CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916-920-0300
Fax 916-920-8463

CH2MHILL

August 22, 2008
File No.: 04.02.06.02
Project No. 357891

Mr. Che McFarlin, Project Manager
California Energy Commission
Systems Assessment and Facilities Siting Division
1516 9th Street, MS 15
Sacramento, CA 95814-5504

RE: Supplemental Data Response, Set 1B
Ivanpah Solar Electric Generating System (07-AFC-5)

Dear Mr. McFarlin:

On behalf of Solar Partners I, LLC, Solar Partners II, LLC, Solar Partners IV, LLC, and Solar Partners VIII, LLC, please find attached one original and 12 hard copies of the Supplemental Data Response, Set 1B, which provides supplemental responses to Staff's questions raised at the June 23, 2008 Workshop in Primm, Nevada.

Please call me if you have any questions.

Sincerely,

CH2M HILL

John L. Carrier, J.D.
Program Manager

Enclosure
c: POS List
Project File

Ivanpah Solar Electric Generating System (ISEGS)

(07-AFC-5)

Supplemental Data Response, Set 1B

(Responses to: Biological Resources and Cultural Resources)

Submitted to the

California Energy Commission

Submitted by

Solar Partners I, LLC; Solar Partners II, LLC; Solar Partners IV, LLC; and Solar Partners VIII, LLC

August 12, 2008

With Assistance from

CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

Contents

Introduction

Attached are supplemental responses (Set 1A) by Solar Partners I, LLC; Solar Partners II, LLC; Solar Partners IV, LLC; and Solar Partners VIII, LLC (Applicant) to the California Energy Commission (CEC) Staff's data requests for the Ivanpah Solar Electric Generating System (Ivanpah SEGS) Project (07-AFC-5). These data requests are the result of the workshop discussion held at Primm, Nevada on June 23, 2008.Within each discipline area, the responses are presented in alphabetical order and are numbered for tracking and reference convenience. New graphics or tables are numbered in reference to the Supplemental Data Request number. For example, if a table were used in response to Data Request AQ-1, it would be numbered Table AQ1-1. The first figure used in response to Data Request AQ-1 would be Figure AQ1-1, and so on. AFC figures or tables that have been revised have "R1" following the original number, indicating revision 1.

Additional tables, figures, or documents submitted in response to a supplemental data request (supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of a discipline-specific section and may not be sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

The Applicant looks forward to working cooperatively with the CEC and Bureau of Land Management (BLM) staff as the Ivanpah SEGS Project proceeds through the siting process. We trust that these responses address the Staff's questions and remain available to have any additional dialogue the Staff may require.

Biological Resources (BR-2)

BR-2 Please provide a report on the spring 2008 wildlife surveys of the optimized project design and include a figure showing the locations surveyed in 2007 and those surveyed in 2008.

Response: The survey report is provided as Attachment BR2-1. It includes a figure (Figure 2) showing the 2007 and 2008 survey areas.

ATTACHMENT BR2-1

PRESENCE/ABSENCE SURVEY FOR THE DESERT TORTOISE *(Gopherus agassizii)*, on the proposed IVANPAH SOLAR ELECTRIC GENERATING SYSTEM in Ivanpah Valley, San Bernardino County, California

June 2008

Prepared for:

CH2MHill, Inc.
West Region, Environmental Services
2485 Natomas Park Drive, Suite 600
Sacramento, California 95833

Prepared by:

Sundance Biology, Inc.
179 Niblick Rd. PMB 272
Paso Robles, CA 93446

Mercy Vaughn · (928) 380-5507 · manydogs10@aol.com Stephen Boland · (928) 380-8850 · spboland@aol.com

EXECUTIVE SUMMARY

As recommended in the US Fish and Wildlife Service (USFWS) *Survey Protocol for any Non-Federal Action that may Occur within the Range of the Desert Tortoise, January 1992,* a desert tortoise *(Gopherus agassizii)* presence or absence survey was conducted on 1.6 miles of access road and 13 non-contiguous areas immediately adjacent to the proposed Ivanpah Solar Electric Generating System project site in Ivanpah Valley, San Bernardino County, California. These areas comprise a total of 726 acres all of which could support desert tortoise activity. The access road and 13 areas are additional acreage to the original 3,870 acres surveyed in 2007.

The delineated area was surveyed for desert tortoises and tortoise sign. No Zone of influence (ZOI) transects were conducted, as requested by the proponent, since they were done in 2007 during the survey of the initial 3,870 acres. Three individual tortoises were found onsite, one each in Areas 1, 2, and 13.

TABLE OF CONTENTS

INTRODUCTION

This report addresses the results of a presence/absence survey for the desert tortoise on the additional areas of the proposed Ivanpah Solar Electric Generating System in San Bernardino County, California.

The proposed project is located west of Ivanpah Lake bed and U.S. Interstate 15 in Ivanpah Valley, CA approximately 4.5 miles southwest of Primm, NV on the California-Nevada State line where it intersects U.S. Interstate 15. The site includes portions of Sections 20-22, 27-29, 33-34, T17N, R14E and portions of Sections 2, 3, 4, 10, and 11, T16N, R14E, (Ivanpah Lake, CA quadrangle, 7.5 minute series). The elevation of the proposed project site is between 2,750 ft to 3,450 ft above mean sea level (Figure 1).

A total of 726 acres were surveyed for desert tortoises and tortoise sign between May 15 and May 20, 2008. No Zone of influence (ZOI) transects were conducted, as requested by the proponent, since they were done in 2007 during the survey of the initial 3,870 acres. Additionally, all wildlife species and their sign were noted.

METHODOLOGY

Survey Methodology

The following methodology was used to increase efficiency in determining presence or absence of desert tortoises through systematic search and location of tortoises, their burrows and other sign. This methodology has proven accurate on other large-scale presence/absence surveys.

Teams consisting of two or three experienced desert tortoise biologists conducted the survey between May 20 and May 25, 2008 by walking a set of transects that covered each of the 13 survey areas plus the access road. Transect spacing was at 30 feet between transect centerlines, the standard width for desert tortoise presence/absence surveys.

A set of UTM coordinates for transect endpoints for virtual north-south or east-west transects were calculated. This resulted in 390 transects ranging from 1,000-6,800 feet in length. Lowrance iFinder handheld global positioning system (GPS) units were used to navigate transects.

One member of the team was responsible for navigating the selected transects. The other members surveyed 30 feet to either side of the navigator. When the end of each transect was reached, the team shifted to the adjacent transects and the navigator programmed the beginning and ending point of the team center transect for the next trip.

Team members focused on a search area that included 15 feet on either side of them. The members of the team remained close to one another without leading or lagging in order to increase the precision of searching. Team members were instructed to search beneath every shrub.

ZOI Transects

ZOI transects are typically conducted in suitable tortoise habitat to the east, west, north, and south of the survey area at 100, 300, 600, 1,200, and 2,400 feet from the survey area perimeter. Since these were done in 2007 around the original 3,870 acres the proponent requested that they not be repeated for this survey (Figure 2).

Data Recorded

Any tortoise or large mammal burrows encountered that could potentially be used by tortoises were visually inspected. Very small burrows that could be potentially used by juvenile tortoises but are much more often rodent burrows were also visually checked when encountered. Only definitive tortoise sign was recorded. All other wildlife species encountered were noted.

Biological Field Team

The biological team for the survey included Christine Halley, Colin Spake, Ashley Spenceley, Debbie Vaughn, and Jenny Weidensee. The survey was managed by Mercy Vaughn.

RESULTS

Survey Area

The survey area ranged in elevation from 2,750 ft to 3,450 ft and is characterized by creosote-bursage desert scrub. Acreages of the areas surveyed are as follows:

Area 1	52.63 acres
Area 2	32.03 acres
Area 3	218.25 acres
Area 4	35.43 acres
Area 5	55.14 acres
Area 6	32.62 acres
Area 7	31.56 acres
Area 8	56.02 acres
Area 9	98.57 acres
Area 10	24.61 acres
Area 11	20.52 acres
Area 12	7.72 acres
Area 13	40.61 acres
Access road	20 acres

The geomorphology of the survey area ranges from lower bajada at the southeast end of the site with predominantly sandy loam soils to upper bajada at the northwest end with predominantly sandy loam to gravel-cobble soil. Human impacts within the survey area include dirt roads, trash dump sites, and OHV trails.

The condition of the desert scrub is generally good. Plants seen on the site are shown in Table 1. Dominant perennials include creosote bush, bursage, and Mohave yucca. Annual vegetation production appeared to be higher than last year, a low production year.

Desert tortoise sign found are listed in Table 2 and shown in Figure 2. All other wildlife sightings are listed in Tables 3 to 5.

Desert Tortoise

Three live, adult desert tortoises were found onsite, one each in Areas 1, 2, and 13. All three tortoises were adults, two males and one female. The male found in Area 13 was found at the base of a Mojave yucca and appeared healthy. The male found in area 2 was face down in a burrow. Its health could not be determined. The female found in Area 1 was face out in a burrow and appeared healthy. Two sets of tortoise tracks were found one in Area 2 and one in Area 10. The tracks in Area 2 were of an adult tortoise. The tracks in Area 10 were from an immature sized tortoise.

Twenty shell-skeletal remains were found onsite, two of which were juveniles. One juvenile was depredated this year, evidence that reproduction may be occurring on the site. Time since death for 16 of the remains is greater than 4 years, 2 to 4 years for two others and less than 1 year for an adult and the juvenile mentioned above. Remains were found in Areas 1 to 6, 8, 9, and 12.

Thirty tortoise burrows and one pallet were identified onsite. Five of the burrows had tortoise scat in or adjacent to the burrow. Burrows were found in Areas 1, 2, 4, 8, 9, 10, 13, and the access road. The pallet was found in Area 5. Twenty-two of the burrows appeared to be in good condition of which seven have been recently used.

Twenty-four scat events were identified not including those associated with burrows. Twenty-one of these were laid down this year. The scat was found in Areas 1, 2, 3, 5, 6, 8, 9, 10, and 12.

DISCUSSION

Desert Tortoise

The proposed Ivanpah Solar Electric Generating System project site lies well within the desert tortoise's geographic range. Recent tortoise sign was found in all survey areas except Area 7. All size classes were represented in the recent tortoise sign found including two juvenile shell remains with time since death within the last 2 years. Based on the number of good burrows found, tracks, and recent scat it is likely that more tortoises are using this area than the three found. It is not surprising that more tortoises were not found due to the long narrow shape of the areas surveyed. More tortoises are likely nearby outside the survey area boundaries. Indications are that tortoises are active throughout this valley and have been reproducing suggesting a viable population within the project area.

The proposed Ivanpah Solar Electric Generating System project would have both direct and indirect impacts on desert tortoises on the site and tortoises in the area. Since tortoises use the site indirect impacts would occur through loss of habitat. Direct impacts could occur during construction if a tortoise wanders onto the site and is either injured or killed.

In addition to loss of habitat, the tortoises located onsite would have to be translocated to an appropriate area offsite. The effectiveness of translocation of tortoises is still being researched. Both the translocated tortoises as well as the tortoises located on the recipient site could be affected. This effect could be minimized by translocation within the current home range of tortoises cleared from the site. The long-term use of the site may pose a risk to any tortoises wandering into the area if permanent tortoise proof fencing is not installed and maintained.

MITIGATION RECOMMENDATIONS

Desert Tortoise

In order to mitigate potential direct impacts, the following recommendations will help minimize the potential for "take" of tortoises during and after construction.

1). Develop a translocation plan for the desert tortoises onsite.

2). Develop a biological monitoring plan in consultation with the CEC, USFWS and the CDFG. This plan would delineate all measures to be implemented prior to, during and post-construction which would include but are not limited to the following measures:

a). Permanent and or temporary tortoise-proof fencing (1"x 2" mesh hardware cloth) may need to be erected and maintained between the interface of the project area and any remaining desert tortoise habitat prior to initiating construction and clearance surveys for desert tortoises onsite. The fence will prevent tortoises from wandering onto the site both during construction as well as during use of the facility. Ongoing maintenance of the fencing would be recommended with oversight by an authorized biologist. Fence installation should be monitored by a qualified tortoise biologist.

b). If tortoises are to be cleared from the site it is recommended tortoise clearance surveys be conducted at 15-foot intervals. It is recommended that two coverages without finding any tortoises or new tortoise sign be conducted prior to declaring the site clear of tortoises. All burrows that could provide shelter for a desert tortoise should be excavated during the first clearance survey.

c). All construction personnel should undergo desert tortoise awareness training

d). After the tortoise proof-fence is erected a qualified biologist(s) should remain onsite until all vegetation is cleared and, at a minimum, conduct site and fence inspections on a bi-weekly basis throughout construction in order to maintain compliance with mitigation measures.

e). A qualified biologist(s) should be onsite to survey for tortoises immediately in front of vegetation clearance activities in the event a tortoise was inadvertently missed during clearance surveys.

f). A biologist should remain on-call throughout construction in the event a tortoise wanders onto the site.

g). A raven management plan should be developed for the project site.

Table 1. Dominant Plant Species

Latin Name	Common name
ASTERACEAE	**Composite Family**
Ambrosia dumosa	Burrobush
Chaenactis fremontii	Desert pincushion
Encelia virginensis	
Ericameria cooperi var. c.	Cooper's goldenbush
Hymenoclea salsola	Cheesebush
Psilostrophe cooperi	Paper-flower
Stephanomeria pauciflora	Wire-lettuce
ASCLEPIADACEAE	**Milkweed Family**
Asclepias nyctaginifolia	Mojave milkweed
Cynanchum utahense	Utah cynanchum
APOCYNACEAE	**Dogbane Family**
Amsonia tomentosa	Small-leaved amsonia
Cryptantha sp.	
BORAGINACEAE	**Borage Family**
Amsinckia tessellata	Devil's lettuce
BRASSICACEAE	**Mustard Family**
Descurainia pinnata ssp. Glabra	Yellow tansy mustard
Dithyrea californica	Spectacle-pod
Lepidium fremontii	Desert alyssum
Lepidium lasiocarpum var. l.	
CACTACEAE	**Cactus Family**
Echinocactus polycephalus	Cottontop cactus
Echinocerus engelmannii	Hedgehog cactus
Escobaria vivipara	Beehive cactus
Ferocactus cylindraceus	California barrel cactus
Mammillaria tetrancistra	Corkseed cactus
Opuntia acanthocarpa	Buckhorn cholla
Opuntia basilaris	Beavertail cactus
Opuntia echinocarpa	Golden cholla
Opuntia parishii	Mat cholla
Opuntia ramosissima	Diamond cholla
EPHEDRACEAE	**Ephedra Family**
Ephedra nevadensis	Nevada joint-fir
EUPHORBIACEAE	**Spurge Family**
Chamaesyce albomarginata	Spurge
FABACEAE	**Legume Family**
Acacia greggii	Catclaw
GENTIANACEAE	**Gentian Family**
Erodium cicutarium	Filaree

Table 1. Dominant Plant Species	
HYDROPHYLLACEAE	**Waterleaf Family**
Phacelia sp.	
LAMIACEAE	**Mint Family**
Salazaria mexicana	Bladder sage
Salvia dorrii	
LILIACEAE	**Lily Family**
Yucca schidigera	Mohave yucca
LOASACEAE	**Loasa Family**
Mentzelia sp.	
ONAGRACEAE	**Primrose Family**
Camissonia sp.	Sun cup
POACEAE	**Grass Family**
Achnatherum hymenoides	Indian rice grass
Achnatherum speciosum	Needle grass
Erioneuron pulchellum	Split grass
Enneapogon desvauxii	Pappus grass
POLEMONIACEAE	**Phlox Family**
Eriastrum sp.	
Gilia sp.	
POLYGONACEAE	**Buckwheat Family**
Chorizanthe rigida	Spiny-herb
Chorizanthe brevicornu	Brittle spineflower
Eriogunum fasciiculatum ssp. polifolium	California buckwheat
Eriogonum inflatum var. inflatum	Desert trumpet
SOLANACEAE	**Nightshade Family**
Lycium andersonii	Anderson thornbush
Lycium cooperi	Peach-thorn
ZYGOPHYLLACEAE	**Caltrop Family**
Larrea tridentata	Creosote

Table 2. Desert Tortoise and Sign Locations (Datum NAD 27 CONUS)

Sign	Area	Easting	Northing	Notes
burrow	1	641268	3932429	fresh tracks
burrows	1	641149	3932434	
burrow	1	641466	3932454	
burrow	1	640855	3932455	
burrow with scat	1	641148	3932445	
scat	1	641128	3932416	
scat	1	641249	3932431	
scat	1	641381	3932460	
scat	1	641434	3932463	

Table 2. Desert Tortoise and Sign Locations (Datum NAD 27 CONUS)				
scat	1	641436	3932463	within 10' of previous scat
scat	1	641452	3932467	
tortoise in burrow	1	641465	3932496	adult female, MCL ~190, in burrow but looks healthy
shell-skeletal remains	2	639438	3932604	fragments
shell-skeletal remains	2	639381	3932970	fragments
shell-skeletal remains	2	639426	3933879	fragments
shell-skeletal remains	2	639111	3937972	juvenile
scat	2	639371	3933602	
tortoise in burrow	2	639421	3933349	adult male, ~240 MCL, facing into burrow health unknown.
tracks	2	639444	3933915	
shell-skeletal remains	3	639177	3933969	female, ~230 MCL
shell-skeletal remains	3	639287	3934312	sub-adult
scat	3	639305	3934105	
burrow	4	640104	3934948	
shell-skeletal remains	4	639990	3934925	female
shell-skeletal remains	4	640048	3934942	female
shell-skeletal remains	5	637757	3934829	
shell-skeletal remains	5	637841	3936387	
pallet	5	637766	3936089	adult
Shell-skeletal remains	6	637206	3456579	
Scat	6	638193	3936544	
Burrow	8	636846	3939045	Adult, w/ scat
Burrow	8	636852	3939049	Adult
Burrow	8	636411	3939011	under yucca, much scat inside
Burrow	8	636858	3939047	caliche cave
Burrow	8	636818	3939069	Adult, series of caves w/scat
Burrow	8	636584	3938990	
Burrow	8	636845	3939046	Adult, caliche cave
Burrow	8	636837	3939052	
Burrow	8	636494	3938954	Adult
Burrow	8	636128	3938969	Adult
Burrow	8	636797	3939073	1 pc bone on apron
Burrow	8	636273	3939120	Adult
Burrow	8	636290	3939116	Adult
Burrow	8	636929	3939222	Adult
Shell-skeletal remains	8	636797	3939073	1 piece only
Shell-skeletal remains	8	636393	3939082	1 piece only, assoc. w/ packrat midden
Shell-skeletal remains	8	636954	3939040	Male est MCL 240
Shell-skeletal remains	8	636229	3939147	Adult,est MCL 255 mm, Some tissue remains (tail, legs), ants

Table 2. Desert Tortoise and Sign Locations (Datum NAD 27 CONUS)				
				scavenging
Shell-skeletal remains	8	636396	3939218	Adult
Scat	8	636606	3939005	Adult
Scat	8	636649	3939023	Adult
Scat	8	636761	3939034	Adult
Scat	8	636341	3939111	in wash bottom
Scat	8	636634	3939008	3 pieces adult, 2 pieces sub-adult
Scat	8	636086	3938595	0.18mi S of area 8
Scat	8	636411	3939018	
Scat	8	636904	3939250	3 pieces
burrow	9	638618	3939471	
shell-skeletal remains	9	638638	3939277	
shell-skeletal remains	9	638501	3939501	scutes attached
scat	9	638101	3939327	
scat	9	637865	3939378	
scat	9	637706	3939385	2 pieces
scat	9	637818	3939400	
burrow	10	639040	3936967	
scat	10	638866	3937963	
scat	10	638891	3938976	
tracks	10	638861	3937962	immature size
burrow	11	639135	3937503	
burrow	11	639115	3937649	
burrow	11	639123	3937592	
burrow with scat	11	639054	3937472	
shell-skeletal remains	11	639153	3937318	whole juvenile carcass
shell-skeletal remains	12	639056	3936914	with scutes
scat	12	639102	3936998	6 pieces
Burrow	13	636781	3940531	
Burrows and scat	13	636847	3940654	burrows in wash w/ scat
Tortoise	13	636707	3940608	Male, est MCL 250 mm, sinking scutes vertebral & costal, @ base of yucca
burrow	Access road	640575	3935115	old, unoccupied, in need of repair
burrow	Access road	640541	3935110	sub-adult size

Table 3. Mammal Species

Scientific Name	Common name
Dipodomys merriami	Merriam's kangaroo rat
Desert woodrat	Wood rat
Amnospermophilus leucurus	White-tailed antelope ground squirrel
Lepus californicus	Black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
Canis latrans	Coyote
Vulpes macrotis	Kit fox
Homo sapiens	Human
Equus asinus	Wild Burro

Table 4. Reptile Species

Scientific Name	Common Name
Gopherus agassizii	Desert tortoise
Phrynosoma platyrhinos	Desert horned lizard
Gambelia wislizenii	Longnose leopard lizard
Sceloporus grasiosus	Sagebrush lizard
Callisaurus draconoides	Zebratail lizard
Cnemidophorus tigris	Western whiptail lizard

Table 5. Bird Species

Scientific Name	Common Name
Buteo jamaicensis	Red-tailed hawk
Zenaida macroura	Mourning dove
Myiarchus crinitus	Ash-throated flycatcher
Lanius ludovicianus	Loggerhead shrike
Corvus corax	Common raven
Eremophila alpestris	Horned lark
Campylorhynchus brunneicapilus	Cactus wren
Polioptila melanura	Black tailed gnatcatcher
Amphispiza bilineata	Black-throated sparrow
Amphispiza belli	Sage sparrow
Icterus parisorum	Scott's oriole

Figure 1. Ivanpah Solar Electric Generating System project site in Ivanpah Valley, CA.

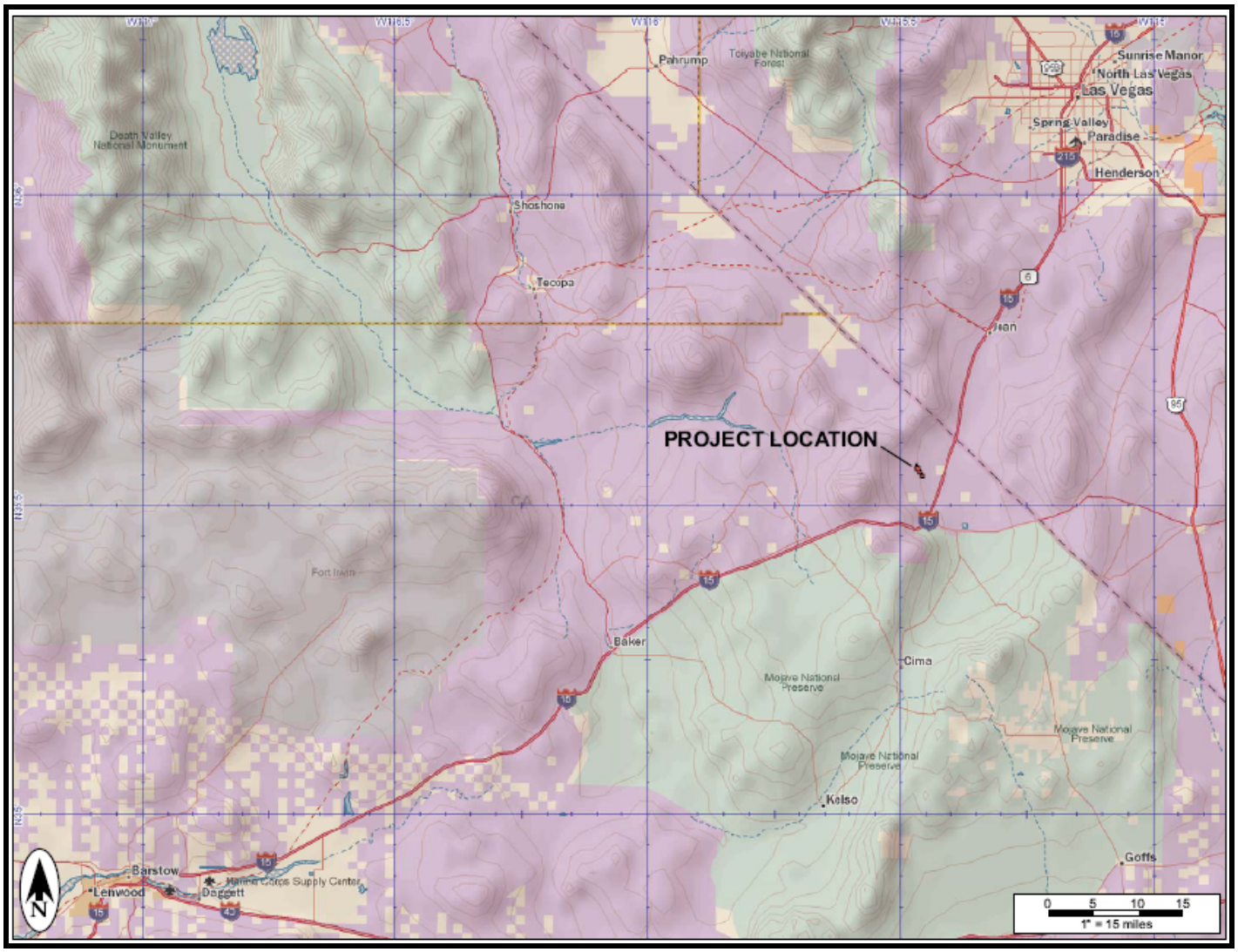


Figure 2. Desert tortoise survey area and sign encountered on the Ivanpah Solar Electric Generating System project site in Ivanpah Valley, CA.

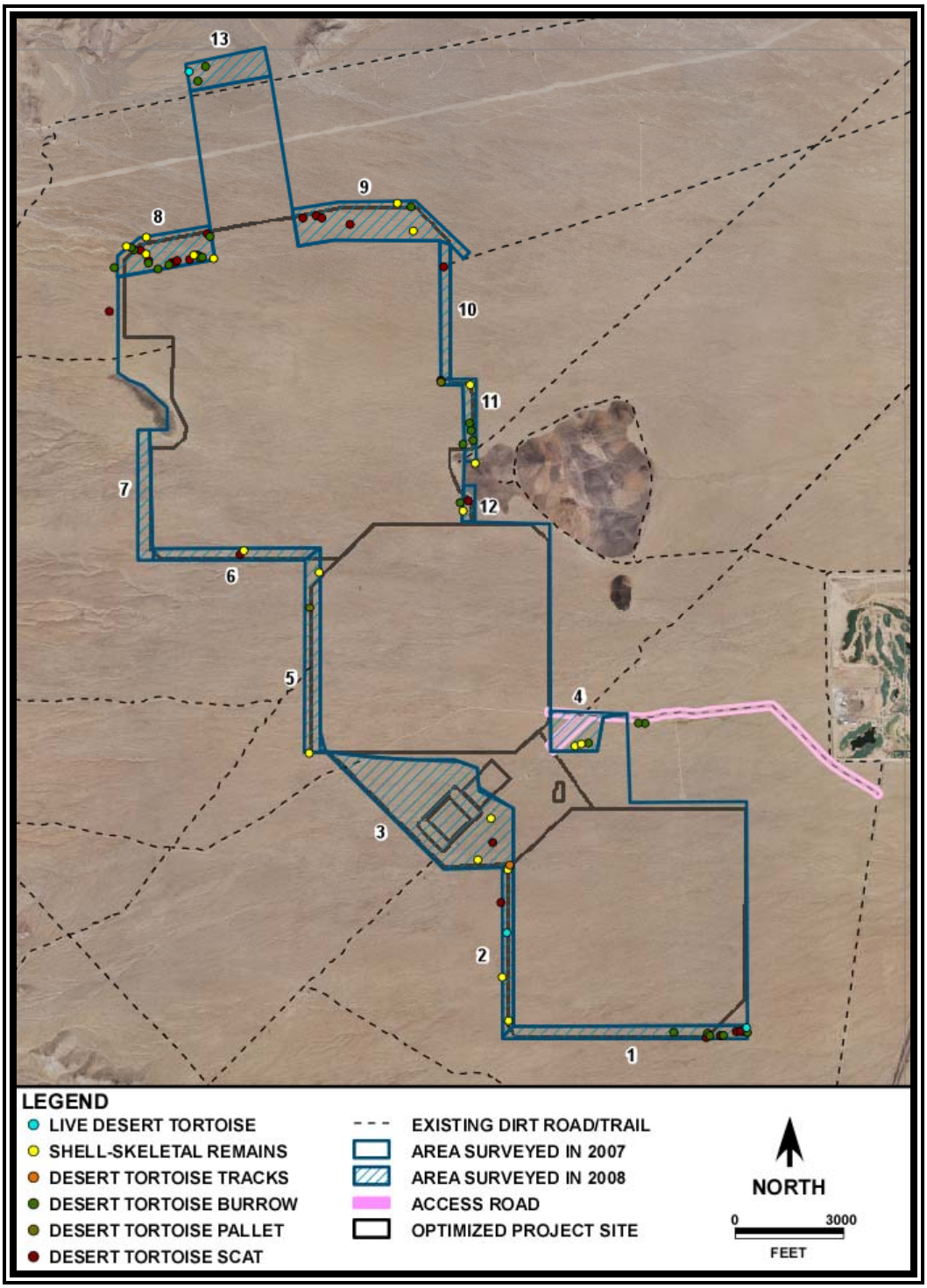


Figure 3. Area photos and tortoise photos on the Ivanpah Solar Electric Generating System project site in Ivanpah Valley, CA.

Area 1 and 2 -View to the north

Area 3- View to the north

Area 4 and access road -View to the east

Area 5- View to the north

Area 6 -View to the north

Area 7- View to the north

Area 8 -View to the north

Area 9- View to the north

Area 10 -View to the east

Area 11- View to the north

Area 12 -View to the north

Area 13- View to the north

Area 13 –Active adult male tortoise

Area 1- Adult male tortoise in burrow

Area 2 – Adult female tortoise in burrow

Area 11- Juvenile tortoise died within the last year

Cultural Resources (CR-2)

Data Requests

CR-2. Please provide a report on the spring 2008 cultural resource surveys of the optimized project design and include a figure showing the locations surveyed in 2007 and those surveyed in 2008.

Response: The survey report is provided as Attachment CR2-1. It includes a figure (Figure 1 and Appendix A) showing the 2007 and 2008 survey areas.

ATTACHMENT CR2-1

Additional Cultural Resources Inventory Reporting for Ivanpah Solar Electric Generating System (07-AFC-5), Spring 2008, San Bernardino County, California

Report Prepared For

Solar Partners I, LLC; Solar Partners II, LLC;
Solar Partners IV, LLC; and Solar Partners VIII, LLC
1999 Harrison Street, Suite 2150
Oakland, CA 94612-3515

Report Submitted To

California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Bureau of Land Management
Needles Field Office
1303 South Highway 95
Needles, CA 92363-4228

Report Prepared By

Aaron Fergusson, RPA

CH2MHILL

3 Hutton Centre Drive, Suite 200
Santa Ana, CA 927070

August 2008

USGS Quads: *Ivanpah Lake, California/Nevada* 7.5′ [USGS 1963(photorevised 1970)]

Area Included in Class III Pedestrian Survey: 371.45 acres

Keywords: San Bernardino County, Negative Survey, Section 106, Ivanpah, Solar Electric Generating System, Township 16 & 17 N, Range 4 East

Table of Contents

Figures

Appendix

Management Summary

Description of Proposed Project

Solar Partners I, LLC; Solar Partners II, LLC; Solar Partners IV, LLC; and Solar Partners VIII, LLC subsidiaries of BrightSource Energy, Inc. (Applicant) propose to construct a solar energy project in southern California's Mojave Desert, near the Nevada border. The project will be located on a site west of the Ivanpah Dry Lake, on land managed by the Bureau of Land Management (BLM). The project would be constructed in three phases: two 100 MW phases and a 200 MW phase. The total area of the site boundary (i.e., the three plant sites and common areas) is approximately 5.8 square miles (Figure 1, figures are located at the end of each section). Each 100 MW site is about 917 acres or 1.4 square miles. In addition, there will be a substation between the two 100 MW phases and new paved access roads to access each site. The project will tie into the existing Kern River Gas Transmission Line about 0.5 mile north and into the Southern California Edison (SCE) 115 kV line that crosses between the two 100 MW sites. Most of this area was surveyed for cultural resources in 2007 (Fergusson 2007).

The cultural resources investigations were conducted in support of an Application for Certification (AFC) for submittal to the CEC. The AFC process is equivalent to a California Environmental Quality Act (CEQA) process , but requires a more rigorous review of the potential impacts. Since the initial filing and survey, several project components have been reconfigured or moved, necessitating some additional pedestrian inventory as per Appendix B of the California Energy Commissions' (CEC) Siting Regulations (Title 20 California Code of Regulations).

This cultural resource survey report summarizes the cultural resources investigation of the modified project area that was not surveyed in 2007 (Fergusson 2007). The total acreage surveyed for this additional area is 371.45 acres (Appendix A).

Purpose of Investigation

This Cultural Resource Inventory was conducted to support Applicant's federal, state, and local licensing and permitting efforts for the proposed Ivanpah Solar Energy Generating System (Ivanpah SEGS) in San Bernardino County, California.

A cultural resource literature and records review was conducted by the California Historical Resources Information System's (CHRIS) Archaeological Information Center at the San Bernardino County Museum on June 21, 2007 of the overall proposed Ivanpah SEGS project area. An intensive pedestrian survey was conducted by CH2M HILL archaeologists Aaron Fergusson and Clint Helton, between April 29 and May 1, 2007 for only the additional areas that fall outside of the 2007 cultural resources survey.

This study was conducted under CH2M HILL's California State BLM Cultural Resources Use Permit No. CA-07-17 and BLM Needles Field Office Fieldwork Authorization No. CA-690-07-07.

Major Findings

CH2M HILL prepared a cultural resources inventory report of the proposed Ivanpah SEGS in July 2007 (Fergusson 2007). As part of that study, a CHRIS literature and records review and pedestrian survey was conducted for the entire study area. Two new cultural resources were identified during the surveys. Since some project redesign has shifted outside of the surveyed boundaries, a cultural resources inventory of the additional area was initiated in April 2008.

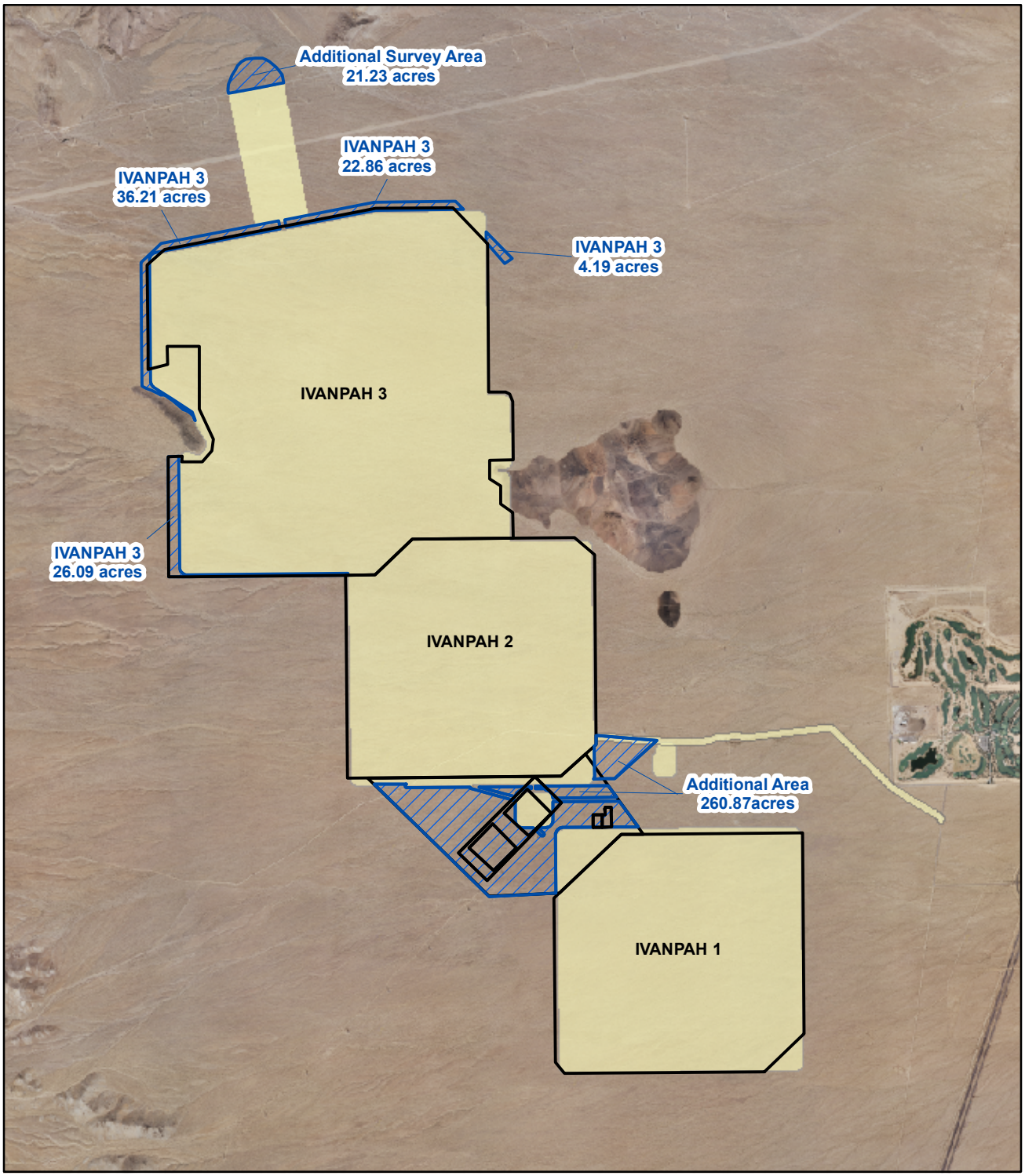
A Class III intensive pedestrian survey was conducted by archaeologists Aaron Fergusson and Clint Helton covering 100 percent of the proposed areas that fall outside of the previously surveyed areas to determine the presence of cultural resources (see Figure 1 and Appendix A). No cultural resources were observed during the survey; the area has excellent visibility and is undisturbed.

Recommendations

Because no cultural resources were encountered during the complete, intensive Class III survey, it is unlikely that construction of the Ivanpah SEGS will result in an impact to any significant cultural resources, except those noted during the 2007 survey (Fergusson 2007). However, because a Class III survey does not entail any subsurface investigation, there is a possibility, however unlikely, that buried cultural resources could be encountered during earth-moving activities associated with construction of the facilities. Therefore, in the event archaeological remains are encountered during earth-disturbing activities, work should be stopped immediately or redirected to other areas until a qualified archaeologist can be retained to evaluate the significance of the find.

If human remains are discovered, the San Bernardino County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the Coroner is responsible for contacting the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, pursuant to California Public Resources Code Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native American so they can inspect the burial site and make recommendations for treatment or reburial.

A copy of this report will be filed with the San Bernardino Archaeological Information Center located at the San Bernardino County Museum. Field notes are on file at CH2M HILL in Salt Lake City, Utah.



LEGEND

PROJECT SITE

SURVEYED AREA 2008

SURVEYED AREA 2007

N

0 2,000 4,000

Feet

Total Surveyed Acreage for 2008*: 371.45 acres

*The total acreage calculation is based off of the sum of the acreages shown in this figure.

FIGURE 1
SURVEY AREA 2007 AND 2008
IVANPAH SOLAR ELECTRIC GENERATING SYSTEM

Introduction

Solar Partners I, LLC; Solar Partners II, LLC; Solar Partners IV, LLC; and Solar Partners VIII, LLC subsidiaries of BrightSource Energy, Inc. (Applicant) employed CH2M HILL to complete a cultural resources assessment of the Ivanpah SEGS study area. This assessment includes a Class III intensive pedestrian survey of the proposed location of a solar energy generation system. The majority of the project area was surveyed in 2007; however, some project optimization resulted in some proposed project areas that fall outside of the 2007 survey boundaries (Fergusson 2007). As the proposed project will be constructed on public lands administered by the BLM, this assessment was completed to address the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended and implementing regulations 36 CFR 800.

The Applicant proposes to construct a solar energy project in southern California's Mojave Desert, near the Nevada border (Figure 1). The project will be located on a site west of the Ivanpah Dry Lake, on land managed by the Bureau of Land Management (BLM). The project would be constructed in three phases: two 100-MW phases (known as Ivanpah 1 and 2) and a 200 MW phase (known as Ivanpah 3). The total area of the site boundary (i.e., the three plant sites and common areas) is approximately 5.8 square miles (Figure 1). Each 100 MW site is about 917 acres or 1.4 square miles. In addition, there will be a substation between Ivanpah 1 and 2 and new access roads to access each site. The project will tie into the existing Kern River Gas Transmission Line to the north and into the Southern California Edison (SCE) 115 kV line that crosses between Ivanpah 1 and 2. Most of this area was surveyed for cultural resources in 2007 (Fergusson 2007).

The cultural resources investigations were conducted in support of an Application for Certification (AFC) for submittal to the CEC. The AFC process is equivalent to a California Environmental Quality Act (CEQA) process, but requires a more rigorous review of the potential impacts. Since the initial filing and survey, several project components have been reconfigured or moved, necessitating some additional pedestrian inventory as per the April 2007 California Energy Commissions' (CEC) Siting Regulations (Title 20 California Code of Regulations).

This study was conducted under CH2M HILL's California State BLM Cultural Resources Use Permit No. CA-07-17 and BLM Needles Field Office Fieldwork Authorization No. CA-690-07-07.

4

Setting

Natural Setting

The Mojave Desert is in the western Great Basin within the Basin and Range physiographic province, and is typical of the Great Basin as a whole. The province is characterized by generally north to south trending mountain ranges, separated by wide alluvial valleys with internal drainage, often resulting in present-day dry lakebeds.

The Mojave Desert is a vast basin situated between two major fault lines – the Garlock Fault on the north (bounded by the Tehachapi Mountains) and the San Andreas Fault on the west (bounded by the San Gabriel Mountains). Mountain ranges are visible throughout the Mojave Desert. Mountain ranges (San Bernardino, Little San Bernardino, and Eagle) form its southern margin and extensive valleys are also found on its margin. The floor of the Mojave Desert is primarily alluvial fill (i.e., sands and gravels that have eroded from the surrounding mountains) (Schoenherr 1995).

Fluctuations in temperature, moisture, and seasonality through time have altered vegetation zones that developed in response to climatic conditions. In moister times, vegetation zones in the valleys and basins developed further downslope. When the climate became drier, the vegetation zones spread up the slopes of the mountains, leaving the lower lands with sparser, arid-adapted vegetation. Changes in climate and vegetation affected the prehistoric populations of the Mojave Desert.

During the latter part of the Pleistocene (25,000 to 10,000 years ago), temperatures in California were cool and moist, causing widespread glaciation and the creation of numerous deep pluvial lakes (Antevs 1953, 1955). Pluvial lakes were common within the Mojave Desert and were an essential source of food and water for the earliest human inhabitants of the desert.

During the Holocene or recent epoch (10,000 years ago to present), temperatures in interior California rose, bringing warmer conditions to the desert valleys and less precipitation to the surrounding mountains (Chartkoff and Chartkoff 1984). During modern times, the Mojave Desert experiences maximum daytime temperatures above 100ºF in the summer. Winter temperatures are mild with little rain and abundant sunshine; winter temperatures generally reach a daytime maximum of 50ºF to 70ºF. Rainfall averages about 4 inches annually with 30 percent of the annual precipitation between April and September.

Alkali soils devoid of vegetation are characteristic of the lowest elevations in the Mojave Desert. Vegetation is sparse, consisting mostly of desert shrubs and an intermittent understory of annual and perennial grasses and herbs.

Creosote bush scrub, an association dominated by the large shrub creosote bush (Larrea tridentata), is the most common vegetation type in the region, dominating about 70 percent of the Mojave Desert. Likewise, creosote bush scrub is the most widespread community of the proposed Ivanpah SEGS project site, occurring throughout the range below 3,600 feet

5

(1,100 m) on alluvial slopes, valley floors, and mountain slopes. A sub-association of this vegetation type is described as the creosote-Bursage association based on the co-dominance between creosote bush and bursage (Ambrosia dumosa). Bursage is a much smaller shrub that may often be numerically more abundant than creosote bush, but creosote bush generally dominates canopy cover and volume. Creosote bush and bursage size and vigor are strongly influenced by water availability, and the largest individuals are characteristically found along edges of washes and roads. Many subdominant shrubs typically occur in creosote bush scrub, including range rhatany (Krameria erecta), silver cholla (Opuntia echinocarpa), Anderson's boxthorn (Lycium andersonii), desert straw (Stephanomeria pauciflora), wishbone bush (Mirabilis bigelovii), cheesebush (Hymenoclea salsola), Mojave yucca (Yucca schidigera), and Joshua tree (Yucca brevifolia).

Prehistoric Cultural Setting

Although the Mojave Desert is an area believed to have had limited prehistoric food resources and surface water, it supported a long and occasionally dense human presence (Moseley and Smith, 1962). Evidence of villages and camps, burials, quarries, rock features, and bedrock mortars has been documented at archaeological sites. These sites may contain evidence of a lengthy prehistoric time span. Although early archaeological remains are not found frequently, when they are, they are usually located along the margins of pluvial lakes or in areas of dune deflation. Conversely, artifacts on the desert floor may be sparse, widely scattered, and not easily recognized among the desert pavement. Archaeologists have reached a broad consensus regarding the region's basic cultural chronology; the sequence consists of the Paleoindian Period and the Pinto, Gypsum, Saratoga Springs, and Protohistoric periods, as discussed below (Warren and Crabtree 1986).

Paleoindian Period (12,000 to 7,000 Years Ago)

The Paleoindian Period represents the earliest, undisputed occupation of humans in North America. Artifact assemblages consist of fluted or stemmed projectile points, heavy choppers and hammerstones, crescents, leaf-shaped knives, drills, and small engravers. It is generally accepted that this period was dominated by the hunting of large game and now extinct megafauna. Most sites dating to this time period in the Mojave Desert are found on the margins of pluvial lakes or Pleistocene water courses, possibly an indication of a reliance on marsh resources. Warren and Crabtree (1986) call this period the Lake Mojave Period after the projectile point of the same name.

Pinto Period (7,000 to 4,000 Years Ago)

The Pinto Period dates to the end of the Pleistocene, when the severe and dramatic environmental change from pluvial to arid conditions began. Rivers and lakes dried up and animal and plant life changed. In the Mojave Desert humans either adapted to this change or migrated to areas with more favorable environmental conditions. Sites that contain elements of the Pinto Period are small and often limited to surface deposits. They may have been temporary or perhaps seasonal occupations by small groups (Moratto, 1984). The Pinto Period gets its name from the Pinto projectile point, a stemmed point that bridges the stemmed point tradition of the Paleoindian Period with the more generalized hunting and gathering strategy practiced. Stone tools include several types of scrapers, leaf-shaped projectile points, and a broader diversity of milling stones (Warren and Crabtree 1986).

Gypsum Period (4,000 to 1,500 Years Ago)

The presence of Humboldt concave base, Gypsum Cave, Elko eared, or Elko corner-notched points is indicative of the Gypsum Period, which has been radiocarbon dated from 4,000 to 1,500 years ago. In addition to the diagnostic projectile points, the cultural assemblage at Gypsum Period sites includes leafshaped points, rectangular-based knives, flake scrapers, T-shaped drills, and occasionally large scraper-planes, choppers, and hammerstones. Use of millingstones and manos became fairly common during this period, and the mortar and pestle were introduced. Additional artifacts include shaft-smoothers; incised slate and sandstone tablets and pendants; fragments of drilled slate tubes; Haliotis rings, beads, Olivella shell beads; and bone awls (Warren 1984).

Saratoga Springs Period (1,500 to 800 Years Ago)

People occupying the extreme western span of the Mojave Desert during this period lived in large permanent or seasonally occupied villages and a variety of smaller, special-purpose sites that were also seasonally occupied, such as those found in Antelope Valley (Sutton, 1980). Besides village sites, smaller sites included rock rings, lithic scatters, and milling stations. Artifacts from these sites include shell beads, ornaments, and steatite from the southern California coast, as well as projectile points of the Rose Spring and Cottonwood types (Warren 1984). The bow and arrow are introduced roughly near the beginning of this period and corresponds to several notable changes in subsistence strategies, including ceramics and in some areas agriculture.

Protohistoric Period (800 years ago to Contact).

During the Protohistoric Period, the material culture is defined predominately by brownware pottery and small triangular projectile points such as the Desert Side Notched and the Cottonwood Triangular. The Numic Spread, a term coined by Bettinger and Baumhoff 1982), describes the migration of Numic speaking peoples into the region. Due to their low-cost adaptive strategies, they were able to displace the previous inhabitants. The change in material culture indicates this replacement, and the continuity of the material culture into the historic era supports this hypothesis.

Ethnographic Context

The Southern Paiute occupied the greatest area of the Mojave Desert when the first Europeans arrived into the area. The Southern Paiute were a loosely bound group of highly mobile hunters and gathers employing a seasonal round method of subsistence (Kelly and Fowler 1986). They moved to where the resources were during a particular season, coming together in base camps during the winter months. The material culture of the Southern Paiute included bows and arrows, ceramics, baskets, flaked stone knives, milling stones, and digging sticks.

Prior to the 19th century, the southern most band of Southern Paiute broke away from and moved into Chemehuevi valley. They occupied that valley and the area south along the Colorado River. Their cultural adaptation were similar to other occupants of the Mojave Desert, however Chemehuevi women focused more on baskets than ceramic vessels. They built and occupied brush structures and used the bow and arrow with stone projectile

points for hunting and war. Food was stored in ceramic vessels or baskets that were often stored in caves or overhangs.

Also in the region were the Mojave. The Mojave occupied the area along the Colorado River and likely controlled trade and trails across the desert from coastal California into Arizona. While friendly with the Chemehuevi, they maintained separate trails across the Mojave Desert, far enough apart to ensure they did not encounter each other. They also tended to prefer ceramic vessels to baskets and would often obtain baskets through trade. They practiced flood plain agriculture along the Colorado River. Mesquite beans were ground with a mortar and pestle and screwbeans were cooked in large roasting pits.

Historic Era

Southeastern California has long been a crossroads in the American West of cultures (both prehistoric and historic) and economies. The area began as part of the Spanish Empire, became part of independent Mexico, and then joined the United States at the cessation of the Mexican-American War. As part of the historical American West, southern California first was home to Mormon settlers bent on expanding their religious territory and bringing their doctrine to the local native populations. It then became a non-Mormon stronghold and a key link in the western transportation network.

Spanish Explorations

Spanish explorers first came up the Colorado River in the early 1540s, but their search for precious metals only took them up the Colorado to the vicinity of the Gila River. The Spanish began looking for a better connection to California by skirting north of the impassable Grand Canyon. In 1776, Father Francisco Garces explored the Mojave Desert from the California end and helped to establish the west end of what would later be called the Old Spanish Trail (Paher 1971; Roske 1986). In that same year, father Silvestre Velez de Escalante explored eastern portions of what would become the Spanish Trail. The Old Spanish Trail was not established as a complete route until the late 1820s and early 1830s, several years after Spain lost control of Mexico and the rest of what is now the American Southwest.

Mexican Period

Trade connections between Santa Fe and Los Angeles developed quickly along what came to be called the Old Spanish Trail. Jedediah Smith was one of the first to realize the potential of the trail. He first traversed the route in 1826, traveling down the Virgin River to the Colorado and then on to California. In 1829-1830, Antonio Armijo came down the Virgin River to the Colorado below Grand Canyon, and then journeyed across the desert reaches to the Mojave River. He followed the Mojave to the Cajon Pass and then on to Los Angeles. Although Armijo's party passed south of the Las Vegas Springs, a member of his expedition was the first to record their existence (Paher 1971; Roske 1986). After Armijo paved the way, annual trading expeditions between New Mexico and Los Angeles became common, particularly during the period from 1830 to 1848 when the Mexican-American War ended. During this time, a number of alternate routes were developed. Many travelers avoided the Colorado River below the Grand Canyon. After descending out of the Utah Mountains by

way of the Virgin River, travelers cut across the desert, establishing a direct route to the Mojave River. A less-well-documented activity during this period was slaving. Beginning in the Spanish period, Paiutes were often captured by Ute and Navajo raiders and sold as slaves in New Mexico or California. As a result, the Paiute tended to avoid the route until the Mormons put a stop to the trade in the late 1840s and early 1850s (Kelly and Fowler 1986). When gold was discovered in California in 1848, traffic on the trail increased tremendously.

Mormon Era

By 1849, Brigham Young had established plans for the State of Deseret, encompassing the Great Basin, the Colorado River drainage, and most of Southern California. Brigham Young and other Mormon leaders built what later became known as the "Mormon Fort" in 1855, but it was only occupied for 2 years. The fort was constructed in support of the Mormon dream to expand throughout the Great Basin and California, but Young's plans were destroyed in 1848, when Mexico signed the Treaty of Guadalupe Hidalgo and surrendered Alta California and everything above the Gila and Rio Grande to the United States. In 1850, California became a state, and in the same year, the land east of California was divided into the territories of New Mexico and Utah. Despite these setbacks, Mormon colonies developed during the early and middle 1850s. Eastern portions of the Old Spanish Trail were abandoned, and the western portions became part of what was known as the Mormon Trail. A community developed in San Bernardino, and Las Vegas became a stopping point between Salt Lake City and the California colony. The Fort was abandoned in February 1857, although a few settlers remained to tend the fields and operate as a way station for travelers along the Mormon Trail. By September 1858, most of the San Bernardino Mormon population had returned to Salt Lake City as tensions heightened between President James Buchanan and Brigham Young. Young was worried that war would break out and called for all Mormons to return to Salt Lake City. The few remaining Mormon settlers left the fort at that time. The situation in Utah never came to open conflict, but more than 5,000 federal troops were stationed near Utah Lake until the eve of the Civil War. This tension colored interactions between the federal government the community of Saints until well after the Civil War.

History of the Project Vicinity

Mining and ranching were the primary economic activities in the southern California deserts in the late nineteenth and early twentieth centuries. Abraham Lincoln's Republican Party provided extensive land grants to railroad companies to encourage development of the transcontinental railroad. The Central Pacific Railroad, which became the Southern Pacific Railroad by the end of the 1800s, was the western half of the transcontinental project.

Alan Hensher (2005) summarized the mining activities in the area very well as:

> "In 1869, a prospecting expedition discovered copper and silver veins in the Clark Mountains. A supply center, named Ivanpah, arose at Ivanpah Spring, several miles from the silver deposits; the two main properties became the Beatrice and Lizzie Bullock. Mills were built at Ivanpah in the mid-1870s. The district reached its peak about 1879 and then declined rapidly during the early 1880s.

The Copper World, the other major strike, was developed in 1898, when a smelter was built at nearby Rosalie Wells. Although the production was large at times, the operations were erratic, and the Copper World shut down about World War I.

In 1879, gold and silver were found near Mountain Pass. This became the Mescal Mine. The property was developed in 1882 and remained active at least into 1887. The Mescal produced an estimated $250,000 in bullion.

Silver ore was discovered in the Providence Mountains in 1880. The main property was the Bonanza King Mine. Two speculators in Colorado, Wilson Waddingham and Thomas Ewing, bought the property several years later. They built a mill at a nearby spring and sank a deep shaft. After producing $1,500,000 in bullion, the mill burned in 1885; as the price of silver declined, mining became erratic, and work in the district ended during the early 1890s. The Bonanza King was revived in 1906-1907 and 1915-1920.

Bob Black, an Indian, struck gold ore near Vanderbilt Spring, in the New York Mountains, in 1891, when a tent camp was founded. In late 1892, major development began. The main mines were the Gold Bronze and the Boomerang. Meanwhile, the Nevada Southern Railway was built into the area, and a railhead was established at Manvel. The veins were small, and the district's two mills were inefficient. The district began to decline in 1894, though some mining continued through the late 1890s.

Several prospectors from Goldfield, Nevada, found gold in the Castle Mountains in late 1907. A town named Hart was founded in early 1908, and a mill was built. The leading properties were the Oro Belle, Big Chief, and Hart Consolidated, but the veins were small and broken, and the district began to decline in 1909. Occasional mining continued until about 1915.

Mining began in the Vontrigger district during the 1890s, but the mines were small. After 1904, Albert H. Cram, a promoter, developed a copper deposit known as the California Mine, north of Goffs. He built a large camp and installed a leaching operation, which produced some copper. The nearest shipping point was Vontrigger, on the California Eastern Railway, two miles away. Cram discontinued work about 1911. Several miles to the west, in the Hackberry Mountains, the Getchell Mine was developed in 1925, and a large camp, also named Vontrigger, was built there, but the work soon stopped."

San Bernardino County was organized in 1853 from lands that had been part of Los Angeles and San Diego counties. In area, it is the largest U.S. county, and it exceeds nine states in size. The Mojave Desert constitutes about 90 percent of the county's area (Hoover et al. 1990:304).

Methods

A cultural resource Archival Literature Search for the Ivanpah SEGS site was performed at the CHRIS Archaeological Information Center at the San Bernardino County Museum on June 21, 2007. The CHRIS literature and records review was conducted for the entire Ivanpah SEGS area and included a review of all recorded archaeological sites as well as all known cultural resource survey and excavation reports. CH2M HILL also examined the National Register of Historic Places (NHRP), the California Register, California Historical Landmarks, and California Points of Historical Interest, as well as historic maps.

An intensive Class III cultural resource pedestrian field survey was conducted using transects spaced 15 meters apart for all proposed project facilities that fall outside of the areas surveyed during the 2007 inventory by qualified archaeologists Aaron Fergusson and Clint Helton of CH2M HILL. In the field, USGS 7.5-minute topographic maps, aerial photography, and Trimble hand-held GPS units were used to navigate to survey areas and record data as conditions required.

11

Report of Findings

Literature Search Results

Archival research was conducted as part of the overall project report, and the reader is referred there for the results (Fergusson 2007). Several sites are located in the general area, but no previously recorded sites are within this survey area. This area had not been previously surveyed for cultural resources.

Field Survey Results

The area of the proposed Ivanpah SEGS is located within an area of developing desert pavement and visibility was excellent at approximately 90 percent. The area is undisturbed by modern development, but the surface has been highly impacted by flooding events and sheet washes from the Clark Mountains. No prehistoric or historic cultural resources were identified as a result of the Class III field survey from the 2008 survey of the additional areas not covered in the 2007 surveys.

Geomorphological Study

A geomorphological study was conducted as a part of the overall project efforts to assess the potential for intact or buried cultural resources in the project area (Spaulding 2008). The reader is referred to that report for specific details of the application of methods involved in this study. The study used remote imaging to identify a sample of 28 surfaces of desert pavement along with in-field selection of two younger surfaces for comparative analysis. These surfaces were each field checked and evaluated based on the topography, clast size, clast angularity, degree of desert varnish, and desert pavement structure. Similarly, each surface was examined for the presence of archaeological materials.

Each of the surfaces examined represented relatively stable surfaces, unlike much of the surround areas affected by flood events and described as erosional (Spaulding 2008). The absence of any cultural materials located on these stable surfaces, combined with the absence of concentrations of resources in the immediate area that would have attracted prehistoric inhabitants indicates a low probability of any surface or subsurface cultural resources.

Management Considerations

Although no significant cultural resources were observed during the complete, intensive pedestrian survey of the additional survey areas for the Ivanpah SEGS, the potential always exists for encountering buried cultural resources during construction activities. Construction crews should be trained to identify cultural resources and should be instructed to contact a competent archaeologist should a discovery occur.

12

Construction of the proposed Ivanpah SEGS represents a low likelihood of encountering buried cultural resources as indicated by the literature and records review and the geomorphological study conducted for this project.

In the event archaeological remains are encountered during earth-disturbing activity, work should be stopped immediately or redirected to another area of the site until a qualified archaeologist is retained to evaluate the significance of the find.

If human remains are discovered, the San Bernardino County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the Coroner is responsible for contacting the Native American Heritage Commission (NAHC) within 24 hours. The NAHC, pursuant to California Public Resources Code Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native American so they can inspect the burial site and make recommendations for treatment or reburial.

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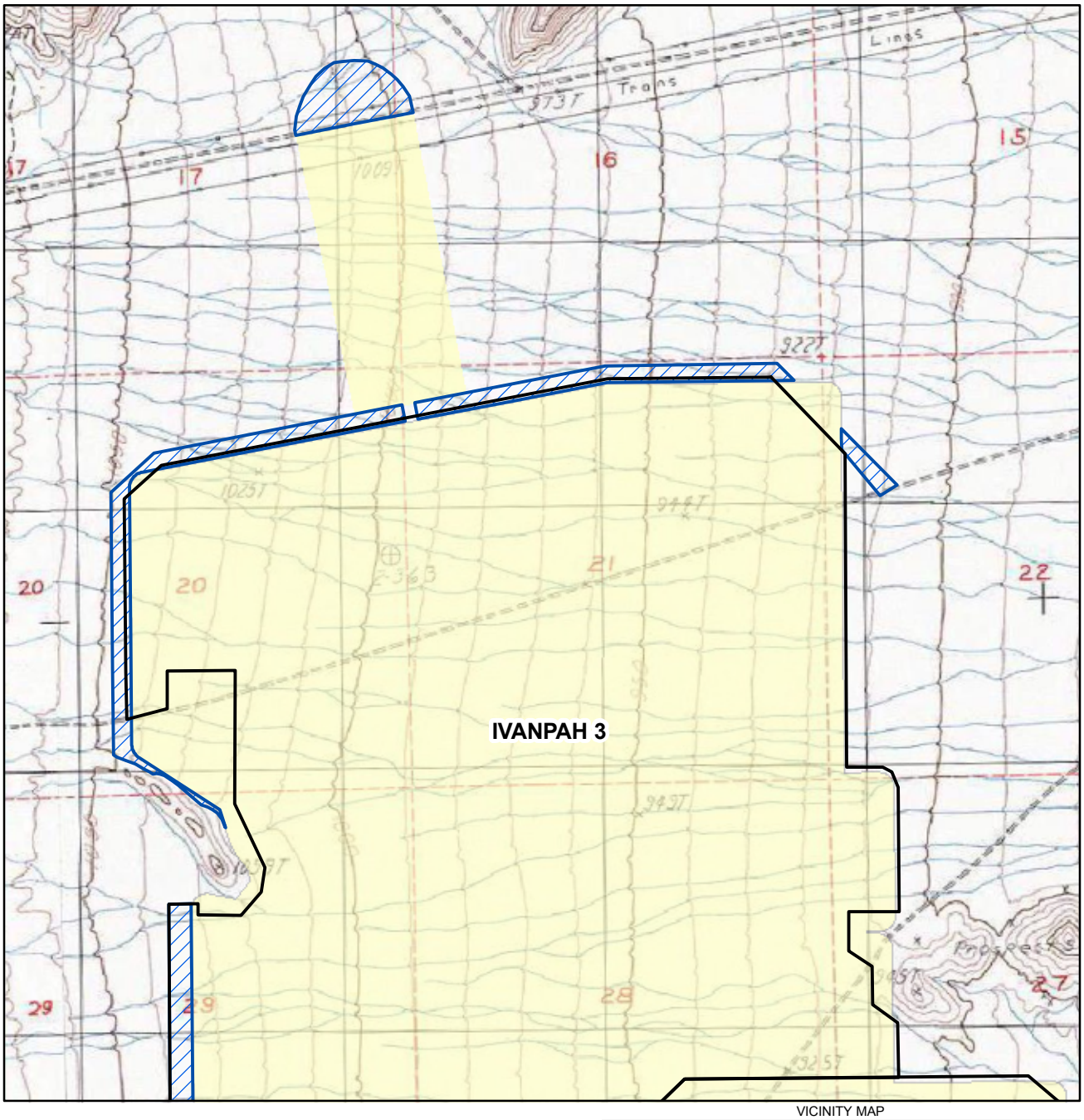
APPENDIX A

USGS 7.5' Topographic Maps of the Project Area

16



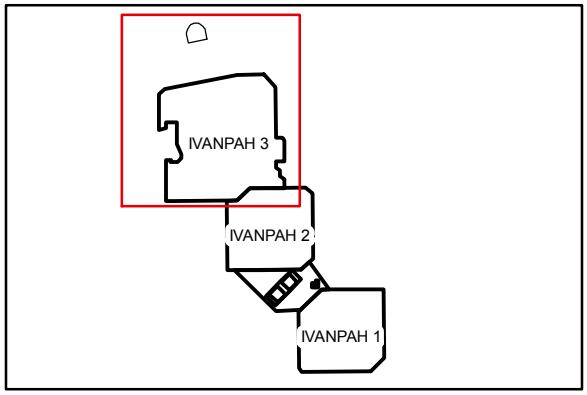
LEGEND

PROJECT SITE

SURVEYED AREA 2008

SURVEYED AREA 2007

VICINITY MAP



N

0 1,000 2,000

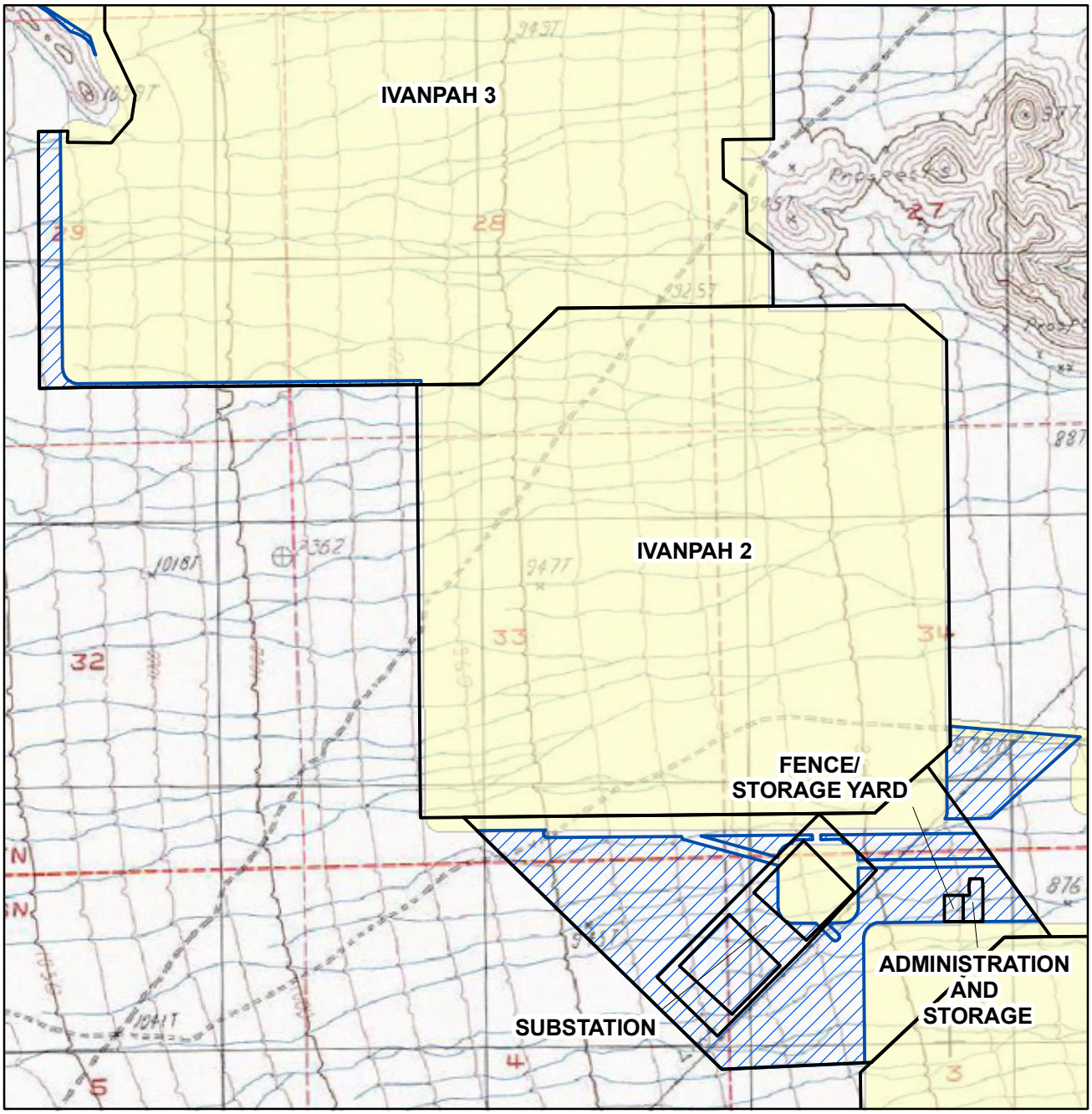
Feet

County: San Bernardino
Map Reference: Ivanpah Lake
Township/Range: 17N 14E

Note: The northern gas line corridor was surveyed in 2007 and did not include the northern-most additional survey area. The corridor is not included in the total acreage calculation.

APPENDIX A-1
SURVEY AREA 2007 AND 2008

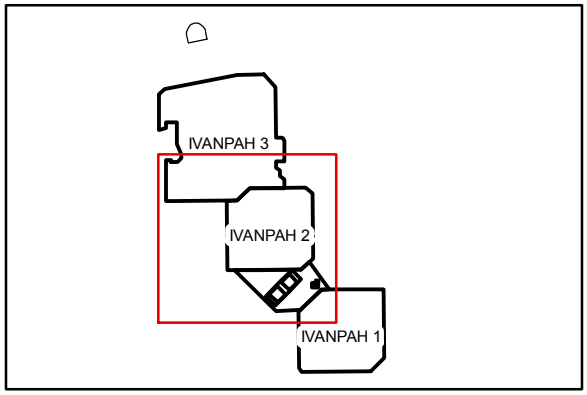
IVANPAH SOLAR ELECTRIC GENERATING SYSTEM
BRIGHT SOURCE ENERGY, INC.



LEGEND

- PROJECT SITE
- SURVEYED AREA 2008
- SURVEYED AREA 2007

VICINITY MAP



N

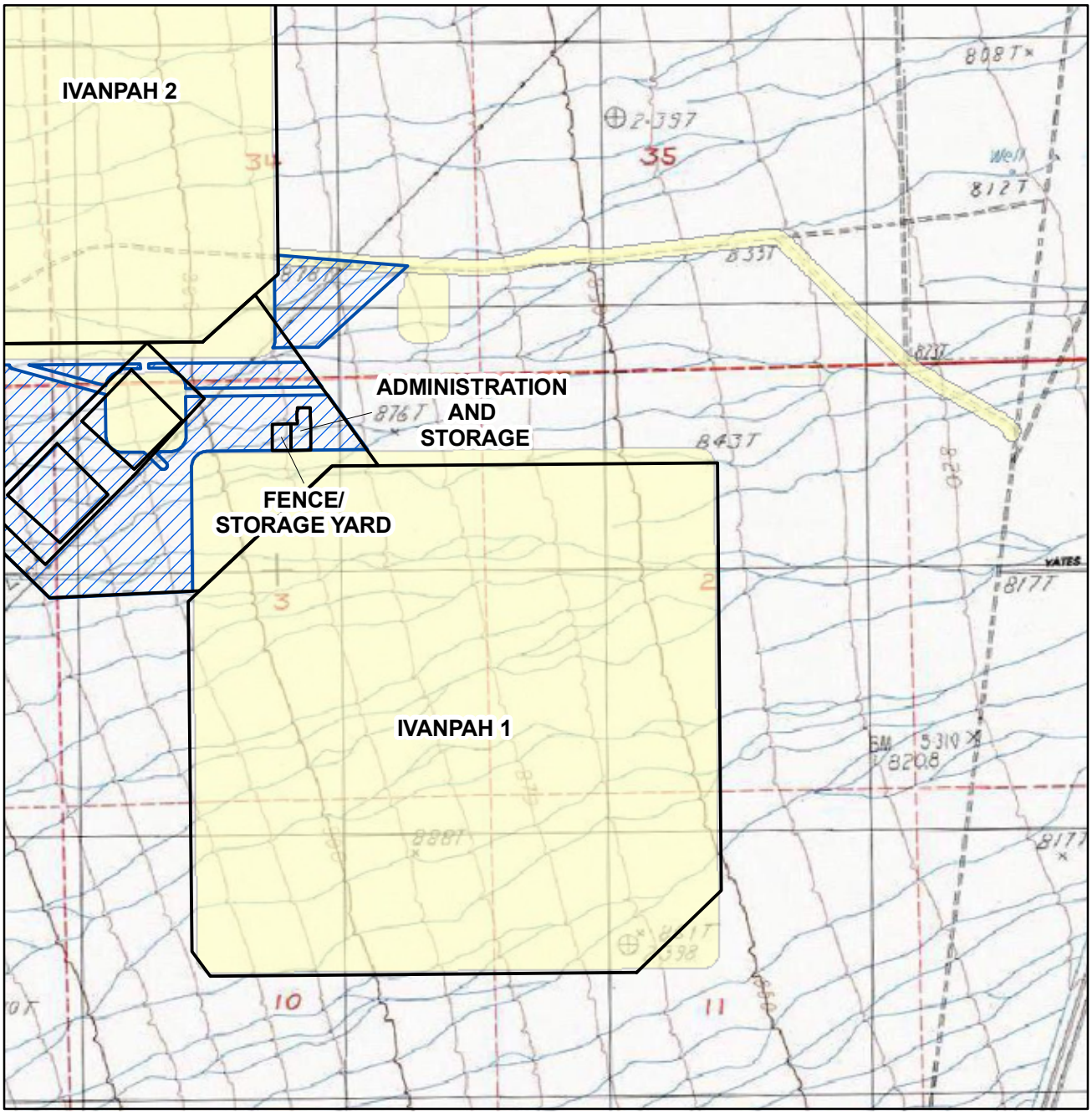
0 1,000 2,000
Feet

County: San Bernardino
Map Reference: Ivanpah Lake
Township/Range: 17N 14E/ 16N 14E

Note: The northern gas line corridor was surveyed in 2007 and did not include the northern-most additional survey area. The corridor is not included in the total acreage calculation.

APPENDIX A-2
SURVEY AREA 2007 AND 2008

IVANPAH SOLAR ELECTRIC GENERATING SYSTEM
BRIGHT SOURCE ENERGY, INC.



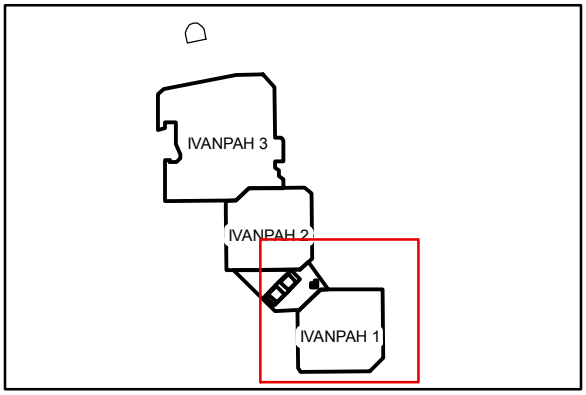
LEGEND

PROJECT SITE

SURVEYED AREA 2008

SURVEYED AREA 2007

VICINITY MAP



County: San Bernardino
Map Reference: Ivanpah Lake
Township/Range: 17N 14E/ 16N 14E

N

0 1,000 2,000
Feet

Note: The northern gas line corridor was surveyed in 2007 and did not include the northern-most additional survey area. The corridor is not included in the total acreage calculation.

APPENDIX A-3
SURVEY AREA 2007 AND 2008

IVANPAH SOLAR ELECTRIC GENERATING SYSTEM
BRIGHT SOURCE ENERGY, INC.