vengeance (Laird 1974:23).

Information collected by Van Valkenburgh from elderly female Chemehuevi consultants in 1934 indicate, like Laird's data, that internment was the usual traditional practice. He noted one of them stating:

> To bury they used turtle shells – (Aye-yah-sh-siev) – to dig the grave. They buried right away, wrapped in buckskin. Buried everything [Van Valkenburgh 1976:235].

Also of interest in this connection are statements referred to previously about the salient cultural characteristics of the Tiira'ayatawi. I have noted that they were said to have hunted and worn buckskin like the Chemehuevis, but their language and their practice of cremation identified them clearly as Mojaves and not Chemehuevis (Kroeber 1959:296).

The Dutch ethnologist Herman ten Kate visited Cottonwood Island in 1883, and noted being told by "Las Vegas Paiutes" there that cremation was practiced (Hovens and Herlaar 2004). Matavium stated to Isabel Kelly that the Chemehuevi had traditionally practiced both cremation and internment, although internment was preferred. Daisy Smith, on the other hand, had denied that cremation had been practiced. Tom Painter said that when he was young both burial and cremation (for shamans) was practiced, with a shallow trench dug to hold and inter the ashes (Kelly 1953:22:43[17-144],26:32b[17-145].

The cremation or internment of the deceased included the singing of the deceased's song and the burning of personal property and of the house of the deceased. The locality of the house and gardens would be abandoned for awhile, but it was noted that the mourning survivors usually returned to their former locale after an absence of perhaps a year. Relatives continued to garden in the area after the deceased's house was burned.

Along with funeral observances, the other major institution associated with the death of group members was the mourning ceremony. This was held some months or even a year after the funeral of the deceased. If several individuals from a group had died recently, the mourning ceremony for each person might be combined by their relatives into a single ceremony. The lapse of time after the death of those being commemorated permitted those sponsoring the memorial fiesta to lay aside the food and other resources needed for the ceremony. In addition, this gathering involved the singing of the Talking or Cry Song by a High Chief or a relative of his. His attendance and ritual performance had to be arranged in advance (Laird 1976:41-42). In addition to arranging for the Song, other attendees from other groups had to be invited. The inherited Song Group song of the deceased would also be sung by a member of his Song Group who had the right to sing it. The invitation to other groups involved the use of the mnemonic knotted string sent out to other groups to record the time of assembly for the memorial feast. September was often chosen as the time for the event for Chemehuevi groups living on the Colorado River, according to Laird, given the availability of crop foods at that time. For groups on the desert, before the move to the river by some groups took place in the 1830s, the ceremony may have been held later in the autumn. The mourning ceremony also involved the obtaining of a young eagle, which was killed and prepared as a ritual item for the ceremony, somewhat along the lines of the practice among Takic groups in southern California.

A special large ramada or brush shed was built to house the goods to be burned or given away during the ceremony. Traditionally the invitees would pause on their journey to the place of the mourning ceremony to gather materials, such as forked posts or thatching material to be used to construct the ramada (or takagan*i*) once they had arrived at the site. Some items gathered by the sponsors of the ceremony were given away to attendees. In historic times this included horses, that might be either given away or killed for feasting. At the ceremony all personal property of the deceased not burned at the funeral was destroyed in a fire in the center of the dance area. Property of friends might also be offered for burning. It was also noted by Laird that all the property that the deceased had ever seen was also burned or destroyed, with the possible exception of horses (Laird 1976:43). Items that had not been seen by the deceased might be given away. This would appear to amount to the disposal of a great deal of the material culture inventory of the local group.

The Circle Dance was danced as part of the ceremony, with the property-burning fire at the center of the circle. The ceremony was the most important ritual and inter-group social institution for the Chemehuevi, and politically linked local groups in ties of reciprocal ceremonial exchange. It was also the focus of the ritual duties of the High Chiefs, as described by George Laird. The regional networks of visiting, intermarriage, and exchange were forged around this festive institution.

III.2 Traditional Economic Use Activities and Areas

III.2.1 Hunting—Təmtak and the Newberry and Rodman Mountains

The Newberry and Rodman mountains form the most northerly portion of a complex of desert mountains ranging up to 5,000 to 6,000 feet in height that lie between the north slopes of the San Bernardino Mountains to the south and the lower Mojave River Valley to the north. This desert expanse measures about 25 to 30 miles in width from the northern foot of the San Bernardino range to the southern margin of the lower Mojave River Valley. This extensive area was referred to as Temtak by J. P. Harrington's Serrano consultant Santos Manuel (Bean et al. 1981:269–271). He had indicated that the mountains to the east of Victorville and Apple Valley and north of the San Bernardino range were known as Təmtak. When Harrington took Santos to Barstow, he stated that the area south of the lower Mojave River was also called Təmtak. He also stated that it belonged to the Pervetum clan of the northeastern San Bernardino Mountains. It is likely that this association of the Pervetum with the territory reflects early or mid-nineteenth century conditions, after Desert Serranos in the Daggett - Newberry Springs area had been removed by the Mojaves in the 1830s. Santos also said that members of various clans visited the Təmtak area for two or three days—there were both antelopes and mountain sheep there. These were presumably hunting trips.

The Newberry Mountains lie just to the southwest of the Project area, extending to within four to five miles of Troy Lake. As noted above, the Newberry Mountains were habitat of Desert Bighorn sheep. In this mountain zone both Serranos and later Chemehuevis hunted Bighorn sheep. Major springs in the area that provided water to the sheep population included Newberry Springs and Kane Springs.

The Rodman Mountains are a southeasterly continuation of the Newberry Mountains, located across Kane Wash toward the southeast, and lie immediately adjacent to the southern margin of Troy Lake. The Rodman Mountains were also used for the hunting of Desert Bighorn. Immediately to the south of the Rodman Mountains lies Johnson Valley, which provided a convenient route to the northeastern slopes of the San Bernardino Mountains, by way of Old Woman Springs, Rattlesnake Springs, and Rattlesnake Canyon.

III.2.2 Deer Hunting

A Mojave historical epic recorded by Alfred Kroeber described how a Mojave chief and his followers occupied the Mojave River and adjacent areas to the east in a section of the river to the south of Barstow. The hunting of deer along the river by the Mojave was described in the story, and Kroeber commented that this had to be a counter-factual story element. However, the testimony of pioneer travelers along the river in the mid-nineteenth century describes the hunting of deer in thickets on the river. Wooded areas with water along the upper and lower river provided habitat for mule deer (*Odocoileus hemionus*).

III.2.3 Pronghorn Hunting

Pronghorn antelope (*Antilocapra americana*) were recalled by Serrano consultants as having ranged across the desert valleys and basins between the San Bernardino Mountains and the lower Mojave River. In the nineteenth century, apparently even after mission times (after the mid-1830s), pronghorn were hunted across this area by Serranos from the San Bernardino Mountains (Bean et al. 1981:270). Jedediah Smith noted signs of pronghorn along the lower Mojave River and his party hunted them in the general vicinity of Victorville-Helendale. Pronghorn occupied basin and valley floor areas rather than the hills associated with the Desert bighorn.

III.2.4 Desert Bighorn Hunting

Desert Bighorn sheep (*Ovis Canadensis*) are known to have inhabited the vicinity of the Project area from prehistoric times through the beginning of the twentieth century. Desert Bighorn were formerly found in much lower-altitude desert hill and mountain areas than is generally acknowledged today – the hills at Victorville, for example. Jedediah Smith in 1826 noted signs of the presence of Desert Bighorn along the lower Mojave River. A Chemehuevi band living in the vicinity of the Van Dyke Ranch near Newberry Springs in 1904 were still engaged in Desert Bighorn hunting in the nearby Newberry Mountains. Bighorn were also observed in the Cady Mountains near Afton Canyon at around the same time. For the Chemehuevi who moved into the Project area in the early nineteenth century, Desert Bighorn hunting was a core cultural activity with highly elaborated associated magico-religious beliefs. Hunting was often carried out from locations of ambush using the excellent Chemehuevi backed hunting bows. Sheep were driven upslope toward the locations of concealed hunters.

III.2.5 Small Game Hunting

In his travels up the lower Mojave River in 1776, Fr. Garcés noted that snares were being used at the village he stayed at in the Camp Cady region to catch small game. Further up the river in the Victorville region, Jedediah Smith noted in 1826 that nets were being used for communal rabbit/jackrabbit hunting. Garcés also observed that natives at the settlement located in the vicinity of Camp Cady as wearing rabbit skin robes (Coues 1900:I:240–241). It is likely that brush cottontails and jackrabbits were both hunted in the dune and mesquite woodland areas west and northwest of Troy Dry Lake. In the vicinity of the dry washes in the upland areas around the lower Mojave River Valley, desert tortoises would also have been hunted. These were a favorite item of food for the Chemehuevi, but were also procured by Serranos living on the Mojave River. Along desert trails, the appearance of tortoise carapaces was an indication of the proximity of springs as well as of the native habitation sites associated with them (Mollhausen 1969:287–300).

III.2.6 Basketry Materials Gathering

Both desert springs and riparian zones along the Mojave River provided basketry materials for native weavers. Chemehuevi weavers gathered willow (*Salix* spp.) shoots for fabricating both the coils and the sewing strands of coiled basketry, and the working material for twined basketry. The Serrano used both *Juncus* spp. (*Juncus textilis* and *Juncus balticus*) and sumac (*Rhus trilobata*) as sewing strands on a foundation coil of deer grass (*Muhlenbergia rigens*). Juncus would have been widely available in well-watered localities on the desert floor, but deer grass

and sumac would probably have been imported from higher altitude areas. *Juncus balticus* was found abundantly, for example, at Newberry Springs (Thompson 1929:461). Willow shoots would have been abundantly available at localities along the Mojave River and at desert springs. Garces noted the southern California style coiled baskets he saw at the native settlement near Camp Cady in 1776 (Coues 1900:I:240).

III.2.7 Sugar Carrizo Gathering

Sugar Carrizo grass (*Phragmites* spp) comprised a cane-like plant that grew in riparian environments along the Mojave River and at desert springs. The grass was used for making arrow shafts, but was especially important due to the fact that a particular species of aphid, *Hyalopterus pruni*, deposited a sweet secretion on the leaves of *phragmites* and sometimes also on tule reeds (*Scirpus* spp.). This substance was prized by native people in southern California as a variety of natural sugar and was harvested in late summer. The sweet secretions were shaken from the leaves on a matting and recovered. The sugar was often then formed into small "loaves" of solid "sugar." Among other uses, these were then used as portable, high-energy emergency rations. The loaves of Carrizo grass sugar could also be conveniently cached in desert caves, where the sugar could be kept until the depositor was in need of this important food.

The *phragmites* cane plant is less visible on the desert landscape today than in former times on account of the fondness of introduced European range stock for the plant. *Phragmites* is nevertheless still found at a number of locations along the river, including Afton Canyon. *Phragmites* was recalled as an important resource available at a native settlement at Newberry Springs, near the Project area.

III.2.8 Mesquite Bean and Pod Gathering

A very important food resource for native people living in the vicinity of the Mojave River and in the central and western Mojave Desert were stands of both honey mesquite and screwbean (*Prosopis* spp.) that were particularly abundant within the Mojave River riparian zone. Harrington's Serrano consultants recalled that the exploitation of mesquite on the Mojave River was an important activity for native people in the late summer.

Mesquite and screwbean were distributed, in some sections of the lower Mojave River, on riverine terraces, with screwbean on the first terrace level and honey mesquite, with its deeper roots, on the second terrace (Schneider 1989:7–8). Mesquite was particularly abundant on several sections of the river below Daggett. These areas included a section of the river south of modern Harvard, just east of the Forks of the Road turnoff of the old Salt Lake Wagon Road, and an area further east extending from the sites of Camp Cady and Camp Cady Ranch (Section 19, T10N/R4E, SBBM and Section 25, T10N/R3E, SBBM, respectively) westward along the river for about three miles to Section 33, T10N/R3E, SBBM (Thompson 1929:446–448).

In addition to its river terrace distribution, honey mesquite was also found near the margins of ephemeral or seasonal dry lakes and in other areas where water was available near the ground surface. In the lower Mojave River Valley, in and adjacent to the Project area, an extensive belt of stabilized dunes containing mesquite woodland was described in the early twentieth century. This belt ran southeastward from the Mojave River past Newberry Springs and then northeastward to the west and northwest side of Troy Dry Lake (Thompson 1929:444–445). It

partially covered a slight depression extending toward Troy Lake from the Newberry Springs area, apparently created by several ancient river channels. In some places the dunes reached 15 to 25 feet in height. Geologist David Thompson observed that the dunes appeared to have been the product of aeolian sands being trapped in preexisting stands of mesquite woodland established in areas of high water table. Mesquite also grew around Newberry Springs and was consumed by Chemehuevi living at the spring and wetlands there at the beginning of the twentieth century.

Thus, before the advent of Euro-American settlement in the Mojave Valley after the Civil War, the mesquite stands in the lower valley were quite abundant. However, the establishment of a large and active mining camp at Calico, north of Daggett, in the early 1880s, and subsequent mining and other settlement activities, led to extensive destruction of this woodland for use as fuel wood. Chemehuevi Indians were in fact hired as woodcutters to harvest mesquite wood during this era. It was reported that "Indians living along the Mojave" River had been employed by the borax works at Borate, near Calico, to cut down trees along the Mojave River to be used as fuel for a processing furnace at the works (Zeitelhack and La Barge 1976:100).

III.2.9 Tule (*Scirpus* spp.) Gathering

For Desert Serrano, including those living in permanent settlements along the lower Mojave River, tule (*Scirpus* spp.) was important not only as a raw material for fabricating matting and other craft products, but also as a food resource. Tule (*Scirpus*) roots were harvested and consumed in the winter or early spring when alternative food sources were often in short supply. The roots could be baked as well as boiled.

On the lower Mojave River, *Scirpus* was found at locations of permanent standing water, probably in the vicinity of Camp Cady and sometimes in the vicinity of modern Barstow and Daggett, where Nuéz found standing water in 1819 (Walker 1986:265). Scirpus was also found as well at Afton Canyon. Fr. Garcés observed *Scirpus* roots being eaten as a winter food at a settlement on the lower Mojave River. This rancheria was probably located in the Camp Cady area, several miles north of the Project area (Coues 1900:I:240). Extensive stands of *Scirpus* were also found in the area of wetlands at Newberry Springs.

III.2.10 Salt Gathering

The procurement of salt in the Project region was focused on dry playa lakes that received intermittent winter pluvial runoff. The evaporation of this runoff created layered salt deposits on these lake beds. Dirt was removed from the surface with the hands. Underlying the surface, layers of evaporated salt were uncovered and broken. Hammerstones were sometimes used to break up underlying salt layers into portable chunks. Tightly woven bags made of yucca fiber were sometimes used for the transport of salt. Kawaiisu salt harvesters operating in the Mojave Desert used deerskin sacks (Earle 2005:102). Salt was heavy and would be carried using a carrying net and tumpline. Quantities of salt were carried long distances to destinations like the southern San Joaquin Valley and the Colorado River. Containers of salt could also be cached in caves or other suitable hiding places. Temporary camps were established at water sources at or near dry lake playas by parties that had traveled to the area to gather salt.

A site known to have been used for gathering salt was located northeast of Elephant Mountain in the Yermo area, approximately 16 miles west of Troy Lake. This salt deposit was called queve

awi ‘aci by a Mojave consultant who knew the area. He said that Chemeheuvis, presumably in the nineteenth century, gathered salt there and carried it off to trade with the Mojaves (Kroeber n.d.: Reel 104: Fr. 168). Surface sodium chloride was also found in the vicinity of Newberry Springs and may have been exploited (Thompson 1929:459).

III.2.11 Quarries

Ethnohistorical data indicate that a basalt quarry existed at Elephant Mountain, on the north side of the Mojave River opposite Daggett. The expedition of Fr. Nuéz in 1819 camped on the river next to the mountain, at a spot where water flowed on the surface. Nuéz described a mountain where “millstones” were quarried (Walker 1986:265). Areas where basalt for milling stones was quarried, featuring unfinished “metate blanks,” can be seen on Elephant Mountain today. This production of milling stones would have been carried out before the abandonment of the lower Mojave River by the Serrano in the 1820s and 1830s. It is likely that other locations of volcanic rock formations and flows on the perimeter of the valley also feature basalt quarries.

Ethnographic accounts of quarrying of stone for chipped stone tools in the vicinity of the lower Mojave River Valley have so far not come to light. However, both the Calico Mountain range to the north and the Newberry and Rodman mountains to the south of the valley do contain chert and other lithic materials suitable for the manufacture of chipped stone tools.

III.3 “Domestic Use” Areas

III.3.1 Settlement Systems and Layout of Domestic Use Areas in the Lower Mojave River Valley

The settlement systems of both the mountain and desert (Vanyumé) divisions of the Serrano involved the establishment of permanent winter villages that served as “base camp” settlements for patrilineal clans or sibs. These clan villages were exogamous, meaning that a member had to seek a spouse in another clan group and community. Females typically moved to the clan community of their male spouse at marriage. In addition, clans were thought of as belonging to one of two supernatural and ceremonial divisions—that of Wildcat and that of Coyote. Individuals from a clan belonging to the Wildcat division or moiety, for example, had to seek a spouse from a clan of opposite moiety affiliation. Clans of opposite moiety affiliation that habitually intermarried maintained strong political alliances that were reflected not only in the exchange of spouses but exchanging food and other resources with one another in the context of hosting mourning ceremonies and other religious fiestas.

Individual families or groups of families within these patrilineal clans often formed temporary foraging units that would establish temporary camps elsewhere within or outside the territory of the clan to exploit wild plant or animal resources in the spring, summer, or fall. The members of a particular patrilineal clan might be invited by another clan to participate in foraging in the other group’s territory. This was reported for acorn and pinyon pine nut harvests, and probably also occurred with the harvesting of both mesquite and juniper berries. This included Desert Serrano groups traveling upriver to gather acorns and pine nuts in the San Bernardino Mountains. Such invitations were an opportunity for allied communities to both forage and engage in fiesta activities. Sometimes all residents but those too elderly and infirm to travel would respond to these foraging and fiesta invitations. Aside from such more formal foraging forays into

neighboring or distant territories, temporary camps were also sometimes used for the exploitation of local resources.

For the Serrano, including those living on the upper and lower Mojave River, winter villages could be considered the political capitals of their clan or sib territories. These places had areas where cremations were carried out and where the periodic mourning ceremonies, with attendant exchange of food between clans, and the destruction of personal property of the dead, were carried out. Winter villages were also equipped with a ceremonial dance house which included a fenced in dance area, with sunshades or armadas, enclosing a special house in which the ritual paraphernalia sacred bundle of the clan was kept. Serrano winter villages were thus known landmarks on the landscape that did not move their location from year to year. On the upper and lower Mojave River, larger patrilineal clan villages had total populations of at least 60 to 80 people.

The patterns of seasonal movement of constituent groups within the clans from the capital winter village to summer camps differed between the mountain and desert divisions of the Serrano. For the Serrano of the San Bernardino Mountains, seasonal movements had to do with long-term camping in high country locations within the clan territory during the warmer months of the year, and a return to a lower altitude winter village after the completion of the acorn harvest. For clans located along the upper and lower Mojave River, use of the winter village during the summer months as a base of operations was more important, partly because of the logistics of water supply. The greater scarcity of water sources in the lower Mojave River Valley region as compared to the San Bernardino Mountains tended to constrain the availability of temporary campsites.

Serrano winter villages contained permanent houses, some with sunken floors. These were dome shaped and circular in floorplan, and thatched with tule reed or similar material. The shelters tended to be larger in floor area and in height than those used by mobile desert groups like the Chemehuevi. In addition to these, settlement areas featured flat roofed ramadas or sunshades for outdoor work and cooking, storage pits and granaries, a dance house, and an area for carrying out cremations. Temporary shelters and ramadas were constructed for seasonal field camps, which shelter could be quite minimal.

The system of settlement found among the Chemehuevi was traditionally somewhat different from that of the Serrano. Membership in Chemehuevi local groups or bands was not based on belonging to a lineage or descent group. Both males and females might marry into a particular residential band or group in which post-marital residence was often uxorilocal, with males residing with the wife's kin (Laird 1976:22–23). The Chemehuevi do appear to have had a system of patrilineal inheritance of rights to hunting songs and associated hunting territories, but this system cross-cut residential group membership. The Chemehuevi tended to move greater distances during the course of the year than the Serrano, and there appears to have been less emphasis on the idea of a single permanent winter village. Chemehuevi band populations were smaller than those of the Serrano clan villages, ranging approximately from 30 to 50 people. As among other desert-dwelling groups, the location of longer-term seasonal camps was constrained by the availability of water sources. Nevertheless, the Chemehuevi, particularly when traveling, might establish dry camps from which hidden or cached or relatively distant water supplies might be accessed. Girls were trained at the skill of traveling long distances from camps to retrieve water supplies. The Chemehuevi may have depended on hunting to a greater degree

than the Serrano, and it is certainly clear that Chemehuevi culture was ideologically oriented around hunting, particularly the hunting of mountain sheep.

The layout of Chemehuevi camps often reflected the use of two different types of shelters. Small circular domed shelters, smaller and more temporary than those of the Serrano, were used for sleeping. A warming hearth might be found inside the sleeping hut during the cooler months of the year. A second shelter was constructed outside, with or without a ramada. This consisted of an outdoor hearth located on the leeward side of a semi-circular brush windbreak-enclosure approximately a meter high (Kelly 1953:[18-5] 29:12). The sleeping hut and the enclosure might have a circular or semicircular base of rocks or stones to anchor the brush used in the shelter. The importance of the windbreak reflected the fact that food preparation and processing activities could be made difficult under conditions of high winds, frequent in the desert. Chemehuevi settlements were not equipped with a special dance house. Ramadas were specially built for feasts, with attendees sometimes bringing support poles or thatching for the ramada with them as a contribution to the fiesta, as previously noted.

Unlike the Serrano, the Chemehuevi usually interred rather than cremated their dead. This disposal of the dead was reported to have been carried out at some distance from the camp, sometimes with excavation and internment and sometimes by placing the body in a depression in a field of rocks or boulders and covering it. Like the Serranos, the Chemehuevi did however burn the property of the dead at funerals and the mourning ceremonies. Where water was abundant at springs or otherwise available, some Chemehuevi groups were, by the mid-nineteenth century, carrying out a limited amount of oasis gardening of maize, melons, squash, beans, and other crops. At various locations in the central and western Mojave Desert, Chemehuevi groups continued to follow a traditional foraging way of life through the end of the nineteenth century.

III.4 Ethnographic and Historical Information about Settlements in the Lower Mojave River Valley

III.4.1 Angayaba

This settlement was located less than a day's march to the east of Daggett, somewhere between Forks of the Road and Camp Cady to the east. This was a village site with abundant water and located in an area of riverine oasis, with riparian woodland. Garcés described two distinct village settlements in this area, one apparently corresponding to the Camp Cady – Camp Cady Spring area (Sections 19, 20, and 30, T10N/R4E, SBBM) and the other to the vicinity of Forks of the Road, southwest of Harvard and southeast of Toomey. In both of these areas, riparian and mesquite woodland, along with floodplain springs, are reported by Thompson (1929:446–447). A resident of the ranchería of Angayaba served as a guide for the Nuéz expedition in 1819. Angayaba is also mentioned as a settlement that had supported the attempted revolt at Mission San Gabriel in November of 1810. It is also possible that several individuals from this settlement intermarried with villages further upstream on the Mojave River, including Topipabit just north of Victorville, and were eventually baptized at Mission San Gabriel. One resident of the settlement is known to have been baptized at Mission San Gabriel in 1825 (Earle 2005:24). In 1819, Nuéz proposed establishing a sort of depot for Spanish saddlestock and military provisions at Angayaba, to support a future military expedition effort against the Mojaves on the Colorado River, so the place clearly had abundant forage and water (Walker 1986:267).

III.4.2 Tɨmɨŋa – Newberry Springs

A Chemehuevi consultant of John Harrington's mentioned a native settlement location at Newberry Springs. He recalled that the Vanyumé Serrano name for this place was Tɨmɨŋa (Harrington 1986:III:147:695). The Desert Serrano (Vanyumé) survivor named Moha also mentioned this place, in reminiscing with relatives. She remembered that abundant carrizo-grass sugar was produced there (Harrington 1986:III:151:519). In some of her statements, Moha said that it was at Newberry Springs that her group was attacked by Mojaves before she was carried away to the Colorado River. This village site area is located approximately five miles west of the southwest shore of Troy Dry Lake. The abundance of water at the spring at Newberry Springs was so great that in the early twentieth century the Atchison, Topeka, and Santa Fe Railway was pumping nearly a half-million gallons of water a day from the spring and adjacent wells (Thompson 1929:498). The spring and associated wetlands supported mesquite, *Scirpus*, salt grass, *Phragmites*, *Juncus balticus*, and wild grapes, and was located just to the north of the northernmost tip of the mountain ridge at Newberry Springs. To the southwest of the spring, in the lee of the ridge, was an occupation area, with a bedrock milling area upslope to the southwest from this location, and a rock art site on the southwest side of the ridge.

J. P. Harrington was also told by Mojave consultants that the Desert Mojaves had last been seen at 'avi-kwaθ'utuf^{a}, what the Mojaves called the promontory at the northeast end of the Newberry Mountains, immediately adjacent to Newberry Springs; they were said to have been headed directly north, and were never seen again (Harrington 1986:III:167:363).

During the mid-1860s, a military post was garrisoned at Camp Cady, on the Mojave River northeast of Newberry Springs. Chemehuevi bands had been resident in the region since the 1830s and 1840s, and incidents of violence had occurred in the vicinity of the lower Mojave River Valley, with Chemehuevis accused of attacking travelers in the region (Earle 2009). At the end of July of 1866 the force at Camp Cady became involved in a fight with 36 Chemehuevi/Southern Paiute, resulting in the killing of three soldiers (Lyman 1993:115).

Following this fight, a rescue force was sent from Los Angeles that was ordered to track down the attackers. Several attempts were made by Capt. Owen of the rescue force on the nights of August 17–18 and 19–20 to assault a native ranchería called "warm springs" said to be located to the south of Camp Cady. Casebier (1972a:31) states that this may have been at Kane Springs, five miles south of Newberry. Elsewhere, Warm Springs has been identified as Newberry Springs (Earle 2005:24–26; Walker 1986:302). Only on the second day could the settlement be located, and by then it had reportedly been deserted for about a week (Casebier 1974 or 1972 a or b?:22–23).

As late as 1904, a small group of "Paiute" were mentioned as still following a traditional way of life in the Newberry Mountains and the Newberry Springs region, to the east of the Van Dyke Ranch at Daggett. Dix Van Dyke described this group:

> The Newberry Mountains lay 10 miles east of the Daggett Ranch. [Mountain] sheep thrived on the rugged heights and on each side of the mountains were springs where in hot weather they drank. Here the Indian hunters would patiently lie to wait for the sheep.
>
> Where the point of the mountain extended into the [Mojave River] valley there was a tract of damp land where grass, wild grapes, and mesquite trees flourished. In summer it was a

> favored resort of a small band of Indians who eked out a meager living with mesquite beans and wild game. They brought to the Van Dyke Ranch fine dressed [mountain] sheep hides that, when cut in strips, wet and rolled in the hands and then dried, made the toughest and strongest of thongs.
>
> The squaws had first scraped off all the hair and meat and smoked the hides. Then they then made them soft and pliable by rubbing and kneading the skins between their hands. The farmers bought a dozen for 2 dollars each and the Indian gladly assisted in the harvesting the hay. … These were the last of the old hunting Indians [Van Dyke 1976:41].

The village site at Newberry Springs has not been linked to individuals who were recorded by Franciscan missionaries as baptized at Mission San Gabriel or Mission San Fernando. Yet it seems likely that it was occupied in the late eighteenth century. At least one other spring site located away from the Mojave River itself, Tameobit—Rock Springs—east of Hesperia, was occupied by the Desert Serrano and is mentioned in baptismal records at Mission San Gabriel.

III.4.3 Ahamoha

This place was said to have been the birthplace of Moha, one of the survivors of the group of Desert Serranos or Vanyumé that was attacked by the Mojaves, probably in the 1830s. Moha herself located her place of birth near Daggett when she talked to Kroeber. Kroeber's Mojave consultant Jo Nelson applied that name to mountains just north of Daggett. Another source, however, placed the location of Ahamoha as a few miles north of Victorville (Earle 2005:9-10). In any regard, a settlement of some sort appears to have been occupied in the Barstow-Daggett area by Desert Serranos in the 1820s. Harrington's Serrano consultant Manuel Santos referred to a place called Tutupeat in the Barstow area, without providing further details about it (Bean et al. 1981:293,298).

DATA REQUEST 102 RESPONSE SUMMARY

This response to Data Request 102 provides information on types of traditional use areas and sacred or spiritually significant sites that may potentially be found in the Project region and the Project area itself; Figure 1 depicts the location of many of these areas relative to the Project location. The document includes a background ethnohistoric overview of the lower Mojave River Valley Project region. This provides information on what native tribal or ethnic groups were living in the region during the late eighteenth century through the beginning of the twentieth century. Ethnic group occupation and settlement in the immediate Project region changed over time beginning in the eighteenth century, with the replacement of Desert Serrano populations by Chemehuevi by the mid-nineteenth century. The apparent prior presence of Desert Mojaves or Like-Mojaves in the region and their expulsion by the Chemehuevi is also discussed.

The report then provides an overview of potential cultural landscape features associated with the religious beliefs of the Serrano, Chemehuevi, and Mojave. This includes a review of mortuary practices of these groups. The report reviews information on mountains, lava flows, and volcanoes in the region as places of supernatural significance. Mountain ranges in the region that are known to have supernatural associations in native traditions are identified in relation to these traditions. The journeys of supernaturals through the Project region recorded in native accounts, including those of the Mojave and the Chemehuevi, are discussed. The association of mountain

spirits with mountain ranges and volcano-lava flow areas is also reviewed. In addition, the report provides a discussion of a major class of supernaturally significant places, such as rock art sites. The fabrication, content, and religious and cultural significance of Serrano, Chemehuevi, and other rock art found in the Project region is also reviewed. This discussion makes reference to the great antiquity of rock art at some sites in the region, and the interpretation of both ancient and more recent ethnographically attested styles of rock art. It also provides a review of available ethnographic information about the purpose and cultural context of rock art in the region.

Other site types of potential supernatural significance include trail systems, caves, and springs. Trail systems include the creation of cairn shrines as supernatural offering locations. Caves provide an important setting for native interaction with the supernatural world. Springs and spring sites are treated as supernaturally significant places, and also as both traditional use areas and loci of desert settlement.

This report also discusses classes of potential traditional use areas to be found in the region that are referred to in ethnohistoric and ethnographic sources. These include gathering areas for mesquite, basketry materials, tule (*Scirpus* spp.), salt, and carrizo grass sugar. Also discussed are hunting areas for desert bighorn, deer, antelope, and small game, and lithic quarry procurement areas.

The report concludes with a review of information about specific ethnohistorically and ethnographically attested village sites in the Project region. This includes a discussion of changing systems of settlement and social organization among native groups occupying village locales in the Project area. Of particular importance are the named native village sites at Newberry Springs and in the Camp Cady region. Elephant Mountain, a rock art site and milling stone quarry located north of Daggett, is also discussed.

REFERENCES

Bean, Lowell, Sylvia Brakke Vane, Michael Lerch, and Jackson Young

1981 Native American Places in the San Bernardino National Forest, San Bernardino and Riverside Counties, California. Report submitted to U.S. Department of Agriculture, United States Forest Service, South Zone Contracting Office, Arcadia, Ca. by Cultural Systems Research, Incorporated, Menlo Park, CA.

Benedict, Ruth

1924 A Brief Sketch of Serrano Culture. *American Anthropologist*, 26(3):366–392.

Brooks, George R., ed.

1977 *The Southwest Expedition of Jedediah S. Smith: His Personal Account of the Journey to California, 1826-1827*. Arthur H. Clark Co., Los Angeles.

Casebier, Dennis

1972a *The Battle at Camp Cady*. Tales of the Mojave Road, No.2. Norco, Ca.

1972b *Carleton's Pah-Ute Campaign*. Tales of the Mojave Road, No.1, pp.1-57. Tales of the Mojave Road, Norco, California.

Cottrell, Marie, Uyen K. Doan, and Rhys M. Evans

2001 Rock Art Sites at Marine Air Ground Task Force Training Command. CRM (3):21-23

Coues, Elliott, ed.

1900 *On The Trail of a Spanish Pioneer: The Diary and Itinerary of Francisco Garcés Missionary Priest) in His Travels Through Sonora, Arizona, and California 1775-1776.* 2 vols. Francis P. Harper, New York.

Drover, Christopher E.

1979 *The Late Prehistoric Human Ecology of the Northern Mohave Sink, San Bernardino County, California.* Ph.D. dissertation, University of California, Riverside.

DuBois, Constance G.

1908 The Religion of the Luiseño and Diegueño Indians of Southern California. University of California Publications in American Archaeology and Ethnology. Vol. VIII:69-186.

Earle, David D.

1990 New Evidence on the Political Geography of the Antelope Valley and Western Mojave Desert at Spanish Contact. in *Archaeology and Ethnohistory of Antelope Valley and Vicinity*, Bruce Love and William H. DeWitt, eds., pp. 87-104. Antelope Valley Archaeological Society, Occasional Papers No.2. Antelope Valley Archaeological Society, Lancaster, Ca.

Earle, David D. (continued)

1996 *Ethnohistoric Overview of the Edwards Air Force Base Region and the Western Mojave Desert*. Brian Mooney and Associates, San Diego, Ca. for Environmental Management Office, Edwards Air Force Base, California. 1996.

2004a Native Population and Settlement in the Western Mojave Desert in the 18th and 19th Centuries. *Proceedings of the Millennium Conference, Barstow, California, May 9-12, 2001*. Mark Allen and Judyth Reed, eds., pp. 173–186. Maturango Museum Press, Ridgecrest, CA. 2004

2004b Ethnohistorical and Ethnographic Overview and Cultural Affiliation Study of the Fort Irwin Region and the Central Mojave Desert. Prepared for TRC Solutions, Inc., Salt Lake City, Utah. Earle and Associates, Palmdale, CA.

2004c Chemehuevi Population Movements and The Numic Frontier in the Western and Central Mojave Desert After European Contact, In: Papers in Antelope Valley Archaeology and Anthropology, Roger W. Robinson, ed., pp. 135-146. *Antelope Valley Archaeological Society, Occasional Papers 4*. Antelope Valley Archaeological Society, Lancaster, CA.

2005 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* 25(1):1–38.

2009 Ethnohistorical Overview and Cultural Affiliation Study of the Mojave National Preserve. Prepared for National Park Service, Barstow, Ca. Earle and Associates, Palmdale, CA.

Fouts, Margaret

1976 A Teacher's Life. In *Once Upon a Desert: A Bicentennial Project*., Patricia Jernigan Keeling, ed., p. 219-221. Mojave River Valley Museum Association, Barstow, California.

Fowler, Catherine S.

1994 Some Notes on Ethnographic Subsistence Systems in Mojavean Environments in the Great Basin. *Journal of Ethnobiology* 15(1):99–117.

2002 What's in a Name? Some Southern Paiute Names for Mojave Desert Springs as Keys to Environmental Perception. Conference Proceedings: Spring-Fed Wetlands: Important Scientific and Cultural Resources of the Intermountain Region, 2002. Desert Research Institute, Reno and Las Vegas, Nevada. http:www.wetlands.dri.edu

2004 Southern Paiute- Chemehuevi Trails Across the Mojave Desert: Isabel Kelly's Data, 1932–1933. Paper Presented at the 2004 Annual Meeting of the American Anthropological Association, Atlanta, Georgia.

Freers, Steven M., and Gerald A. Smith

1994 Fading Images: Indian Pictographs of Western Riverside County. Riverside Museum Press, Riverside, CA.

Galvin, John
1965 *A Record of Travels in Arizona and California 1775-1776.* Translated and edited by John Galvin. J. Howell Books, San Francisco, CA.

Garfinkel, Alan P., Donald R. Austin, David Earle, and Harold Williams (Wokod)
2009 Myth, Ritual and Rock Art: Coso Decorated Animal-Humans and the Animal Master. *Rock Art Research*, 26(2):179–198.

Harrington, J. P.
1986 *The Papers of John Peabody Harrington in the Smithsonian Institution, 1907-1957, Vol.3: Native American History, Language, and Culture of Southern California/ Basin*. White Plains: Kraus International Publications.

Hovens, Pieter, and Jiska Herlaar
2004 Early Anthropology of the Southwest- Great Basin Frontier: The 1883 Fieldwork of Herman ten Kate. *Journal of the Southwest* (Autumn 2004):n.p. University of Arizona, Tucson, Arizona.

Jackson, Donald, and Mary Lee Spence.
1970 *The Expeditions of John Charles Fremont. Volume I: Travels From 1838 to 1844.* Urbana: University of Illinois Press.

Kelly, Isabel T.
1934 Southern Paiute Bands. *American Anthropologist* 36(4):548–560.

1953 Notebooks of Las Vegas Band, Southern Paiute and Chemehuevi field notes. University of California, Archives No. 138.1m. Anthropology Documents 17–18.

Kroeber, Alfred L.
n.d. Mojave Ethnographic Notes and Records, 1902-1955. A.L. Kroeber Papers, 1869–1972. University Archive, Bancroft Library, University of California, Berkeley.

1925 Handbook of the Indians of California. *Bureau of American Ethnology Bulletin 78.* Washington.

1948 Seven Mohave Myths. *University of California Anthropological Records* 11(1).

1951 A Mohave Historical Epic. *University of California Anthropological Records* 11(2)

1959 *Ethnographic Interpretations, 7-11*. *University of California Publications in American Archaeology and Ethnology* 47(3):235–310.

1972 More Mohave Myths. *University of California Anthropological Records* 27.

Laird, Carobeth
1974 Chemehuevi Religious Beliefs and Practices. *Journal of California Anthropology*. 11(1):19–25.

1976 *The Chemehuevis*. Malki Museum, Banning, California.

Laird, Carobeth (continued)
1984 *Mirror and Pattern: George Laird's World of Chemehuevi Mythology*. Malki Museum, Banning, California.

Lerch, Michael K.
n.d. Another Look at the Desert Mojave. Manuscript.

Lyman, Edward Leo
1993 History of the Victor Valley. Manuscript, Archives, West Antelope Valley Historical Society, Lancaster, California.

2004 *The Overland Journey from Utah to California: Wagon Travel from the City of Saints to the City of Angels*. University of Nevada Press, Reno and Las Vegas.

McCarthy, Daniel F.
1979 The Foxtrot Rock Art Site, Ca-SBr-161. Twentynine Palms Marine Corps Base, San Bernardino County, California. Unpublished Report on File.

Mission San Gabriel Arcangel
n.d. Book I of Baptisms, 1773-1821. Mission San Gabriel Arcangel, San Gabriel, California.

Mollhausen, Baldwin
1969 [1858] *Diary of A Journey from the Mississippi to the Coasts of the Pacific*, Vol. 2. Johnson Reprint, New York.

Palomares, José
1808 Diary of José Palomares. Provincial State Papers, Missions and Colonization, Vol. I, pp. 232–242. California State Archives, Sacramento, CA.

Parker, Patricia, and Tom King
1990 Guidelines for Evaluating and Documenting Traditional Cultural Properties. *National Register Bulletin* No. 38. U.S. Department of the Interior, National Park Service, Washington, D.C.

Phillips, George Harwood
1993 *Indians and Intruders in Central California, 1769–1849*. University of Oklahoma Press, Norman, Oklahoma.

Powell, J. W., and G. W. Ingalls
1873-1874 Report of Special Commissioners J.W. Powell and G.W. Ingalls. In *Report of the Secretary of the Interior, 1874*. U.S. House of Representatives, 43rd congress, 1st Session, Ex. Doc. No. 157, pp. 2-31.

Rogers, Malcolm A.
1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology*, 1(2):167–198.

Schneider, Joan
1989 The Archaeology of the Afton Canyon Site. *San Bernardino County Museum Quarterly* 36(1):1–161.

Sebastian, Lynne
1993 Protecting Traditional Cultural Properties Through the Section 106 Process. *CRM*, Vol. 16:22–26.

Smith, Gerald A. and Wilson G. Turner
1975 Indian Rock Art of Southern California. San Bernardino County Museum Associataion, Redlands, CA.

Sparkman, P. S.
1908 Culture of the Luiseño Indians. University of California Publications in American Archaeology and Ethnology, 8(4):187–234.

Stewart, Kenneth M.
n.d. Kenneth Stewart Papers, 1946-1981. MSS-182. Labriola National Native American Data Center. Arizona State University, Tempe, Arizona.

Strong, William Duncan
1929 Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26(1)1–358. Berkeley.

Sutton, Mark, and Joan S. Schneider
1997 Archaeological Excavations at Guapiabit: Ca-SBr-1913. San Bernardino County Museum Association Quarterly, 43(4):i–iv, 1–79.

Thompson, David G.
1929 The Mohave Desert Region, California: A Geographic, Geologic, and Hydrologic Reconnaissance. *United States Geological Survey Water Supply Paper 578*. United States Department of the Interior, USGS, United States Govt. Printing Office, Washington, D.C.

Van Dyke, Dix
1976 Life on the Mojave River Valley: The Piutes of 1904. In *Once Upon a Desert: A Bicentennial Project*, Patricia Jernigan Keeling, ed., p. 41. Mojave River Valley Museum Association, Barstow, California.

Van Valkenburgh, R. F.
1976 Chemehuevi Notes [transcribed typescript]. Indian Claims Commission Docket 88-330. In: *American Indian Ethnohistory, California and Basin-Plateau Indians, Paiute Indians II,* pp. 225-253. Garland Publishing, Inc., New York.

Waitman, Leonard
1954 The History of Camp Cady. Quarterly Publication of the Historical Society of Southern California. 36 (March 1954):49–91.

Walker, Clifford J.
1986 *Back Door to California: The Story of the Mojave River Trail*. Mojave River Valley Museum Association, Barstow, California.

Warren, Claude N.
1984 The Desert Region. In *California Archaeology*, Michael J. Moratto, ed., pp. 339–430.

2005 Personal communication regarding the archaeology of the Desert Mojave.

Warren, Elizabeth Von Till
1974 Armijo's Trace Revisited: A New Interpretation of the Impact of the Antonio Armijo Route of 1829-1830 on the Development of the Old Spanish Trail. Unpublished Master;s Thesis, University of Nevada, Las Vegas, Nevada.

Wlodarsky, Robert J.
1997 Archaeological and Historic Resources: Cultural Resources Management Plan Technical Report. City of Barstow General Plan, Part IV.2, April 20, 1997. City of Barstow Planning Department, Barstow, California.

Zigmond, Maurice
1986 Kawaiisu. In *Great Basin*, edited by Warren L. d'Azevedo, pp. 398–411. Handbook of North American Indians, Vol. 11, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Zeitelhack, June and Jan Zeitelhack La Barge
1976 Operations of the Pacific Coast Borax Company 1883–1907: Daggett, Marion, Borate, and the Borate-Daggett Railroad. In *Once Upon a Desert: A Bicentennial Project*, Patricia Jernigan Keeling, ed., pp. 96–104. Mojave River Valley Museum Association, Barstow, California.

SES Solar One
Responses to CEC Data Requests
Set 1, Part 2 – Data Requests 102-103
08-AFC-13

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 103. Please provide a discussion, on the basis of extant literature and Native American informants, of known traditional use areas such as rock art sites, shrines, or gathering places that are in sight of the project and that may be subject to the project's visual intrusion, and a discussion of the potential presence or absence of other such areas in sight of the project.

Original Response: In November, 2009 the Applicant provided the following response. In accordance with the response prepared, please see the report for the follow-up response to Data Request 103 provided behind this response as attachment CUL-2.

This Data Request is in process and will require contact and coordination with local Native Americans to fully address the issues. This continued coordination will be ongoing and especially be advanced through the Section 106 consultation process. However, it is anticipated that a preliminary response will be provided during the first quarter of 2010. To address Data Request 103, Mr. Earle will identify known traditional use areas within or in sight of (within the view-shed of) the Calico Solar Project area. Particularly important are springs, hills, mountain promontories, trails, habitation sites, and other localities associated with traditional sacred stories and historical narratives of the Serrano/Desert Serrano (Vanyume), the Chemehuevi, and the Mojave. The Cady Mountains, the lower Mojave River, and the Pisgah Crater are examples of places with traditional associations for Native American groups in the region. Particularly important are religious song cycles traditional among the Chemehuevi and Mojave that describe the journeys of supernaturals in the vicinity of the Calico Solar Project area. There are also other documented traditional use areas in the region (springs, habitation sites, quarries, etc.) that may fall within the view-shed perimeter of the Project. Known traditional use areas will be documented using ethnographic and ethnohistorical data, including information obtained from Native American consultants.

CUL-2

DATA REQUEST RESPONSE 103
David Earle, Earle and Associates

I INTRODUCTION

It is recognized that the Project may have the potential of causing visual intrusion of Project components on traditional use areas or areas that were of supernatural or other cultural significance in traditional times. The resource or use areas that lie within the Project viewshed have not routinely been used by native peoples during the twentieth century as activity areas, as far as can be determined and herein discussed. However, rock art sites and other use areas are still of interest and concern to Native American groups, as are cultural landscapes as a whole.

II THE PROJECT VIEWSHED

The limit of the intrusive viewshed of the Project extends from the south and east slopes of the range of hills on the east side of Troy Lake eastward to the ridgeline above the southwest side of the Cady Mountains in the immediate vicinity of the Project area. It then extends southeastward to a pass approximately six miles east of Lavic, then southward and westward along the top of a northeasterly facing ridge at the northwest end of the Bullion Mountains, north of Swede Hill. It then swings southeastward along the heights above the southwest side of the Bullion Mountains, and then northwest along the top of a ridge south of Lavic Lake, then northwest across the heights above the Argos and Lava Bed Mountains to the heights on the north side of the Rodman Mountains and northwesterly to the Newberry Mountains and Newberry Springs. It runs northerly across the Mojave Valley for several miles before turning east to cross Troy Lake and then reaches the point of origin (Figure 1). This viewshed is approximate, given the complexity of the local topography.

It is possible that the Project may be visible from as far west as Elephant Mountain in the Daggett area, approximately 22 miles away, but from the far west end of the valley what is visible may not be visually intrusive. Elephant Mountain is associated with metate, shrine, and rock art sites. The Camp Cady region and adjacent portions of the Mojave River lie outside of the Project viewshed.

III ROCK ART SITES

Potential traditional use or sacred significance areas lying within the viewshed include a rock art site and village site at Newberry Springs, CA-SBR-317/H. This is located approximately 12 miles from the western margin of the Project area. Rock art sites in Kane Wash and the area of rock art in the Rodman Mountains extending from west of Iron Ridge northwest across lava fields to Kane Wash, a proposed National Register District, lie outside the viewshed. The northeasterly slopes of the Rodman Mountains facing the Project area lack recorded rock art.

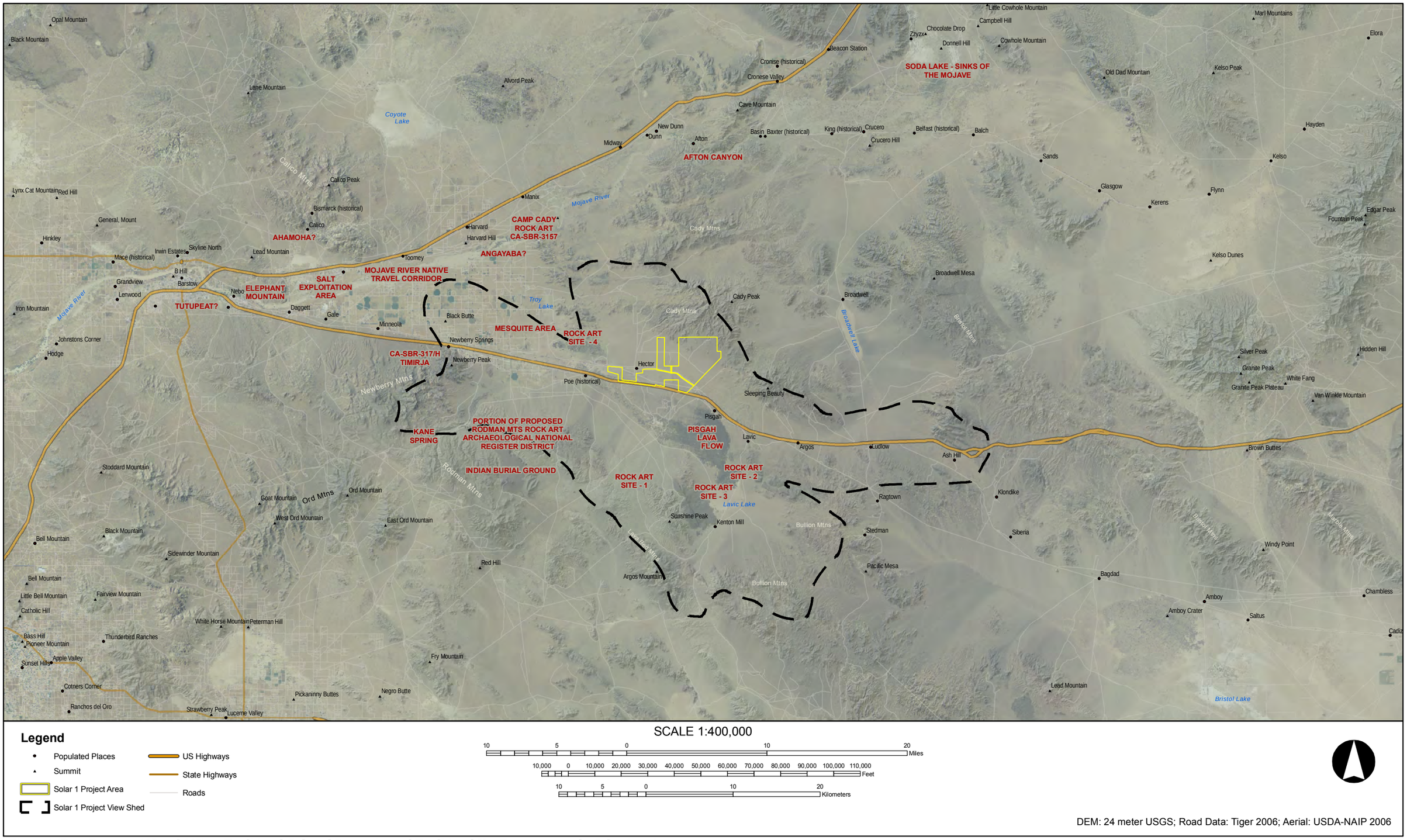

Figure 1 (Data Requests 102 and 103) **Traditional Cultural Properties and Traditional Use Features near the Solar 1 project area.**

To the southeast of the Rodman Mountains, on the north slope of the Lava Bed Mountains, a rock art site at CA-SBR-10396 includes four petroglyph loci, three on rock outcrops and one on an isolated boulder. The four loci contain a total of 38 panels. The panels include abstract rectilinear and curvilinear motifs and combinations of the two, bisected circles, apparent bird tracks and other motifs. This site is located in the northeast quarter of the southeast quarter of Section 21, T7N/R5E, SBBM. Approximately 125 meters to the northwest is located CA-SBR-10864, consisting of five petroglyph panels on a rock outcrop. These include abstract rectilinear and curvilinear motifs. At a distance of circa 110 meters to the east-southeast of this site, a single isolated rock art panel was recorded as CA-SBR-10865. Both of these were also located in Section 21. To the east, in the southwest quarter of the southwest quarter of adjoining Section 22, T7N/R5E, SBBM, is located CA-SBR-10397. The site consists of approximately 95 rock art panels located on the east, south, and west walls of a north facing canyon, with a few glyph isolates found north of the canyon's mouth. In addition to abstract rectilinear and curvilinear motifs and combinations of the two, the occurrence of bisected circles, rakes, crosses, and possible zoomorphs was also noted. The patination of rock art surfaces indicates a long history of use. All four of these sites are located on the Marine Corps Air Ground Combat Center at Twentynine Palms. They are further discussed in Data Request 102.

Southeast of Pisgah Crater, several possible or confirmed rock art sites have been recorded in the viewshed area. CA-SBR-7890, in the center of the northwest quarter of Section 22, T7N/R6E, SBBM, on the west side of Lavic Lake, features four possible rock alignments. At CA-SBR-1804, in the middle of the southwest quarter of Section 14, T7N/R6E, SBBM, on the east side of Lavic Lake, an isolated petroglyph was recorded. At CA-SBR-7948, in the northeast quarter of the northeast quarter of Section 22, T7N/R6E, SBBM, on the west side of Lavic Lake, a linear rock alignment was recorded. The major rock art site in this area is CA-SBR-7898, in the southwest quarter of the southwest quarter of Section 10, T7N/R6E, SBBM. This is situated at the southeast edge of a lava flow originating at Pisgah Crater and facing Lavic Lake. It contains rock art consisting of approximately 34 boulders bearing petroglyphs, along with several cleared circles, debitage, and a metate.

To the west of the Project area, on the east shore of Troy Lake, in and near a saddle at the summit of a spur extending westward from the hills adjoining the lake on the east side, a rock art site, CA-SBR-5684, was recorded. This is located in the northwest quarter of the southwest quarter of Section 34, T9N/R4E, SBBM. Associated with the rock art is a saddle in the ridge line where 15 cobble mounds or cairns were observed. To the east of this spur, in the southwest quarter of the northeast quarter of Section 34, T9N/R4E, SBBM, two possible rock alignments have been recorded. CA-SBR-4691 consists of a cleared oval about 139 meters long. CA-SBR-4692 is composed of a 22-meter long enclosed oval with an extended "tail" created by rock alignments.

This comprises the total of recorded rock art sites within the Project's viewshed, although there may exist additional unrecorded sites. The majority of the more elaborate multi-

panel rock arts sites within the Project's viewshed are located within the Marine Corps Air Ground Combat Center at Twentynine Palms.

IV OTHER TRADITIONAL USE AREAS WITHIN THE PROJECT VIEWSHED

Portions of the Project area may be visible from the mesquite gathering areas immediately west of Troy Lake, described in Data Request 102. These areas are not known to have been used for gathering during the twentieth century.

The major spring site in the viewshed to which ethnographic testimony is attached is the Newberry Springs site complex, CA-SBR-317/H, discussed previously and in Data Request 102. The springs at Newberry Springs were the location of a named native village site. The gathering of basketry weaving materials – *Juncus* spp.- could also have been carried out there. The vicinity of the area was also occupied as late as the first decade of the twentieth century by a group of Chemehuevi hunters, as discussed in Data Request 102. The Newberry Mountains in the vicinity of the springs was a prime habitat for Desert bighorn, which this group and native peoples in the area before them had hunted.

Both trail systems and hunting areas used in traditional times would have been located within view of the Project area. Trail systems in the region would have followed passes and canyons in the Cady Mountains to the north and northeast of the Project locality, including a pass north of Hector and another pass north of Black Butte Mines. Other passes led from Lavic to Ludlow, and from Lavic Lake to the southeast across the Bullion Mountains and to the southwest across the Argos Mountains. Other passes and trail routes would have led south through the Lava Bed Mountains and southwest past the northwest end of this range. A trail also climbed Kane Wash from the floor of the Mojave Valley southeast of Newberry Springs.

The low pass between the Cady Mountains on the north and the Bullion Mountains on the south that lay between Lavic and Ludlow appears to have figured in several Mojave and Chemehuevi song cycles. As discussed in Data Request 102, several Chemehuevi mountain sheep songs may refer to travel through this area. The Mojave sacred story describing a return journey of supernatural "salt men" from Rogers Dry Lake appears to place their return along a route corresponding to a trail passing Troy Lake and Pisgah en route to Amboy and the Bristol Dry Lake salt deposits. This is discussed in Data Request 102.

V OTHER LOCALITIES OF POSSIBLE SPIRITUAL SIGNIFICANCE WITHIN THE PROJECT VIEWSHED

The principal site or locality of possible spiritual significance within the viewshed of the Project area other than rock art sites is Pisgah Crater. Although a review of the ethnographic data relating to this region does not refer to the Pisgah Crater itself, they do discuss the supernatural associations of Amboy Crater, located to the east of the Project

area in the Bristol Lake basin. This was noted in Data Request 102. Amboy Crater was associated with mountain spirits who would gamble there and play games. The mountain spirits were controllers of Desert bighorn. Hunters would leave offerings to the mountain spirits while hunting. It is also possible that other volcanic features south of the Project area had supernatural associations aside from rock art, although this has not come to light in the ethnographic sources.

DATA REQUEST RESPONSE 103 SUMMARY

The objective of Data Request 103 has been to provide information about native traditional use areas within the viewshed of the Project area, where the visual intrusion of the Project could become an issue. This viewshed has been described and defined for the perimeter of the lower Mojave River Valley. Known traditional use areas and localities of possible spiritual significance within this viewshed have been discussed. The native settlement, spring resources, and rock art at Newberry Springs make this an important traditional use area in the vicinity of the Project area. Pisgah Crater was also discussed as a possibly supernaturally associated site. Given the relative paucity of ethnographic testimony regarding native places in the Project area, archaeological documentation of native rock art sites within the viewshed has also been consulted. A total of 11 rock art sites were described within the Project area viewshed. Multi-panel sites were located on the north slopes of the Lava Bed Mountains, in the vicinity of Lavic Lake, and on the east side of Troy Lake. Several apparent geoglyph sites were included in this total. All of these places can be considered to be of spiritual significance to contemporary Native American groups such as the Serrano, Chemehuevi, and Mojave.

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 SES SOLAR ONE PROJECT

Docket No. 08-AFC-13

PROOF OF SERVICE
(Revised 12/2/09)

APPLICANT
Felicia Bellows,
Vice President of Development
Tessera Solar
4800 North Scottsdale Road,
Ste. 5500
Scottsdale, AZ 85251
felicia.bellows@tesserasolar.com

Camille Champion
Project Manager
Tessera Solar
4800 North Scottsdale Road,
Suite 5500
Scottsdale, AZ 85251
camille.champion@tesserasolar.com

CONSULTANT
***Angela Leiba**
AFC Project Manager
URS Corporation
1615 Murray Canyon Rd.,
Ste. 1000
San Diego, CA 92108
Angela_Leiba@URSCorp.com

APPLICANT'S COUNSEL
Allan J. Thompson
Attorney at Law
21 C Orinda Way #314
Orinda, CA 94563
allanori@comcast.net

INTERESTED AGENCIES
California ISO
e-recipient@caiso.com

Jim Stobaugh
BLM – Nevada State Office
P.O. Box 12000
Reno, NV 89520
jim_stobaugh@blm.gov

Rich Rotte, Project Manager
Bureau of Land Management
Barstow Field Office
2601 Barstow Road
Barstow, CA 92311
Richard_Rotte@blm.gov

Becky Jones
California Department of
Fish & Game
36431 41st Street East
Palmdale, CA 93552
dfgpalm@adelphia.net

INTERVENORS
California Unions for Reliable
Energy (CURE)
Loulena A. Miles,
Marc D. Joseph
Adams Broadwell Joseph &
Cardozo
601 Gateway Boulevard,
Ste. 1000
South San Francisco, CA 94080
lmiles@adamsbroadwell.com

Defenders of Wildlife
Joshua Basofin
1303 J Street, Suite 270
Sacramento, California 95814
e-mail service preferred
jbasofin@defenders.org

Basin and Range Watch
Laura Cunningham
Kevin Emmerich
P.O. Box 70
Beatty, NV 89003
atomictoadranch@netzero.net

Patrick C. Jackson
600 N. Darwood Avenue
San Dimas, CA 91773
e-mail service preferred
ochsjack@earthlink.net

ENERGY COMMISSION
JAMES D. BOYD
Vice Chair and Presiding Member
jboyd@energy.state.ca.us

JEFFREY D. BYRON
Commissioner and Associate Member
jbyron@energy.state.ca.us

Paul Kramer
Hearing Officer
pkramer@energy.state.ca.us

Caryn Holmes, Staff Counsel
1516 9th Street, MS-14
Sacramento, California 95814
cholmes@energy.state.ca.us

Christopher Meyer
Project Manager
cmeyer@energy.state.ca.us

Public Adviser
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I Corinne Lytle , declare that on February 24, 2010, I served and filed copies of the attached Applicant's Responses to CEC Data Requests Set 1, Part 2-- Data Requests 102-103. 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:

[www.energy.ca.gov/sitingcases/solarone].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(***Check all that Apply***)

FOR SERVICE TO ALL OTHER PARTIES:

_____ sent electronically to all email addresses on the Proof of Service list;

_____ by personal delivery or by depositing in the United States mail at _____ with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

_____ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

~~***OR***~~

depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-13
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

original signed by

Corinne Lytle

*indicates change