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June 24, 2010

California Energy Commission
Attn Docket No. 09-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

Re: Genesis Solar Energy Project; 09-AFC-8

Dear Docket Clerk:

Enclosed are (1) a hard copy of Exhibits on Behalf of California Unions for Reliable Energy for the Genesis Solar Energy Project, (2) a CD containing the exhibits, and (3) a copy of this letter. Please docket the original, conform the copy of the letter and return the copy in the envelope provided.

Thank you for your assistance.

Sincerely,

/s/

Rachael E. Koss

REK:bh
Enclosures

2364-083a

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STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

CALIFORNIA UNIONS FOR RELIABLE ENERGY SEQUENTIAL EXHIBIT LIST

June 25, 2010

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EXHIBIT	WITNESS	DESCRIPTION	CATEGORY
500	Scott Cashen	Testimony of Scott Cashen on Behalf of the California Unions for Reliable Energy on Biological Resources for the Genesis Solar Energy Project	Biological Resources
501	Scott Cashen	Cashen Declaration	Biological Resources
502	Scott Cashen	Cashen C.V.	Biological Resources
503	Scott Cashen	Documented occurrences of Gila woodpeckers (map)	Biological Resources
504	Scott Cashen	CalPIF monitoring sites, breeding status, and current range for the Gila Woodpecker in California (map)	Biological Resources
505	Scott Cashen	Memo to Craig Hoffman from Heather Blair (2/5/10) Re Abengoa Mojave Solar Project – time-sensitive issues and informational needs	Biological Resources
506	Scott Cashen	J. E. Pagel, D.M. Whittington, G.T. Allen, US Fish and Wildlife Service, Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (2/2010)	Biological Resources
507	Scott Cashen	Rebuttal Testimony of Scott Cashen on Behalf of the California Unions for Reliable Energy on Biological Resources for the Genesis Solar Project	Biological Resources
508	Scott Cashen	Cashen Declaration	Biological Resources
509	Greg Okin	Testimony of Greg Okin on Behalf of the California Unions for Reliable Energy on Soil and Water Resources and Biological Resources for the Genesis Solar Energy Project	Soil/Water Biological Resources
510	Greg Okin	Okin Declaration	Soil/Water Biological Resources
511	Greg Okin	Okin C.V.	Soil/Water Biological Resources
512	David Whitley	Rebuttal Testimony of David S. Whitley on Behalf of the California Unions for Reliable Energy on Cultural Resources for the Genesis Solar Energy Project	Cultural Resources
513	David Whitley	Whitley Declaration	Cultural Resources
514	David Whitley	Whitley C.V.	Cultural Resources
515		Programmatic Agreement Among The Bureau of Land Management-California, The California Energy Commission, Next Era Genesis Solar LLC, And The California State Historic Preservation Officer, Regarding the Next Era Genesis Ford Dry Lake Solar Project, Riverside County, California	Cultural Resources
516		Hearing Transcript 10-CRD-1 re Consolidated Hearing on Issues Concerning BLM Cultural Resources Data (6/19/10)	Cultural Resources
517	Matthew F.	Testimony OF Matthew F. Hagemann on Behalf of the California Unions for	Hazardous Materials

	Hagemann	Reliable Energy on Hazardous Materials and Waste Management of the Genesis Solar Energy Project	Waste Management
518	Matthew F. Hagemann	Hagemann Declaration	Hazardous Materials Waste Management
519	Matthew F. Hagemann	Hagemann C.V.	Hazardous Materials Waste Management
520	Matthew F. Hagemann	Spill Reports at SEGS (5/99 and 7/07)	Hazardous Materials Waste Management
521	Matthew F. Hagemann	Desert Training Center/California Maneuver Area map, identifying the Project within an area identified as a "gunnery range"	Hazardous Materials Waste Management
522	Matthew F. Hagemann	WW-II era map of the CAMA	Hazardous Materials Waste Management
523	Eric D. Hendrix	Testimony of Eric D. Hendrix on Behalf of the California Unions for Reliable Energy on Soil and Water Resources of the Genesis Solar Energy Project	Soil/Water
524	Eric D. Hendrix	Hendrix Declaration	Soil/Water
525	Eric D. Hendrix	Hendrix C.V.	Soil/Water
526	Eric D. Hendrix	Rebuttal Testimony of Eric D. Hendrix on Behalf of the California Unions for Reliable Energy on Soil and Water Resources of the Genesis Solar Energy Project	Soil/Water
527	Eric D. Hendrix	Hendrix Declaration	Soil/Water
528	David Marcus	Testimony of David Marcus on Behalf of the California Unions for Reliable Energy on Soil and Water Resources for the Genesis Solar Energy Project	Soil/Water
529	David Marcus	Marcus Declaration	Soil/Water
530	David Marcus	Marcus C.V.	Soil/Water
531	David Marcus	Dry cooling versus applicant-proposed technology chart	Soil/Water
532		MWD Comment letter to the CEC and BLM re DEIS/SA for the NextEra Energy Resources Genesis Project and Possible California Desert Conservation Area Plan Amendment (6/15/2010)	Soil/Water
533		CEC Decision and Scoping Order for the Genesis Solar Energy Project (2/2/10)	Soil/Water
534		State Water Resources Control Board letter to Melissa Jones, CEC, re State Policies for Water Quality Control and their applicability to Power Plant Licensing (1/20/10)	Soil/Water
535		Steven C. Hvinden, U.S. Dept. of the Interior, memo to Holly Roberts, Bureau of Land Management re Federal Register Notice Dated November 23, 2009, Entitled Notice of Intent to Prepare Two Environmental Impact Statements/Staff Assessments for the Proposed Chevron Energy Solutions/Solar Millennium Palen and Blythe Solar Power Plants, Riverside County, CA and Possible Land Use Plan	Soil/Water

		Amendments (12/21/09)	
536		Gerald R. Zimmerman, Colorado River Board letter to Alan H. Solomon, CEC, (3/22/10) requiring a Section 5 BCPA contractual entitlement	Soil/Water
537	Janet Laurain	Gerald R. Zimmerman, Colorado River Board letter to Janet Laurian, responding to Public Records Act request for the Blythe Solar Power Project (2/22/10)	Soil/Water
538	Janet Laurain	Solar Millennium LLC/Chevron Energy Solutions Blythe and Palen Solar Power Projects Presentation (1/6/10)	Soil/Water
539	Janet Laurain	Laurain Declaration [Re Ex. 537 and 538]	Soil/Water

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

CALIFORNIA UNIONS FOR RELIABLE ENERGY TOPIC EXHIBIT LIST

June 25, 2010

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WASTE MANAGEMENT		
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		and Waste Management of the Genesis Solar Energy Project
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519	Matthew F. Hagemann	Hagemann C.V.
520	Matthew F. Hagemann	Spill Reports at SEGS (5/99 and 7/07)
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EXHIBIT 500

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

TESTIMONY OF SCOTT CASHEN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE GENESIS SOLAR ENERGY PROJECT

June 18, 2010

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I. INTRODUCTION

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Project") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential environmental impacts and alternatives.

I have a Master's of Science Degree in Wildlife and Fisheries Science from the Pennsylvania State University, University Park. The degree program included coursework in Landscape Ecology, Biometrics, Statistics, Conservation Biology, and Wetland Ecology. For my thesis, I conducted seven seasons of independent research on avian use of restored wetlands. The U.S. Fish and Wildlife Service subsequently used my technical report as a model for other habitat restoration monitoring projects in Pennsylvania.

My employment experience has included work in the fields of wildlife biology, forestry, and natural resource consulting. Much of my work over the past two and a half years has involved review of environmental documents associated with development of large-scale solar energy facilities. To date, I have served as an expert on 12 different solar projects, 9 of which are being sited in the Mojave or Sonoran Desert. I am currently concluding a two-year contract I hold with the State of California to conduct surveys for the Peninsular bighorn sheep near Anza-Borrego Desert State Park. I serve as a member of the scientific review team responsible for assessing the effectiveness of the U.S. Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.

For the past two and a half years I have operated my own consulting business. I previously served as a Senior Biologist for TSS Consultants and ECORP Consulting. Other positions I have held have included conducting wildlife research for the National Park Service, the Point Reyes Bird Observatory, and the University of California. While in graduate school I served as an instructor of Wildlife Management and as a teaching assistant for a course on ornithology.

My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 18 years of working in the field of natural resources management. A summary of my education and experience is attached to this testimony as Attachment 1.

II. THE PROJECT MAY RESULT IN UNMITIGATED SIGNIFICANT IMPACTS TO GILA WOODPECKERS

The Gila woodpecker (*Melanerpes uropygialis*) is listed as endangered under the California Endangered Species Act. The Revised Staff Assessment ("RSA") lists it

as a species that is "known to occur or could potentially occur in the Project area and vicinity."[1] The RSA subsequently lists it as a species with "no or low-to-moderate potential to occur in the Project area."[2] The RSA ultimately concludes the Gila woodpecker is not expected to occur at the Project site.[3] To support this conclusion, the RSA stipulates: (a) the Gila woodpecker is currently known only from the Colorado River; (b) the Project site does not contain suitable nesting habitat for the species; and (c) the closest California Natural Diversity Database (CNDDB) record for the species is a 1986 occurrence east of the Project site at the Colorado River.[4] I have reviewed the literature associated with each of these pieces of evidence, and I have concluded the evidence presented in the RSA is neither entirely accurate, nor sufficient to conclude that the Gila woodpecker does not occur on the Project site. In the subsequent sections, I discuss the evidence provided in the RSA, as well as recent information supporting an inference that Gila woodpeckers may occur at the Project site.

A. The RSA Does Not Accurately Report the Range of the Gila Woodpecker

The RSA states Gila woodpeckers formerly occurred in desert washes up to one mile from the Colorado River, and that they are currently limited to areas along the Colorado River.[5] Staff has not cited the source of this information. However, based on the verbiage, Staff's information appears to have been derived from either the 1987 petition to list the species,[6] or the 2002 NECO Plan.[7] While technically correct at the time the documents were published, the information presented in these sources is now outdated. Since the documents were published, researchers have discovered populations of Gila woodpeckers at several locations west of the Colorado River. These locations are documented in the California Natural Diversity Database (CNDDB) (illustrated in Attachment 2),[8] and in the Desert Bird Conservation Plan published by California Partners in Flight and Point Reyes Bird Observatory (illustrated in Attachment 3).[9]

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[1] RSA, p. C.2-22.
[2] Id.
[3] RSA, p. C.2-56.
[4] Id.
[5] Id.
[6] Larsen CJ. 1987. Petition to the State of California Fish and Game Commission. http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=3356
[7] BLM and CDFG. 2002. Final Environmental Impact Statement. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan. Bureau of Land Management, California Desert, Riverside, CA. p. 2-2.
[8] California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Mar 2, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.
[9] CalPIF (California Partners in Flight). 2009. Version 1.0. The Desert Bird Conservation Plan: a Strategy for Protecting and Managing Desert Habitats and Associated Birds in California. California Partners in Flight. http://www.prbo.org/calpif/plans.html.

B. The RSA Does Not Accurately Report Nesting Habitat for Gila Woodpeckers

The RSA concludes that the Project area does not contain suitable habitat for the Gila woodpecker.[10] However, the RSA does not provide a citation or any information to justify this conclusion. Several studies and surveys have documented Gila woodpeckers breeding in dry desert wash woodlands such as those that occur in the Project area. Grinnell and Miller (1944) reported Gila woodpecker habitat as:

> [m]ainly riparian cottonwoods and willows, of old growth; but also up *desert washes where ironwood and palo verde reach large size.* Availability of diggable tree-trunks for nesting seems to be primary factor for presence; a favoring one is *presence of berry-bearing mistletoe as parasitic especially on mesquite.*[11]

The conditions reported by Grinnell and Miller (1944) may be present in the Project area. The RSA states:

> The Applicant has identified a stand of desert dry wash woodland as occurring east of the Project area, within the large Palen Wash, but had described this habitat type as absent from the Project area (GSEP 2009a). In their revised delineation the Applicant describes areas of areas of microphyllous riparian vegetation occurring in washes along the linear Disturbance Area. The microphyllous vegetation identified in these washes consists of three tree species (palo verde, ironwood, and honey mesquite) and totals 16 acres (TTEC 2010). Within the proposed Project area ironwood and palo verde occur in low densities but one wash along the linear facility route, identified as Wash 24-26 in the jurisdictional delineations report (TTEC 2010l) supports a relatively dense concentration of 270 palo verde trees. Wash 31 consists of honey mesquite and is also relatively dense.[12]

According to the Applicant's estimate, 888 palo verde, ironwood, and honey mesquite trees greater than 4" in diameter occur along desert washes in the Project area.[13] These tree species also occur at lower densities in other portions of the Project area.[14] Anderson et al. (1982) observed Gila woodpecker nests in honey

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[10] RSA, p. C.2-56.
[11] Grinnell J, AH Miller. 1944. The distribution of the birds of California. Pac. Coast Avifauna No. 27. 608pp. [emphasis added].
[12] RSA, p. C.2-17.
[13] Tetra Tech. 2010 Mar 15. Revisions to the Jurisdictional Waters at the Genesis Solar Energy Project. Appendix C.
[14] AFC, Bio Tech Report, Table 3.

mesquite trees along the lower Colorado River.[15] McCreedy et al. (2006) surveyed Milpitas Wash in Imperial County and reported every Gila woodpecker nest they detected occurred in blue palo verdes.[16] The Desert Bird Conservation Plan, a joint effort between California Partners in Flight and Point Reyes Bird Observatory, states that the presence of blue palo verde has been found to positively influence presence and abundance of the Gila woodpecker.[17] According to the California Natural Diversity Database, 9 of the 34 (26%) documented occurrences of Gila woodpeckers within the State of California are associated with vegetation communities similar to those present on the Project site (Reproduced below in Table 1).[18]

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[15] Anderson et al. 1982. Evidence for social regulation in some riparian bird populations. American Naturalist. 120:340-352.

[16] McCreedy, C., C. Howell, and L. Culp. 2006. Xeric Riparian Songbird Project: 2004 progress report. PRBO Conservation Science, 4990 Shoreline Highway, Stinson Beach, CA, 94970. PRBO Contribution No. 1309.

[17] The Desert Bird Conservation Plan: A Strategy for Protecting and Managing Desert Habitats and Associated Birds in the Mojave and Colorado Deserts. 2009. Version 1.0. California Partners in Flight and Point Reyes Bird Observatory Conservation Science. Table 8-2. p.70.

[18] California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Mar 2, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.

Table 1. CNDDB records of Gila woodpecker occurrences in habitat comparable to habitat on the Project site.

Record No	Ecological community
24	HABITAT CONSISTS OF SALT CEDAR, MESQUITE, AND PALO VERDE WITH A QUAIL BRUSH UNDERSTORY; GOOD HABITAT EXCEPT FOR THE PRESENCE OF SALT CEDAR.
25	HABITAT CONSISTS OF PALO VERDE, MESQUITE, AND SALT CEDAR; OPEN AREAS ARE CREOSOTE GROUND COVER.
28	HABITAT IS PALO VERDE, SALT CEDAR, AND MESQUITE; MANY TRAILER PARKS AND SOME ORV USE IN THE AREA, OTHERWISE GOOD HABITAT.
30	DESERT WASH WOODLAND WITH PALO VERDE & IRONWOOD SURROUNDED BY DISTURBED CREOSOTE BUSH SCRUB.
31	DESERT WASH SCRUB WITH PALO VERDE AND IRONWOOD
32	DESERT WASH SCRUB WITH PALO VERDE AND IRONWOOD SURROUNDED BY CREOSOTE BUSH SCRUB.
33	DESERT WASH WOODLAND WITH PALO VERDE, IRONWOOD, CREOSOTE BUSH AND MESQUITE.
34	BRAIDED WASH WITH OLNEYA TESOSA, CERCIDIUM MICROPHYLLA, & LARREA TRIDENTATA
35	MICROPHYLL WOODLAND DOMINATED BY PALO VERDE, CREOSOTE AND IRONWOOD. AREA USED FOR OHV RECREATION AND CAMPING.

C. The Revised Staff Assessment has Misused the CNDDB

Staff suggests that there is a low potential for occurrence of the Gila woodpecker due to the Project's distance from the nearest CNDDB record (which is along the Colorado River).[19] Staff's reasoning is not justifiable for the following reasons. First, the CNDDB is a positive sighting database. As a result, a lack of records in the CNDDB cannot be used to conclude an animal does not occur in a given area. Second, isolated populations of Gila woodpeckers have been reported at distant, disconnected locations, such as Griffith Park in Los Angeles (among other locations).[20] This information indicates that Gila woodpeckers will disperse to, and colonize, suitable habitat disjunct from the Colorado River. Third, the Gila woodpecker has been documented at several locations south of the I-10, which are approximately as far west from the Colorado River as the Project site.[21] Fourth, Staff's conclusion that the Gila woodpecker is absent from the Project area appears to be largely due to an absence of prior survey efforts rather than a lack of habitat. According to the 2009 Desert Bird Conservation Plan, Milpitas Wash (Imperial County) is the only xeric riparian habitat that has been specifically surveyed for Gila woodpeckers. Information associated with the CNDDB occurrence records south of I-10 (e.g., several unique detections made on the same date), and the proximity of Gila woodpecker occurrences to Highway 78, suggest the records were obtained as part of a survey route or other focused effort. Although the Project site is slightly further north of the core of the species' range, there is nothing to suggest that the same pattern of distribution does not occur north of I-10 as occurs south of I-10.

The Project would result in direct impacts to at least 298 desert wash tree species and 16 acres of dry desert wash woodland.[22] Based on the information described above, and the lack of information provided in the Applicant's survey reports, it is my professional opinion that the Gila woodpecker has the potential to occur on the Project site. Without appropriate mitigation, the Project may cause a significant impact on the species and its habitat.

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[19] RSA, p. C.2-56.

[20] Edwards, Holly H. and Gary D. Schnell. 2000. Gila Woodpecker (Melanerpes uropygialis), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/532 doi:10.2173/bna.532

[21] See Attachment 2.

[22] Tetra Tech. 2010 Mar 15. Revisions to the Jurisdictional Waters at the Genesis Solar Energy Project. Appendix C; RSA, p. C.2-17.

III. THE REVISED STAFF ASSESSMENT DOES NOT PROVIDE ADEQUATE BASELINE INFORMATION OR MITIGATION MEASURES FOR THE COUCH'S SPADEFOOT TOAD

The Genesis Project is located at the western border of the Couch's spadefoot toad range.[23] With respect to the species occurring on the Project site, the RSA concluded: (a) "because the [Applicant's] surveys were not conducted during the proper season (i.e., after summer rains), the lack of observations does not suggest the species is absent from the Project site";[24] and (b) "[w]ithout species-specific survey results and with limited occurrence information, it is difficult to assess the potential for direct and indirect impacts to Couch's spadefoot toads."[25] Without species-specific survey results (including presence of toads and presence of habitat elements), Staff cannot provide an adequate assessment of Project impacts on Couch's spadefoot toads. Without an adequate impact assessment, Staff is unable to devise an appropriate mitigation strategy.

Couch's spadefoot toads have three principal habitat requirements.[26] These are:

1. Temporary desert rainpools with water temperatures >15 °C in which to breed. The breeding pool must last for at least seven days for metamorphosis to occur;
2. Subterranean refuge sites (with a loose enough substrate to permit burial) must occur in the vicinity of the breeding pool; and
3. An insect food base (that probably includes alate termites) and primary production that sustains the food base.

There is evidence that suggests the presence of breeding ponds is the limiting factor in the distribution of Couch's spadefoot toads.[27] Therefore, in the absence of site-specific survey results (on toads), the presence of suitable breeding ponds can be used as an index of toad presence. During the 2009 surveys, the Applicant contends it searched for artificial or temporary water catchments that could serve as breeding pools for Couch's spadefoot toads.[28] No water catchments were identified during the surveys.

Staff has concluded that impacts to breeding ponds within the westernmost range of the Couch's spadefoot toad would be a significant impact.[29] However,

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[23] RSA, p. C.2-86.
[24] Id., p. C.2-39.
[25] Id., p. C.2-86.
[26] Jennings MR, MP Hayes. 1994. Amphibian and reptile species of special concern in California. Rancho Cordova, CA: California Dept. of Fish and Game, Inland Fisheries Division.
[27] RSA, p. C.2-86.
[28] Id., p. C.2-39.
[29] Id., p. C.2-86.

despite the obvious data gaps reported in the RSA, Staff "agrees with the Applicant that it is unlikely the solar facility site supports breeding pond habitat thought [*sic*] it may provide habitat for subterranean burrows if there is a breeding pond within dispersal distance."[30] This is not a reliable conclusion for the several reasons.

First, the Applicant has provided information that suggests its search for breeding pond habitat was limited to a few select locations, most of which lie outside of the Project area.[31]

Second, Couch's spadefoot toads breed in temporary pools that form after summer rains.[32] The Applicant's search for pools did not occur after summer (or other) rains.[33]

Third, the Applicant reported "[n]o artificial or temporary water catchments that could serve as breeding pools for Couch's spadefoot toad" occur in the Project area.[34] Staff has determined the Applicant's statement is incorrect. Specifically, Staff reviewed Project site aerials and "identified some *areas* that appear to sustain or that could potentially sustain surface water," including a *large* ponded area along the Project transmission line route.[35]

Fourth, the Project transmission line corridor overlaps a known breeding site for Couch's spadefoot toads.[36]

Fifth, Staff's analyses were limited primarily to aerial photo interpretation. The RSA does not provide the methods that were used in Staff's analyses, including the date(s) of the imagery; its scale and resolution; the methods used to identify areas that potentially sustain water; and the extent of ground-truthing (i.e., field verification). Couch's spadefoot toads may breed in small pools that cannot be identified through use of aerial imagery. Furthermore, given Couch's spadefoot toads are able to exploit ponds that contain water for as few as nine days, the imagery used by Staff would need to have been generated within nine days of rainfall for it to provide a reliable depiction of breeding habitat.

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[30] RSA, p. C.2-86.
[31] *See* AFC, Bio Tech Report, p. 29; *See* Map associated with Applicant's response to CURE Data Request #32; *See also* Applicant's response to CURE Data Request #45 and Figure 6 in Genesis Solar, LLC. 2009 Dec 31. Application for Incidental Take of Threatened and Endangered Species.
[32] Jennings MR, MP Hayes. 1994. Amphibian and reptile species of special concern in California. Rancho Cordova, CA: California Dept. of Fish and Game, Inland Fisheries Division.
[33] *See* Tetra Tech. 2010 Jun 11. Fall 2009 and Spring 2010 Biological Resources Technical Report for the Genesis Solar Energy Project. Table 2.
[34] Applicant's response to CURE Data Request #44; AFC, Bio Tech Report, p. 49.
[35] RSA, p. C.2-39 (emphasis added).
[36] RSA, p. C.2-86.

Sixth, the Carsitas soil series occurs in the Project area.[37] According to the Applicant, torrential summer thundershowers occasionally produce enough runoff to flood Carsitas soils for brief periods.[38] This suggests at least some of the soils in the Project area provide a suitable substrate for the formation of breeding ponds.

Finally, the RSA does not provide any information to justify its conclusion that the Project site is unlikely to support Couch's spadefoot toad breeding habitat, other than it is the Applicant's contention. The Applicant's contention has proven to be unreliable and is contradicted by the information presented above.

Since the issuance of the RSA, the Applicant has submitted the results of its Spring 2010 surveys. The results of the surveys confirm suitable breeding habitat for Couch's spadefoot toads occurs along the Project transmission line routes.[39] However, the critical limitations identified in the RSA have not been resolved. Specifically, appropriately timed surveys have not been conducted, and the Applicant has yet to provide reliable information on toad breeding habitat within the main Project site boundaries. Without reliable data, an accurate impact assessment cannot be developed, and without an accurate impact assessment, one cannot conclude that Staff's proposed mitigation to avoid impacts to breeding ponds would reduce Project impacts to less than significant levels. This is reflected in the RSA's discussion of impacts associated with the Colorado River Substation:

> Staff has concluded that SCE's proposed expansion of the Colorado River Substation has the potential to result in significant direct, indirect and cumulative impacts to biological resources, in particular for sensitive dune-dependent plant species such as Harwood's eriastrum. Avoidance, minimization and compensation measures such as those described in staff's proposed Conditions of Certification BIO-19 ***could*** potentially reduce these impacts to less than significant levels. However, implementation of the avoidance measures described in these conditions of certification would ***require site specific information*** about the location of proposed project features in relation to sensitive plant species. Staff does not currently have that project-specific information and therefore ***cannot address the feasibility of implementing effective avoidance measures*** as a means of reducing significant impacts.[40]

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[37] Tetra Tech. 2009 Aug. Survey for Jurisdictional Waters and Wetlands at the Genesis Solar Energy Project Eastern Riverside County, California. Appendix B.
[38] Id.
[39] Tetra Tech. 2010 Jun 11. Fall 2009 and Spring 2010 Biological Resources Technical Report for the Genesis Solar Energy Project. ES-1.
[40] RSA, p. C.2-126 (emphasis added).

The Applicant has indicated surveys (related to Couch's spadefoot toad) have been scheduled for summer or early fall 2010.[41] As a result, Staff does not have the necessary "site specific information" to adequately mitigate significant impacts to Couch's spadefoot toad habitat. Furthermore, I reserve the right to submit supplemental testimony on this topic after the Applicant has provided the information necessary to evaluate existing conditions, Project impacts, and mitigation measures for the Couch's spadefoot toad.

A. The RSA Does Not Ensure Mitigation of Project Impacts to the Couch's Spadefoot Toad

While mitigation for impacts to Couch's spadefoot toad is necessary, the measures proposed by Staff must be revised to ensure they achieve their intended purpose. Condition of Certification BIO-27 (BIO-27) requires the Applicant to prepare and implement a Couch's Spadefoot Toad Protection and Mitigation Plan (Protection and Mitigation Plan) to avoid, minimize or mitigate impacts to Couch's spadefoot toads and their breeding habitat during construction and operation of the Project.[42] As part of the Protection and Mitigation Plan, the Applicant is supposed to provide habitat surveys (including methods and results); an impact assessment; and avoidance, minimization and mitigation measures.[43] BIO-27 requires the Applicant to submit the final Protection and Mitigation Plan no less than 30 days prior to construction-related ground-disturbance.[44]

The RSA establishes that Project mitigation plans "***cannot defer establishing reasonable performance standards and goals.***"[45] These plans "***must explicitly state***" the goals and they must provide guidelines for developing milestones and specific, quantitative success criteria.[46] Furthermore, they must establish thresholds that would trigger remedial actions, and provide information on what those remedial actions would be.[47] The plans should also provide an approximate outline and schedule for monitoring the success of the effort.[48] BIO-27 lacks many of these elements, which the RSA has established cannot be deferred to the future.

If complete avoidance of the pond south of I-10 or other breeding sites identified during yet to be conducted surveys is not possible, BIO-27 requires the Applicant to create "additional breeding habitats (ephemeral pond) at least equal in

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[41] Tetra Tech. 2010 Jun 11. Fall 2009 and Spring 2010 Biological Resources Technical Report for the Genesis Solar Energy Project. p. 17.
[42] RSA, p. C.2-276.
[43] Id., p. C.2-276, 277.
[44] Id., p. C.2-277.
[45] Id., p. C.2-123 (emphasis added).
[46] Id.
[47] Id., p. C.2-124.
[48] Id.

area to the acreage of ponds being impacted."[49] BIO-27 does not ensure mitigation of Project impacts to Couch's spadefoot toad for the following reasons.

1. BIO-27 Does Not Meet the Habitat Requirements of the Couch's Spadefoot Toad

Couch's spadefoot toads have three principal habitat requirements.[50] The mitigation proposed in BIO-27 addresses only *one* of these habitat requirements, and provides *no assurance* that this single habitat requirement will be met. Specifically, the only habitat requirement addressed by Staff's proposed mitigation is the need for the Applicant to create ponds capable of holding water for at least nine days during the spadefoot toad breeding season. Furthermore, the "breeding season" has been only loosely defined, and criteria for establishing it need to be provided in Staff's mitigation. Because BIO-27 does not require the created ponds to have water temperatures >15 °C, there is no assurance they will serve as suitable breeding sites.

Further, Staff's proposed mitigation has no provision for subterranean refuge sites or a sustainable food base—the other two habitat requirements for Couch's spadefoot toads.[51] These criteria must be incorporated into BIO-27 for the mitigation measure to have a reasonable possibility of success. Moreover, the proposed mitigation lacks any discussion of where created ponds would be located how they would be conserved in perpetuity, a funding mechanism for their creation, preservation, and management; and the water supply for meeting Staff's condition that they hold water for a minimum of nine days.

2. Performance Criteria Central to Reserve Design Are Not Incorporated into the Mitigation Scheme

The RSA suggests water quality, vehicle noise, and other anthropogenic disturbances may negatively affect Couch's spadefoot toads.[52] BIO-27 does not require the Applicant's mitigation to meet any minimum standards associated with these potentially influential variables. In addition, BIO-27 does not establish performance criteria for any of the issues (or considerations) central to reserve design. These include site selection, corridors, buffers, isolation, and fragmentation.[53] As noted by Staff, the Genesis Project is located at the western

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[49] Id., p. C.2-277.
[50] Jennings MR, MP Hayes. 1994. Amphibian and reptile species of special concern in California. Rancho Cordova, CA: California Dept. of Fish and Game, Inland Fisheries Division.
[51] Id.
[52] RSA, p. C.2-39.
[53] Morrison ML. 2002. Wildlife restoration: techniques for habitat analysis and animal monitoring. Washington (DC): Island Press.

edge of the Couch's spadefoot toad range.[54] Thus, any ponds that are created west of existing breeding ponds (i.e., outside the species' range) may be of no value to the existing population of spadefoots.[55]

3. Mitigation Does Not Impose Limits on Patch Size

Scientists that developed the California Wildlife Habitat Relationship model considered patch size to be an important consideration in habitat suitability for Couch's spadefoot toads.[56] In particular, once a certain patch size is reached, area alone does not increase habitat suitability. This is especially important because Staff's proposed mitigation does not require the Applicant to replicate the distribution and number of pools impacted by the Project; the condition only requires that mitigation be implemented for those acres that are impacted (e.g., the Applicant could create one "mega" pool to replace impacts to 10 well-distributed pools). Because distribution and abundance of pools may affect overall habitat suitability for Couch's spadefoot toads, minimum standards associated with them need to be incorporated into Staff's mitigation.

4. Potentially Significant Adverse Impacts of BIO-27

The RSA suggests the proposed mitigation may require ground disturbance (for example, soil compaction).[57] However, it does not appear to require an environmental impact analysis for the associated ground disturbance activities, habitat conversion, or water use (if an artificial water source is used). At a minimum, these elements of BIO-27 must be evaluated to ascertain whether there are any potentially adverse impacts stemming from Staff's proposed mitigation.

5. Monitoring Requirements

A management approach (e.g., creation of spadefoot toad breeding ponds) that is unsubstantiated by research is, in essence, a management experiment. Therefore, in the absence of empirical information, it cannot be relied on as a management solution. A rigorous monitoring program with built-in adaptive management measures is almost always necessary to achieve the desired outcome.[58]

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[54] RSA, p. C.2-86.

[55] Due to limitations in survey data, the precise border of the species' range is unknown. However, the example provided illustrates the need to consider variables central to reserve design when designing mitigation for the Couch's spadefoot toad.

[56] Laudenslayer WF Jr, California Department of Fish and Game. 2007. Species Notes for Couch's Spadefoot (*Scaphiopus couchii*): California Wildlife Habitat Relationships (CWHR) System Level II Model Prototype. Available at: nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=7135

[57] RSA, p. C.2-277.

[58] Morrison ML. 2002. Wildlife restoration: techniques for habitat analysis and animal monitoring. Washington (DC): Island Press.

However, the monitoring program established by the RSA lacks rigorous monitoring or adaptive management.

To establish an effective monitoring program, the parameters for monitoring need to reflect the goal(s) of the management action. In this case, Staff's goal is to mitigate Project impacts to Couch's spadefoot toads and their breeding habitat by creating substitute breeding habitat if avoidance is not possible. However, the only established monitoring requirement is to ensure created ponds hold water for at least nine days during the spadefoot toad breeding season.[59] The difference is subtle but extremely significant: the goal is to create substitute breeding habitat, ***not*** to create a pond that holds water for nine days (i.e., not all ponds that hold water for nine days provide breeding habitat). Therefore, Staff must incorporate monitoring that confirms spadefoot toads are breeding in any pond habitat that is created as mitigation.

IV. ADDITIONAL DATA IS NECESSARY TO ESTABLISH A COMPENSATORY MITIGATION PLAN

The RSA requires the Applicant to acquire compensation land in order to offset some of the Project's potentially significant impacts to biological resources.[60] However, Staff cannot conclude Project impacts would be fully mitigated by compensatory mitigation until details of the compensation plan have been provided by the Applicant. Such details would, at a minimum, include: the location and environmental qualities associated with the proposed compensation lands; an evaluation of the degree of disturbance, dumping, and historical structures (among other factors) that may require cleaning, fencing, repair, or demolition; the timeframe associated with the aforementioned work (if required) and whether additional lands or monies will be required to off-set the aforementioned impediments; and an evaluation of the threats and limiting factors at the compensation lands, including a discussion of how the threats and limiting factors affect desert tortoise populations and other sensitive biological resources for which the compensation lands are intended.[61]

A monitoring and adaptive management process is necessary to ensure compensation lands fully mitigate Project impacts. The RSA lacks criteria or an enforcement mechanism for this process. To ensure Project impacts are fully mitigated, expectations for long-term monitoring of compensation lands must be incorporated into the impact mitigation plan, including expectations for the establishment of success criteria and the triggers for implementing adaptive

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[59] RSA, p. C.2-277.

[60] RSA, p. C.2-231.

[61] *See, e.g.*, Memorandum from Heather Blair, Energy Commission Staff Biologist (Aspen Environmental Group) to Craig Hoffman, Energy Commission Project Manager, February 5, 2010 regarding Abengoa Mojave Solar – Project time-sensitive issues and informational needs, attached hereto as Attachment 4.

management. These expectations should incorporate a timeframe appropriate to the desert ecosystem, baseline and desired conditions of the acquisition site, and the increases in relative abundance that will result from habitat enhancement.

Lastly, desert habitat enhancement costs can be expensive.[62] The cost of comprehensive rehabilitation may exceed $10,000 per acre. In 1999, "modest" rehabilitation techniques implemented to expedite natural recovery reportedly cost $500 to $2,000 an acre.[63] These costs suggest that few habitat enhancement (or protection) measures can be accomplished with Staff's required funding of approximately $330/acre.[64] Although Staff recognizes that actual costs for habitat enhancement may vary,[65] $330/acre does not even come close to the possible $10,000/acre that may be needed.

V. THERE IS NO ASSURANCE THAT COMPENSATORY MITIGATION WILL OFFSET IMPACTS TO SPECIAL-STATUS BATS, AMERICAN BADGER AND KIT FOX

A. Special-Status Bats

According to the RSA,

> The Project site supports foraging and roosting habitat for several special-status bat species. Roosting opportunities for bats are available in tree cavities, soil crevices and rock outcroppings primarily within dry desert wash woodland habitats. Bats likely utilize habitats throughout the study area for foraging but forage more commonly when water is present within the desert washes when insects are more abundant. Implementation of the Project would result in loss of these foraging and roosting habitat opportunities for special-status bats that might occur in the Project area. As discussed in the cumulative impact subsection, staff considers the Genesis Project to be a substantial contributor to the cumulative loss of in the NECO Planning Area's biological resources, including habitat for these special-status bats. Staff's proposed Condition of Certification BIO-12, the desert tortoise compensatory mitigation plan and BIO-22, mitigation for impacts to state waters, would offset the cumulative loss of habitat for these species.[66]

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[62] *See* Hailey J, and D Bainbridge. 1999. Desert Restoration: Do something or wait a thousand years? [abstract] Mojave Desert Science Symposium; 1999 Feb 25-27, Las Vegas. USGS, Western Ecological Research Center [internet]. Available from: http://www.werc.usgs.gov/mojave-symposium/

[63] *Id.*

[64] RSA, p. C.2-232.

[65] Id.

[66] Id., p. C.2-91.

Staff's proposed Condition of Certification BIO-12 and BIO-22 would not necessarily offset the cumulative loss of habitat for special-status bat species. As noted in the RSA, roosting opportunities for bats are available in tree cavities, soil crevices and rock outcroppings.[67] The Project would eliminate these roosting habitat opportunities.[68] Because BIO-12 and BIO-22 do not require that compensation lands contain bat roosting substrate (i.e., tree cavities, soil crevices and rock outcroppings), Staff cannot conclude the proposed mitigation would reduce impacts to a less than significant level.

B. American Badger and Kit Fox

Staff concluded the Project would be a substantial contributor to the cumulative loss of the NECO Planning Area biological resources, including American badgers and kit fox. Specifically, the Project would permanently remove approximately 1,811 acres of foraging and denning habitat for American badgers and kit foxes and would fragment and reduce the value of foraging and denning habitat adjacent to the Project site.[69] However, with respect to these two species, Staff was only able to conclude proposed mitigation measures ***could*** offset the loss of habitat and reduce the Project impact to less-than-significant.[70] As a result, Project mitigation needs to be strengthened such that it ***will*** reduce the Project impact to less-than-significant.

VI. MITIGATION FOR POTENTIALLY SIGNIFICANT NOISE IMPACTS ON BIRDS IS INADEQUATE

The RSA requires avoidance of loud construction activities (e.g., unsilenced high pressure steam blowing and pile driving, or other) from February 15 to April 15 when it would result in noise levels over 60 dBA in nesting habitat.[71] Sixty dBA is not a sufficient no-effect threshold. Research on the effects of noise on birds indicates large intra and inter-species variations. [72] Site-specific assessments are therefore necessary to demonstrate site and species-specific thresholds. Because such assessments have not been conducted, the RSA has no basis to conclude noise levels up to 60 dBA would not result in significant impacts to nesting birds.

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[67] RSA, p. C.2-91.
[68] Id., p. C.2-91.
[69] Id. at p. C.2-92.
[70] Id., p. C.2-92.
[71] RSA, p. C.2-223.
[72] National Park Service. 1994. Report to Congress: Report on effects of aircraft overflights on the National Park System; Larkin R. 1996. Effects of military noise on wildlife: A literature review. USA CERL Technical Report [internet; cited 28 Sep 2008]. Available from: http://nhsbig.inhs.uiuc.edu/bioacoustics/noise_and_wildlife.pdf; Manci KM, DN Gladwin, R Villella, MG Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. National Ecology Research Center Report # NERC-88/29.

To the contrary, research on the effects of traffic noise on breeding birds concluded ambient noise up to a given level resulted in no reduction in the density of bird populations.[73] However, once an ambient noise threshold level was exceeded, densities decreased exponentially with increased noise.[74] Threshold levels were found to range from 36 to 58 decibels, depending on the species.[75] The results of this research were supported by Reijnen et al. (1997), who concluded sound levels above 50 dBA could be considered potentially deleterious to breeding birds. The average distance (from the source of noise) at which an effect was observed in the Reijnen et al. study was reported to be 1,000 m (3,280 feet).[76]

Furthermore, California Partners in Flight (2009) reports the avian breeding season in the Colorado Desert as extending from January 15 to July 15, with peak of egg initiation occurring on April 8.[77] Therefore, the RSA has proposed mitigation for only two of the six months during which Project noise is likely to impact nesting birds. In addition, due to inter-species variation in nesting chronology, Staff's proposed mitigation would be ineffective for some species. For example, the California Department of Fish and Game reports the peak breeding season for prairie falcons (a special-status species that breeds in the Project region)[78] as occurring from April to early August (i.e., generally outside of the dates Staff has required mitigation for noise impacts).[79] Therefore, Staff's proposed mitigation should be revised to require the Applicant to avoid loud construction activities from January 15th to August 15th.

The RSA concluded "[t]he infrequent occasions when construction activities would occur near the project boundary and resultant noise levels would be temporarily elevated beyond 60 dBA surrounding the project would not significantly impact sensitive wildlife."[80] The RSA's conclusion is not supported by scientific literature. In addition, the conclusion contravenes the RSA's discussion of potential Project impacts on golden eagles. Many wildlife species are more susceptible to

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[73] Kaseloo PA. 2006. Synthesis of noise effects on wildlife populations. IN: Proceedings of the 2005 International Conference on Ecology and Transportation, Eds. Irwin CL, Garrett P, McDermott KP. Center for Transportation and the Environment, North Carolina State University, Raleigh, NC: pp. 33-35.
[74] Id.
[75] Id.
[76] Reijnen R, R Foppen, G Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and planning and managing road corridors. Biodiversity and Conservation 6: 567-581.
[77] CalPIF (California Partners in Flight). 2009. Version 1.0. The Desert Bird Conservation Plan: a Strategy for Protecting and Managing Desert Habitats and Associated Birds in California. California.
Partners in Flight. http://www.prbo.org/calpif/plans.html.
[78] RSA, p. C.2-44.
[79] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).
[80] RSA, p. C.2-93.

adverse effects from "startle" due to impulsive noises, rather than "annoyance" due to a change in overall noise levels.[81] In discussing potential Project impacts to golden eagles, the RSA indicated a nestling being knocked from the nest by a *startled* adult would be considered an injury, and a nestling fed inadequately because adults were agitated due to construction-related noise and activity would also be considered substantial interference.[82] Both examples constitute "take" under the Bald and Golden Eagle Protection Act, and thus would be considered a significant impact. Accordingly, appropriate mitigation measures need to be developed to avoid and minimize the adverse effects associated with all Project noise regardless of its duration.

VII. THE PROJECT WOULD RESULT IN POTENTIALLY SIGNIFICANT IMPACTS TO GOLDEN EAGLES

A. The RSA Fails to Establish Existing Conditions for Golden Eagles

The USFWS has established *minimum* inventory and monitoring efforts that "are essential components" to avoiding and minimizing disturbance and other kinds of take of golden eagles.[83] The USFWS reports "[t]hese field efforts are the mutual responsibility of agencies authorizing activities and their permittees."[84]

The RSA indicates that the Applicant participated in funding helicopter surveys for golden eagle nests, but to date the results of the surveys are not available.[85] I concur with the USFWS that inventory data are essential to evaluating the impacts of a proposed activity and for avoiding and minimizing take of eagles. Consequently, data that conform to the minimum inventory requirements specified by the USFWS need to be provided before the RSA's proposed mitigation measures can be evaluated. I reserve the right to provide additional testimony on this topic after the Applicant has provided the requisite golden eagle inventory data.

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[81] National Park Service. 1994. Report to Congress: Report on effects of aircraft overflights on the National Park System; Larkin R. 1996. Effects of military noise on wildlife: A literature review. USA CERL Technical Report [internet; cited 28 Sep 2008]. Available from: http://nhsbig.inhs.uiuc.edu/bioacoustics/noise_and_wildlife.pdf; Manci KM, DN Gladwin, R Villella, MG Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. National Ecology Research Center Report # NERC-88/29.
[82] RSA, p. C.2-89.
[83] Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. p. 2.
[84] Id.
[85] RSA, p. C.2-42.

B. The RSA Fails to Provide Adequate Mitigation for Potentially Significant Project Impacts to Golden Eagles

Staff concluded that Project construction activities could potentially injure or disturb golden eagles if nests were established sufficiently close to Project boundaries to be affected by the sights and sounds of construction.[86] However, Staff concluded this impact would be reduced to less than significant levels through implementation of a Golden Eagle Monitoring and Management Plan ("BIO-28"). The triggers identified in this proposed mitigation include "evidence of Project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment."[87] Adaptive management is an important part of a monitoring program, but the triggers identified by Staff constitute disturbance, which is considered a take and prohibited under the Bald and Golden Eagle Protection Act ("Eagle Act").[88] If Project-related disturbance to golden eagles is a possibility, the Applicant needs to apply for a take permit and receive authorization from the USFWS. Aside from this issue, the adaptive management measures discussed by Staff are *reactive* (i.e., implemented after disturbance has occurred). Given the sensitivity and apparent decline of eagle populations in the West, Staff should require measures that are *proactive* (i.e., designed to avoid a disturbance).

Staff assessed the impacts of the Project to golden eagle foraging habitat, and concluded that the Project would contribute to the cumulative loss of golden eagle foraging habitat within the NECO planning area.[89] In addition, Staff concluded the Project would reduce the availability of foraging habitat in the Project area and could degrade foraging habitat through the introduction and spread of noxious weeds and an increase in human activity in the area.[90] With respect to these impacts, the RSA states:

> The potential for impacts to golden eagle foraging habitat can be minimized by the implementation of staff's proposed Conditions of Certification BIO-12 (acquisition of desert tortoise compensatory mitigation lands), BIO-22 (acquisition of state waters compensatory mitigation lands) BIO-14 (implementation of Weed Management Plan). As described in BIO-12, the acquisition of desert tortoise mitigation lands would be targeted for areas within and near the Chuckwalla Bench and the Chuckwalla DWMA. Because these targeted areas are

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[86] RSA, p. C.2-89.
[87] Id., p. C.2-278.
[88] *See* Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. p. 2-3.
[89] RSA, p. C.2-90.
[90] Id., p. C.2-90.

also within 10 miles of potential nesting sites for golden eagles, acquisition of these desert tortoise mitigation lands would also provide protected golden eagle foraging grounds.[91]

I have the following comments related to these statements:

First, the RSA has not made any conclusions regarding the significance of Project impacts after the proposed conditions (i.e., BIO-12, BIO-14, and BIO-22) have been implemented. I suspect this is because Staff *cannot* make any conclusions on significance until robust inventory data have been provided. It is my professional opinion that without the inventory data, one cannot conclude the proposed mitigation will reduce potentially significant Project impacts on golden eagles.

Second, acquisition of desert tortoise and state waters within 10 miles of *potential* nesting sites for golden eagles does not necessarily mitigate Project impacts. To help stem the decline in eagle populations, acquisition lands need to be within the foraging territory of *actual* nesting sites.

Third, research indicates golden eagles selectively use available habitat, and that they concentrate their foraging activities in select "core" areas.[92] In a study on spatial use and habitat selection of golden eagles in Idaho, Marzluff et al. (1997) concluded that there was substantial variation in home range size and habitat use among eagles, and that if such variation was ignored (by focusing on population averages), conservation strategies and biological descriptions will be inaccurate and rarely effective.[93] During the breeding season, eagles in Marzluff's study had home ranges as small as 480 acres, with 95% of the activity concentrated in core areas as small as 74 acres.[94] Home range size and behavior were a function of the types and configuration of prey habitat in the vicinity of the nest, and perhaps individual eagles.[95]

The results of this research have two important implications on the Project. First, in the absence of more appropriate empirical data, one should conclude Marzluff's results apply to the Project site, and thus the Project could eliminate a substantial amount of core habitat (perhaps all) used by at least one pair of breeding eagles. Under CEQA guidelines, such an impact is "substantial" and significant. Second, whereas acquisition of compensation land may help conserve foraging habitat for *some* eagle(s), it may be of little consequence to *the* eagle(s) whose core habitat has been eliminated by the Project. This is important because

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[91] Id.

[92] Marzluff JM, ST Knick, MS Vekasy, LS Schueck, TJ Zarriello. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. The Auk 114(4):673-687.

[93] Id.

[94] Id.

[95] Id.

not all eagles contribute equally to maintenance of the population.[96] For example, if all the suitable nest locations are fully-occupied, impacts leading to abandonment of a territory (either through destruction of the nest substrate or through not being re-occupied by either the original nesting pair or a new pair from the floater population) may have a significant negative impact to the area population.[97] Available prey base or intra-species competition may be additional relevant factors.[98]

Finally, The USFWS' Interim Golden Eagle Inventory and Monitoring Protocol[99] provides excellent recommendations for avoiding and minimizing take of golden eagles, and strong scientific (and legal) justification for implementing the recommended measures. In lieu of reproducing the content of the recommendations in my testimony, I have provided the USFWS Interim Golden Eagle Inventory and Monitoring Program as Attachment 5 to this testimony. The Commission should implement the recommendations in the USFWS' Interim Golden Eagle Inventory and Monitoring Protocol to conserve the golden eagle population and ensure Project compliance with the Eagle Act.

VIII. THE PROJECT WOULD RESULT IN POTENTIALLY SIGNIFICNAT IMPACTS TO NELSON'S BIGHORN SHEEP, BURRO DEER, AND YUMA MOUNTAIN LION

Nelson's bighorn sheep, burro deer, and Yuma mountain lion are special-status species that occur, or have the potential to occur in the Project area.[100]

A. Nelson's Bighorn Sheep

Staff has concluded that the Project site does not represent significant direct or indirect impacts to bighorn sheep habitat connectivity or foraging.[101] These conclusions were at least in part based on (1) the lack of sign or evidence of Nelson's bighorn sheep during field surveys; and (2) the Project Area not being within a known bighorn sheep corridor as identified in the NECO Plan.[102] These reasons do not provide sufficient rationale to conclude the Project would not cause significant impacts.

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[96] US Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior.
[97] US Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior.
[98] Id.
[99] Pagel et al. 2010.
[100] RSA, Biological Resources Table 3.
[101] Id., p. C.2-92.
[102] Id., p. C.2-47.

Specifically, bighorn sheep are known to opportunistically, and unpredicatably use habitat. Bighorn sheep are a naturally wary animal that is difficult to observe, even when present. Although sign (e.g., fecal pellets, tracks) can be used as an index of presence, the ability to detect it is subject to favorable environmental conditions (e.g., absence of wind, rain, or anthropogenic distrubance). Through my own scientific research on the Peninsular bighorn sheep, I have observed abundant bighorn sheep sign at my study site during one week, and a complete lack of sign at the ***same*** study site during the subsequent week following a rain event. Because the Applicant's surveys of the main Project site were conducted within a very narrow timeframe during the spring of 2009, chance alone would dictate a low probability of bighorn sheep detection, even if animals use the site.

In addition, during spring 2009 field surveys, the Applicant reported detecting tracks of burro deer in one location south of I-10 along the southern transmission line route.[103] Burro deer tracks were also reported along the transmission line and buffer area during spring 2010 field surveys.[104] It can be nearly impossible to distinguish deer tracks from bighorn tracks. It's unclear whether Staff considered this fact in formulating the conclusion that bighorn sheep sign were not observed during field surveys.

Without supporting information, the Project Area not being within a known bighorn sheep corridor as identified in the NECO Plan means very little. According to the NECO Plan, "[t]hese areas were mapped during a NECO workshop of several Bighorn Sheep biologists in June of 1997."[105] Additionally, Staff, the Applicant, and BLM have all indicated that the habitat modeling procedures used for the NECO Plan are inferior (in accuracy) to ground-based and field-verified delineation of habitats.[106] Thus, the NECO Plan is not evidence that the Project will not significantly impact bighorn sheep.

Finally, the conclusion presented in the RSA conflicts with the Applicant's conclusion regarding the Project's impacts to bighorn sheep. The Applicant concluded that the cumulative development of foreseeable projects ***would*** result in large-scale habitat loss and fragmentation that would potentially cause significant cumulative impacts to biological resources, including bighorn sheep.[107]

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[103] Id.
[104] Id.
[105] BLM and CDFG. 2002. Final Environmental Impact Statement. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan. Bureau of Land Management, California Desert, Riverside, CA. Appendix H.
[106] RSA, p. C.2-160.
[107] AFC, p. 5.3-33.

B. Burro Deer

The RSA concluded burro deer movement between the eastern portion of Ford Dry Lake and the Palen Wash ironwood forest would be impacted by the proposed Project.[108] However, the RSA further concluded the impact is not expected to be significant "because the importance of this linkage is already compromised by OHV and other human disturbance from the Wiley Well Rest Stop, and because the western portion of the ROW will be returned to BLM, thus allowing continued movement upslope into the Palen Wash and Palen Mountain Range from the west."[109]

The RSA's conclusion is contradicted by statements within the RSA itself. First, the RSA states "Ford Dry Lake and Dunes were formerly designated for OHV recreation, but now are closed to vehicles; therefore staff does not anticipate a significant increase in OHV use elsewhere in desert tortoise habitat as a result of the proposed Project."[110] Second, the RSA states "[t]he remote location of the site and the BLM's existing OHV use restrictions limit the direct impacts to these recreation uses."[111] Finally, the RSA states "[t]he GSEP site currently consists of largely undisturbed desert land."[112] Thus, the RSA's conclusion that the Project will not significantly impact burro deer movement is unsupported.

C. Yuma Mountain Lion

The Yuma mountain lion is a California Species of Special Concern. The RSA concluded the Yuma mountain lion likely uses the Project site.[113] However, the RSA lacks any discussion of Project impacts to the species, including whether mitigation is necessary to offset potentially significant impacts.

The Yuma mountain lion is a keystone species (a species that makes an unusually large contribution to community structure or processes).[114] Furthermore, because it regularly travels long distances, it can be used as a focal species in assessing landscape-level connectivity. With respect to the Project's impact on connectivity, the RSA concludes:

> The combined effect of the Project and all existing and probable future projects in NECO on connectivity within Chuckwalla Valley and the Palen-Ford WHMA is significant and thus the Project will contribute,

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[108] RSA, p. C.2-156.
[109] RSA, p. C.2-156.
[110] Id., p. C.2-195.
[111] Id., p. C.6-27.
[112] Id., p. C.6-4.
[113] Id., p. C.2-61.
[114] Meffe GK, CR Carroll. 1997. Principles of Conservation Biology, 2nd edition. Sinauer Associates, Inc., Sunderland, MA.

> at least incrementally, to a cumulatively considerable effect. The requirement in BIO-20 and BIO-22 to acquire habitat within Chuckwalla Valley and within the identified connectivity linkages would reduce the Project's contribution to cumulative effects to connectivity in Chuckwalla Valley and the Palen-Ford WHMA to a level less than cumulatively considerable.[115] Mitigation for cumulative effects to connectivity could be enhanced if desert tortoise acquisitions were targeted for areas that would enhance wildlife connectivity within the same WHMA and corridor, as described in Biological Resources Appendix B. Kit foxes, coyotes, and badgers are not NECO species and were not the reason for the establishment of the WHMAs; however, the acquisition of lands within the connectivity linkages described in Appendix B would also benefit kit fox, coyote, badger, and burro deer.[116]

The rationale used to support the conclusion that Staff's proposed mitigation would reduce impacts to a level less than cumulatively considerable is unsupported for several reasons. First, BIO-20 does not appear to require acquisition of habitat within an "identified" connectivity linkage. Second, BIO-22 does not require acquisition of habitat within the Chuckwalla Valley and within the "identified" connectivity linkages. Third, the RSA ***recommends***, but does not ***require***, the Applicant to acquire lands identified in Biological Resources Appendix B. Finally, the RSA enables the Applicant to satisfy mitigation requirements through fee payment instead of acquiring compensation lands. Thus, significant impacts to connectivity that may occur as a result of the Project remain unmitigated.

IX. THE PROJECT WILL RESULT IN SIGNIFICANT IMPACTS TO MOJAVE FRINGE-TOED LIZARD

The RSA indicates that the Project would indirectly affect 151 acres of Mojave fringe-toed lizard habitat downwind of the Project Disturbance Area.[117] The Applicant disagrees with Staff's assessment of the indirect impacts to Mojave fringe-toed lizard habitat, and asserts that the downwind "sand shadow" area that Staff considered affected by intrusion into the Palen-McCoy Valley Sand Transport Corridor does not provide suitable habitat for Mojave fringe-toed lizards.[118] Although the Applicant's assertion conflicts with the scientific literature,[119] and although the RSA identifies numerous flaws with the Applicant's argument, Staff

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[115] RSA, p. C.2-157.
[116] RSA, p. C.2-158.
[117] Id., p. C.2-1.
[118] Id., p. C.2-75.
[119] *See* Cablk ME, JS Heaton. 2002 Nov. Mojave Fringe-Toed Lizard surveys at the Marine Corps Air Ground Combat Center at Twentynine Palms, California and nearby lands administered by the Bureau of Land Management. California: Marine Corps Air Ground Combat Center. Report M67399-00-C-0005. 115 p.

has indicated it is willing to reconsider conclusions about the suitability of the 151 acres if the Applicant is able to provide additional information.[120] The information in the record clearly indicates the 151 acres in question *are* Mojave fringe-toed lizard habitat. As such, a reversal of Staff's assessment would constitute a remarkable change to the Project description, impact assessment, and mitigation measures. Consequently, I reserve the right to provide additional testimony on this topic once Staff has made a final decision on the issue.

The RSA provides a relatively thorough discussion of the numerous indirect impacts of the Project on Mojave fringe-toed lizard habitat. These include mortality from vehicle strikes; introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; fragmentation and degradation of remaining habitat; increased road kill hazard from operations traffic; harm from accidental spraying or drift of herbicides and dust suppression chemicals; and an increase in access for avian predators (such as loggerhead shrikes) due to new perching structures.[121] In addition, the Project's effect on sand transport is expected to gradually eliminate habitat for Mojave fringe-toed lizards in downwind areas.[122] The Mojave fringe-toed lizards in the Chuckwalla Valley are at the southernmost portion of the species range, and the proposed Project could increase the risks of local extirpation of an already fragmented and isolated population.[123]

Staff notes that in many cases, "the anticipated indirect impacts are more significant, or adverse, then the direct loss of habitat."[124] In this case, the Project would result in numerous indirect impacts, which would predictably be severe on Mojave fringe-toed lizard populations. Nonetheless, Staff has recommended a mitigation ratio of only 0.5:1 for indirect impacts to habitat.[125] This ratio needs to be increased to at least 1:1 so that it is commensurate with the predicted impacts and Staff's conclusion on the severity of those impacts.

X. THE PROJECT POSES POTENTIALLY SIGNIFICANT UNMITIGATED IMPACTS TO SPECIAL-STATUS PLANTS

Based on consultation with recognized experts in the flora of the California Desert region, Staff concluded that late season surveys must be conducted to determine the Project's potentially significant impacts to special-status plants.[126] I concur. However, I disagree with Staff's conclusion that the RSA's proposed mitigation will reduce potentially significant impacts to special-status plants.

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[120] RSA, p. C.2-76.
[121] RSA, p. C.2-75.
[122] Id., p. C.2-205.
[123] Id.
[124] Id., p. C.2-173.
[125] Id., p. C.2-68.
[126] Id., p. C.2-101.

Without reliable information on the species that occur—and as a result, the level and types of Project impacts on those species—the RSA cannot conclude proposed mitigation would reduce Project impacts to less than significant levels. A conclusion of this nature would rely on the presumption that all impacts can be mitigated to a less than significant level. Such a presumption is unrealistic for two reasons. First, it is difficult to predict the outcomes of surveys due to the new and unexpected discoveries that have been occurring in the desert (and thus the inability to pre-assign mitigation). Second, the flora of the Desert Floristic Province is poorly understood and therefore surveys may yield completely unexpected results that cannot be mitigated by standard conditions.

The RSA acknowledges these limitations. In reference to plant species that may occur in the location of the proposed Colorado River Substation expansion, it states,

> implementation of the avoidance measures described in these conditions of certification would require site-specific information about the location of proposed project features in relation to sensitive plant species. Staff does not currently have that project-specific information and therefore ***cannot address the feasibility of implementing effective avoidance measures*** as a means of reducing significant impacts.[127]

I agree with Staff's conclusion that it is impossible to determine the feasibility of avoidance measures without the knowing the location of Project features in relation to special status plant species. The location of special status plant species in relation to the Project footprint will be unknown until fall surveys are conducted. As a result, Staff cannot conclude that proposed mitigation will reduce the Project's potentially significant impacts on special-status plants. In addition, I reserve the right to provide additional testimony on this topic once the Applicant has provided the fall survey data necessary to evaluate the feasibility of implementing effective avoidance measures as a means of reducing significant impacts.

XI. THE RSA DOES NOT ADEQUATELY ESTABLISH THE BASELINE FOR GROUNDWATER-DEPENDENT VEGETATION COMMUNITIES THAT WILL BE POTENTIALLY IMPACTED BY THE PROJECT

The RSA states that the "study area" supports desert wash dry woodland, a vegetation community characterized by the presence of groundwater-dependent, or "phreatophytic" plant species. Desert dry wash woodlands are designated a special natural community by the California Department of Fish and Game (CDFG) and the Bureau of Land Management (BLM), and they are designated as Waters of the State.[128] Although the RSA does not clearly define the "study area," it cites to the

[127] RSA, p. C.2-126.
[128] Id., p. C.2-17.

AFC and suggests that the "study area" refers to the area surveyed for the Project.[129] I searched the Biological Resources section of the AFC[130] and the Biological Resources Technical Report[131] submitted by the Applicant, and neither document defines the study area. For the public and resources agencies to be able to analyze the environmental effects of the Project, the "study area" considered in Staff's analysis needs to be defined.

The RSA states that the Project pumping impact zone "includes an area extending 2 to 3 miles from the Project pumping well during construction and approximately 10 miles by the end of the Project operation."[132] The RSA depicts a substantial amount of desert wash dry woodland within a 10-mile radius of the Project.[133] Additionally, an old growth desert ironwood (*Olneya tesota*) stand, a documented groundwater-dependent, keystone species[134] within the Sonoran Desert ecosystem, is located approximately five miles north of the Project site.[135] Field data submitted by the Applicant does not indicate that these desert dry wash woodland communities were included in the study area. Therefore, neither the Applicant nor Staff have provided a thorough assessment of the groundwater-dependent vegetation communities that may be affected by the Project.

XII. THE RSA HAS NOT RESOLVED SUBSTANTIAL UNCERTAINTIES REGARDING THE PROJECT'S SHORT- AND LONG-TERM IMPACTS ON GROUNDWATER-DEPENDENT RESOURCES

A. Hydrologic Associations Between Chuckwalla Valley Aquifers and Communities of Groundwater Dependent Vegetation

Throughout the RSA, Staff repeatedly points to the overwhelming uncertainties associated with the Project's predicted influence on groundwater resources and the consequent impacts on groundwater-dependent vegetation communities. The Applicant has used reports by Worley Parsons[136] to support its assertion that groundwater pumping for the construction and operation of the Project will not adversely affect the shallow-water aquifer on which groundwater-dependent plant species rely. While I am not testifying on the scientific findings of

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[129] Id., p. C.2-14.
[130] Genesis Solar Energy Project/T. Bernhardt . (2009) Application for Certification for the Genesis Solar Energy Project. Submitted to California Energy Commission Docket Unit on August 31, 2009.
[131] Genesis Solar Energy Project Biological Resources Technical Report (2009). Prepared by Tetra Tech EC, Inc. August 2009.
[132] RSA, p. C.2-117.
[133] RSA, Biological Resources Figure 11-B.
[134] Suzan, Humberto, Gary P. Nabhan, and Duncan T. Patten. (1996) The Importance of Olneya tesota as a Nurse Plant in the Sonoran Desert. *Journal of Vegetation Science*, 7(5), 635-644.
[135] RSA, p. C.2-118.
[136] WorleyParsons (2009) *Technical Memorandum - Groundwater Resources Cumulative Impact Analysis for Genesis Solar Power Project*, Riverside County, CA.

these reports, it is pertinent to underscore that both Staff and Worley Parsons have expressed widespread uncertainty in the information that has been presented.

The Applicant asserts that due to geologic formations termed "low permeability layers," Project groundwater pumping from deep aquifers will not affect the shallow alluvial groundwater system that supports phreatophytic communities.[137] However, Staff directly questions the reliability of this claim. The RSA cites Deacon et al (2007) to emphasize that the lack of an adverse effect cannot be accurately predicted due to the frequent fracturing of the confining layers.[138] In addition, neither the Applicant nor Staff know which basin aquifer supports the various groundwater-dependent plant communities that occur in the Project region. The RSA reports, "it is uncertain whether the phreatophytes around Ford Dry Lake are supported by the basin aquifer (from which the Project would draw its water) or mountain front aquifer, which the Applicant has stated would be essentially unaffected."[139] Although Staff was willing to provide an unsubstantiated assumption on the groundwater-dependent communities it does not "expect" to be impacted by Project water usage, Staff has admitted that it "has insufficient data on which to base such an assumption."[140] Due to the recognized uncertainty and lack of scientific data, there is no evidence to support the Applicant's conclusion that the Project will not significantly impact groundwater dependent vegetation.

B. Cumulative Impacts on Regional Groundwater Dependent Resources

In addition to the uncertainties associated with the Project's impacts, there are uncertainties associated with the analyses of the cumulative impacts to regional groundwater levels from the operations of multiple independent projects. The Chuckwalla Valley Groundwater Basin, in which the Genesis Project and many other foreseeable projects would be located, has not been thoroughly studied and the hydrological response to increased groundwater pumping is unknown. As stated by Worley Parsons, the various groundwater needs that are projected to increase in the western portion of the basin can have unforeseen consequences on regional hydrology. Specifically, it stated "the western portion of the basin ***may*** be expected to respond differently than the eastern portion of the basin during pumping. Thus, although they are part of the same groundwater basin, a more detailed analysis of these two portions of the basin is warranted."[141] In the RSA, Staff reports it expects that the effects of the proposed Palen project pumping well, located directly to the west of the Genesis Project, "would be greater and be felt as much as a decade

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[137] RSA, p. C.2-118.
[138] Deacon, JE, AE Williams, C. Deacon Williams, and JE Williams. (2007) Fueling Population Growth in Las Vegas: How large-scale groundwater withdrawl could burn regional biodiversity. *BioScience*, 57(8), 688-698.
[139] RSA, p. C.2-118.
[140] Id., p. C.2-122.
[141] WorleyParsons, 2009 p. 6 (emphasis added).

sooner than the end-of-operation effects of the Genesis Project."[142] Both statements demonstrate the extreme level of uncertainty associated with this Project, its direct and cumulative impacts to groundwater levels, and the associated ecological ramifications.

C. Ecological Ramifications

The high level of uncertainty on Project impacts is of utmost importance in an ecosystem already stressed by water shortages and subject to climate change. Water is the most limiting factor to ecosystem health and viability in the Sonoran Desert.[143] Research cited in the RSA indicates, "lowering the local water table from groundwater pumping has also been demonstrated to induce habitat conversions."[144] Thus, not only would the Project have a potentially significant impact on sensitive phreatophytic vegetation communities, but it may also cause landscape conversion that would impact habitat for multiple special-status species that occur in the Project region.[145] The extreme ecological consequences associated with alterations to groundwater resources dictate the need for reliable and accurate data before Project approval.

XIII. THE GROUNDWATER-DEPENDENT VEGETATION MONITORING PLAN DOES NOT MITIGATE POTENTIALLY SIGNIFICANT PROJECT IMPACTS

A. Clarification of the Scope of the Groundwater-Dependent Vegetation Monitoring Plan

Because of the considerable uncertainty regarding the impact that the Project's groundwater usage will have on groundwater-dependent vegetation communities, Staff has required the Applicant to prepare and implement a Groundwater-Dependent Vegetation Monitoring Plan ("Monitoring Plan"). The RSA states that the Monitoring Plan "shall focus on areas containing obligate or facultative phreatophytes (mesquite, ironwood, bush seep-wood, palo verde, cat's claw, smoke tree, and tamarisk) in areas that are most likely to be influenced by groundwater (low-lying areas in the basin floor)."[146] By definition, all phreatophytes are influenced by groundwater,[147] and thus to provide proper

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[142] RSA, p. C.2-118.
[143] Dimmitt, Mark A., "Plant Ecology of the Sonoran Desert Region." http://www.desertmuseum.org/books/nhsd_plant_ecology.php Accessed on 6/17/2010.
[144] RSA, p. C.2-119.
[145] Genesis Solar Energy Project/T. Bernhardt (2009) ; Solar Millennium (2009), *Application for Certification Vol 1 & 2 for the Palen Solar Power Project.* as cited in California Energy Commission 2009.
[146] RSA, p. C.2-272.
[147] Wikipedia contributors. Phreatophyte [Internet]. Wikipedia, The Free Encyclopedia; 2009 Jun 8, 21:45 UTC [cited 2010 Jun 18]. Available from: http://en.wikipedia.org/wiki/Phreatophyte.

mitigation, all areas with groundwater-dependent communities must be monitored (i.e., not just low-lying areas). This is critical due to the fact that groundwater is not uniform in distribution or extent, pumping impacts on groundwater levels are uncertain, and the impacts become increasingly uncertain with distance from the pump.[148]

B. Weaknesses of Vegetation Monitoring Plan

I concur with Staff that the Monitoring Plan requires baseline data prior to the start of groundwater pumping.[149] However, the design of the Monitoring Plan itself is inadequate based upon the minimal information outlined in the RSA. As noted in the RSA, Staff cannot defer the establishment of a plan's performance standards and goals.[150] Specific shortcomings of the Groundwater-Dependent Vegetation Monitoring Plan ("BIO-25") are detailed below:

First, BIO-25 specifies the use of reference monitoring sites as control locations to compare groundwater-dependent communities within the Project impact zone to those unaffected by potential groundwater pumping impacts. However, the RSA establishes few selection criteria for the reference sites. Because hydrological and geological parameters must be consistent between the reference sites and the Project monitoring sites, and because scientific certainty of these parameters is lacking even within the Project area, the selection of reference sites will be extremely problematic and unreliable. As stated by Staff, "the calculations and assumptions used to evaluate potential Project impacts to groundwater levels are imprecise and have limitations and uncertainties associated with them."[151]

Additionally, the RSA does not establish the minimum number of reference sites that need to be included in the study, nor does it establish whether each unique vegetation assemblage in the Project "impact zone" will be represented by reference sites.

Also, in addition to groundwater, numerous other variables may impact plant vigor and health, (e.g., insects, disease, age, slope, aspect and various microclimatic variables). To effectively isolate the effect of groundwater pumping, the Monitoring Plan needs to consider these variables in its analyses. The reference monitoring sites will be critical indicators of adverse impacts from which decisions to take remedial action will be made. They must therefore be incorporated into a much more comprehensive and appropriately designed Monitoring Plan before the Commission makes a decision on the Project. As currently written, the RSA defers preparation of the Plan to the Applicant, after the Energy Commission's final

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[148] RSA, p. C.2-120.
[149] Id., p. C.2-273.
[150] Id., p. C.2-123.
[151] Id., p. C.2-120.

decision. In my opinion, such deferral almost certainly ensures an inadequate plan given the Applicant's insistent argument that the Project would have no effect, and that remedial actions should not be required.[152] As a result, Staff must establish a more rigorous and scientifically defensible study plan that has undergone peer review by the appropriate experts.

Second, BIO-25 states that the Monitoring Plan must include field techniques for measuring drought response. While Staff acknowledged that the list of field measurements in the RSA represents a minimum requirement, the list is incomplete and cannot be deemed sufficient. Specifically, the RSA states "Staff ***expects*** that stress to woody species, such as mesquite, from declines in groundwater levels would be detected in measures of plant vigor, such as die-back, long before plant cover changes might be measureable in an aerial photo."[153] ***Expectations*** of stress responses in vegetation that have not yet been thoroughly studied cannot form the basis of a robust scientific monitoring program. Many drought-tolerant species have physiological responses to reduced water availability that are not immediately obvious in changes in plant vigor.[154] Recruitment and reproductive capacities of target species may decline, but not necessarily manifest through obvious changes in plant vigor. Additionally, the beneficial relationship between the groundwater-dependent vegetation species and root mycorrhizae, which are critical to plant and soil health, would be ignored.[155] Specific monitoring protocols that are both robust and supported by the scientific literature must be provided in detail before Staff can conclude the proposed mitigation will reduce impacts to a level considered less than significant.

Finally, the RSA states that the Monitoring Plan must include "a description of the biological and ecological characteristics of groundwater-dependent species and natural communities."[156] This information is a critical component of both the Project description and in determining the adequacy of the Monitoring Plan. As a result, it cannot be deferred until after Project approval. Of significant importance is a prior and robust understanding of site-specific root growth and water acquisition characteristics of all target groundwater-dependent species. A drawdown in groundwater below the effective rooting level can be deleterious, even at modest amounts of 0.3 feet. As stated in the RSA, "when groundwater levels are lowered beyond the normal reach of groundwater-dependent ecosystems, the decline in plant cover and change in species abundance can result in *severe*

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[152] Galati Blek LLP (2010), *Genesis Solar, LLC's Proposed Biology Conditions of Certification Docket No. (09-AFC-8).* Submitted April 29, 2010.
[153] RSA, p. C.2-118.
[154] Allen, Michael F. and Michael G. Boosalis (1983) Effects of Two Species of VA Mycorrhizal Fungi on Drought Tolerance of Winter Wheat. *New Phytologist*, 93, 67-76.
[155] Cho, Keunho, Heather Toler, Jaehoon Lee, Bonnie Ownley, Jean C. Stutz, Jennifer L. Moore, and Robert M. Auge. (2006). Mycorrhizal Symbiosis and Response of Sorghum Plants to Combined Drought and Salinity Stresses. *Journal of Plant Physiology,* 163, 517-528.
[156] RSA, p. C.2-274.

consequences."[157] The Monitoring Plan should be based on specific and documented physiological data, including the effective rooting level and its relation to the current groundwater table, before data collection for Project impacts on groundwater-dependent vegetation begins. Research conducted by Cooper et al. (2006) indicates that both the magnitude and rate of water table decline can affect phreatophytic species.[158] Because water usage by the Project will vary during its construction phase and throughout the year, data on the magnitude and rate of water table decline, as well as the relation to the effective rooting level of groundwater-dependent vegetation in the Project area, is necessary before the Monitoring Plan can be considered satisfactory. These data will also be of great importance for remedial action requirements in the event of Project-induced adverse ecological impacts.

XIV. CONDITION OF CERTIFICATION BIO-26, REMEDIAL ACTION FOR ADVERSE EFFECTS TO GROUNDWATER-DEPENDENT BIOLOGICAL RESOURCES, FAILS TO ESTABLISH ADEQUATE MITIGATION

The proposed remedial action ("BIO-26") for potential adverse impacts on groundwater-dependent vegetation communities fails to address landscape-level ecological disturbances associated with water shortages. Because relocating the well or decreasing its usage are the only required remediation measures, BIO-26 fails to address any realized impacts that may have already occurred as a result of Project pumping (e.g., tree mortality).

Desert ironwood (*Olneya tesota*) and palo verde (*Cercidium* spp.) are extremely important groundwater-dependent keystone species with multiple ecological roles. These species constitute much of the desert dry wash woodland identified within the Project impact zone. Both species are considered "nurse plants" and ecological "modifiers" for their critical associations with desert biodiversity and microclimate regulation. Ironwood is known to be associated with more than 160 plant species and reports indicate up to 424 species of fauna use these trees for refuge, perching and resting.[159] Both ironwood and palo verde are leguminous, and therefore extremely important in soil nitrogen content and nutrient cycling. Therefore, if mortality to groundwater-dependent communities occurs as a result of the Project, the Applicant must provide mitigation to replace the lost functions and values. Indeed, Staff states that in many cases, "the anticipated indirect impacts are more significant, or adverse, then the direct loss of

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[157] Id., pp. C.2-118-119 (emphasis added).

[158] Cooper, David J, John S. Sanderson, David I. Stannard, and David P. Groeneveld. (2006) Effects of Long-Term Water Table Drawdown on Evapotranspiration and Vegetation in an Arid Region Phreatophyte Community. *Journal of Hydrology*, 325, 21-34.

[159] Zuniga-Tovar, B. and H. Suzan-Azpiri (2010) Comparative Population Analysis of Desert Ironwood (Olneya tesota) in the Sonoran Desert, *Journal of Arid Environments*, 74, 173-178.

habitat."[160] Despite this conclusion, the RSA fails to provide mitigation for lost functions and values that groundwater-dependent communities clearly provide.

If remedial action is in fact deemed necessary, substantial uncertainty remains regarding the time required for groundwater resources to regain their previous levels. Research conducted by Webb and Leake (2006) shows that even if groundwater pumpage from well activities stop, outflow from the impacted aquifers would still be reduced until cones of depression from the well refilled.[161] Without clear and well-defined remediation guidelines to address these ecosystem disturbances and potential long-term consequences, BIO-26 is an insufficient and incomplete mitigation strategy.

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[160] RSA, p. C.2-173.

[161] Webb, Robert H. and Stanley A. Leake. (2006) Ground-water Surface-water Interactions and Long-term Change in Riverine Riparian Vegetation in the Southwestern United States. *Journal of Hydrology*, 320, 302-323.

EXHIBIT 501

Declaration of Scott Cashen
Genesis Solar Energy Project

Docket 09-AFC-8

I, Scott Cashen, declare as follows:

1) I am an independent biological resources consultant. I have been operating my own consulting business for the past three years. Prior to starting my own business I was the Senior Biologist for TSS Consultants.

2) I hold a Master's degree in Wildlife and Fisheries Science. My relevant professional qualifications and experience are set forth in the attached testimony and are incorporated herein by reference.

3) I prepared the testimony attached hereto and incorporated herein by reference, relating to the biological resource impacts of the Genesis Solar Energy Project.

5) It is my professional opinion that the attached testimony and maps contained therein are true and accurate with respect to the issues that they address.

6) I am personally familiar with the facts and conclusions described within the attached testimony and maps, and if called as a witness, I could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 6-18-10 Signed: _____

At: Walnut Creek, CA

EXHIBIT 502

Scott Cashen, M.S.
Senior Biologist / Forest Ecologist
3264 Hudson Avenue, Walnut Creek, CA 94597. (925) 256-9185. scottcashen@gmail.com

In his 17 years in the profession, Scott Cashen has consulted on projects pertaining to wildlife and fisheries ecology, avian biology, wetland restoration, and forest management. Because of his varied experience, Mr. Cashen is knowledgeable of the link between the various disciplines of natural resource management, and he is a versatile scientist.

Mr. Cashen's employment experience includes work as an expert witness, wildlife biologist, consulting forester, and instructor of Wildlife Management. He has worked throughout California, and he is knowledgeable of the different terrestrial and aquatic species and habitats present in the state.

Mr. Cashen is an accomplished birder and is able to identify bird species by sight and sound. His knowledge has enabled him to survey birds throughout the United States and instruct others on avian identification. Mr. Cashen's research on avian use of restored wetlands is currently being used by the United States Fish and Wildlife Service to design wetlands for specific "target" species, and as a model for other restored wildlife habitat monitoring projects in Pennsylvania. In addition to his bird experience, Mr. Cashen has surveyed for carnivores, bighorn sheep, and other mammals; special-status amphibian species; and various fish species.

PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

Mr. Cashen serves as the biological resources expert for the San Francisco law firm of Adams Broadwell Joseph & Cardozo. He is responsible for reviewing CEQA/NEPA documents, assessing biological resource issues, preparing written comments, providing public testimony, and interfacing with public resource agencies.

REPRESENTATIVE EXPERIENCE

- Victorville 2 Solar-Gas Hybrid Power Project: Victorville, CA (338-acre natural gas and solar energy facility) – Review of CEQA equivalent documents and preparation of written documents.
- Avenal Energy Power Plant: Avenal, CA (148-acre natural gas facility) – Review of CEQA equivalent documents and preparation of written documents.
- Ivanpah Solar Electric Generating System: Ivanpah, CA (3700-acre solar facility) – Review of CEQA equivalent documents and preparation of written documents.
- Carrizo Energy Solar Farm: San Luis Obispo County, CA (640-acre solar energy facility) – Review of CEQA equivalent documents. Preparation of data requests, comments on Preliminary Staff Assessment, comments on wildlife corridor model

(CEQA equivalent documents).

- Live Oak Master Plan: Hanford, CA (390-acre housing development) – Review of CEQA documents and preparation of comment letter.
- Rollingwood: Vallejo, CA (214-unit housing development) – Review of CEQA documents and preparation of comment letter.
- Columbus Salame: Fairfield, CA (430,000 ft^2 food processing plant) – Review of CEQA documents and preparation of comment letter.
- Concord Naval Weapons Station: Concord, CA (5028-acre redevelopment) – Review of CEQA documents, preparation of comment letters, and provision of public testimony at County hearings.
- Chula Vista Bayfront Master Plan: Chula Vista, CA (556-acre development) – Review of CEQA documents and preparation of comment letter.
- Beacon Solar Energy Project: California City, CA (2012-acre solar facility) – Review of CEQA equivalent and NEPA documents. Preparation of data requests, comments on Preliminary Staff Assessment, comments on Incidental Take Permit Application. Expert witness providing testimony at California Energy Commission hearings.
- Solar One Power Project: San Bernardino County, CA (8230-acre solar facility) – Review of CEQA equivalent and NEPA documents and preparation of data requests. Expert witness providing testimony at California Energy Commission hearings.
- Solar Two Power Project: Imperial County, CA (6500-acre solar facility) – Review of CEQA equivalent and NEPA documents. Preparation of data requests and other documents for case record. Expert witness providing testimony at California Energy Commission hearings.
- Alves Ranch: Pittsburgh, CA (320-acre housing development) – Review of CEQA documents.
- Roddy Ranch: Antioch, CA (640-acre housing and hotel development) – Review of CEQA documents and preparation of comment letter.
- Aviano: Antioch, CA (320-acre housing development) – Review of CEQA documents.
- Western GeoPower Power Plant and Steamfield: Geyserville, CA (887-acre geothermal facility) – Review of CEQA documents and preparation of comment letter.
- Sprint-Nextel Tower: Walnut Creek, CA (communications tower in open space preserve) - Review of project documents and preparation of comment letter.

Project Management

Mr. Cashen has managed several large-scale and high profile natural resources investigations. High profile projects involving multiple resources often require consideration of differing viewpoints on how resources should be managed, and they are usually subject to intense scrutiny. Mr. Cashen is accustomed to these challenges, and he

is experienced in facilitating the collaborative process to meet project objectives. In addition, the perception of high profile projects can be easily undermined if inexcusable mistakes are made. To prevent this, Mr. Cashen bases his work on solid scientific principles and proven sampling designs. He also solicits input from all project stakeholders, and provides project stakeholders with regular feedback on project progress. Mr. Cashen's educational and project background in several different natural resource disciplines enable him to consult on multiple natural resources simultaneously and address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

- Forest health improvement projects – Biological Resources *(CDF: San Diego and Riverside Counties)*
- San Diego Bark Beetle Tree Removal Project – Biological Resources, Forestry, and Cultural Resources *(San Diego Gas & Electric: San Diego Co.)*
- San Diego Bark Beetle Tree Removal Project - Forestry *(San Diego County/NRCS)*
- Mather Lake Resource Management Study and Plan – Biological Resources, Hydrology, Soils, Recreation, Public Access, CEQA compliance, Historic Use *(Sacramento County: Sacramento)*
- "KV" Spotted Owl and Northern Goshawk Inventory *(USFS: Plumas NF)*
- Amphibian Inventory Project *(USFS: Plumas NF)*
- San Mateo Creek Steelhead Restoration Project – TES species, Habitat Mapping, Hydrology, Invasive Species Eradication, Statistical Analysis *(Trout Unlimited and CA Coastal Conservancy: Orange County)*
- Hillslope Monitoring Project – Forest Practice Research *(CDF: throughout California)*
- Placer County Vernal Pool Study – Plant and Animal Inventory, Statistical Analysis *(Placer County: throughout Placer County)*
- Weidemann Ranch Mitigation Project – Mitigation Monitoring and Environmental Compliance *(Toll Brothers, Inc.: San Ramon)*
- Delta Meadows State Park Special-status Species Inventory – Plant and Animal Species Inventory, Special-status Species *(CA State Parks: Locke)*
- Ion Communities Biological Resource Assessments – Biological Resource Assessments *(Ion Communities: Riverside and San Bernardino Counties)*
- Del Rio Hills Biological Resource Assessment – Biological Resource Assessments *(The Wyro Company: Rio Vista)*

Biological Resources

Mr. Cashen has a diverse background in biology. His experience includes studies of a variety of fish and wildlife species, and work in many of California's ecosystems. Mr. Cashen's specialties include conducting comprehensive biological resource assessments, habitat restoration, species inventories, and scientific investigations. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, and forest carnivores. Mr. Cashen was responsible for the special-status species inventory of Delta Meadows State Park, and for conducting a research study for Placer County's Natural Community Conservation Plan.

REPRESENTATIVE EXPERIENCE

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-status Species Inventory *(CA State Parks: Locke)*
- Study design and lead bird surveyor - Placer County Vernal Pool Study *(Placer County: throughout Placer County)*
- Surveyor - Willow flycatcher habitat mapping *(USFS: Plumas NF)*
- Independent surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects *(Ducks Unlimited/USGS: San Pablo Bay)*
- Study design and Lead Investigator - Bird use of restored wetlands research *(Pennsylvania Game Commission: throughout Pennsylvania)*
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County *(HCV Associates: Napa)*
- Surveyor - Baseline inventory of bird abundance following diesel spill *(LFR Levine-Fricke: Suisun Bay)*
- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site *(City of Fairfield: Fairfield, CA)*
- Surveyor - Burrowing owl relocation and monitoring of artificial habitat *(US Navy: Dixon, CA)*
- Surveyor - Pre-construction raptor and burrowing owl surveys *(various clients and locations)*
- Surveyor - Backcountry bird inventory *(National Park Service: Eagle, Alaska)*
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys *(USFS: Plumas NF)*
- Surveyor - Foothill yellow-legged frog surveys *(PG&E: North Fork Feather River)*
- Surveyor - Mountain yellow-legged frog surveys *(El Dorado Irrigation District: Desolation Wilderness)*
- Crew Leader - Bullfrog eradication *(Trout Unlimited: Cleveland NF)*

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys *(USFS: Plumas NF)*
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping *(City of Fairfield: Fairfield, CA)*
- GPS Specialist - Salmonid spawning habitat mapping *(CDFG: Sacramento River)*
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use *(CA Coastal Conservancy: Gualala River estuary)*
- Crew Leader - Exotic species identification and eradication *(Trout Unlimited: Cleveland NF)*

Mammals

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)
- Scientific Advisor – Red Panda survey and monitoring methods *(The Red Panda Network: CA and Nepal)*
- Surveyor - Forest carnivore surveys *(University of CA: Tahoe NF)*
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals *(US Navy: Skagg's Island, CA)*

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the science review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.

- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units *(CDF: San Diego, San Bernardino, and Riverside Counties)*
- Biological Resources Expert – Peer review of CEQA/NEPA documents (*Adams Broadwell Joseph & Cardoza: California)*
- Lead Consultant - Pre- and post harvest biological resource assessments of tree removal sites *(SDG&E: San Diego County)*
- Crew Leader - T&E species habitat evaluation for BA in support of a steelhead restoration plan *(Trout Unlimited: Cleveland NF)*
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park *(County of Sacramento: Sacramento, CA)*
- Lead Investigator - Wrote Biological Resources Assessment for 1,070-acre Alfaro Ranch property *(Yuba County, CA)*
- Lead Investigator - Wildlife Strike Hazard Management Plan *(HCV Associates: Napa)*
- Lead Investigator - Del Rio Hills Biological Resource Assessment *(The Wyro Company: Rio Vista, CA)*
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: CWHR validation *(University of California: Tahoe NF)*

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. During that time, Mr. Cashen has consulted with landowners and timber harvesters on best forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CDF fuels treatment projects *(CDF: San Diego, Riverside, and San Bernardino Counties)*
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project *(SDG&E: San Diego)*
- Crew Leader - Hillslope Monitoring Program *(CDF: throughout California)*
- Consulting Forester – Inventory and selective harvest projects *(various clients throughout California)*

EDUCATION / SPECIAL TRAINING

M.S. Wildlife and Fisheries Science, The Pennsylvania State University (1998)

B.S. Resource Management, The University of California-Berkeley (1992)
Forestry Field Program, Meadow Valley, California, Summer (1991)

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

CA Department of Fish and Game Scientific Collecting Permit

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society

Society of American Foresters

Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

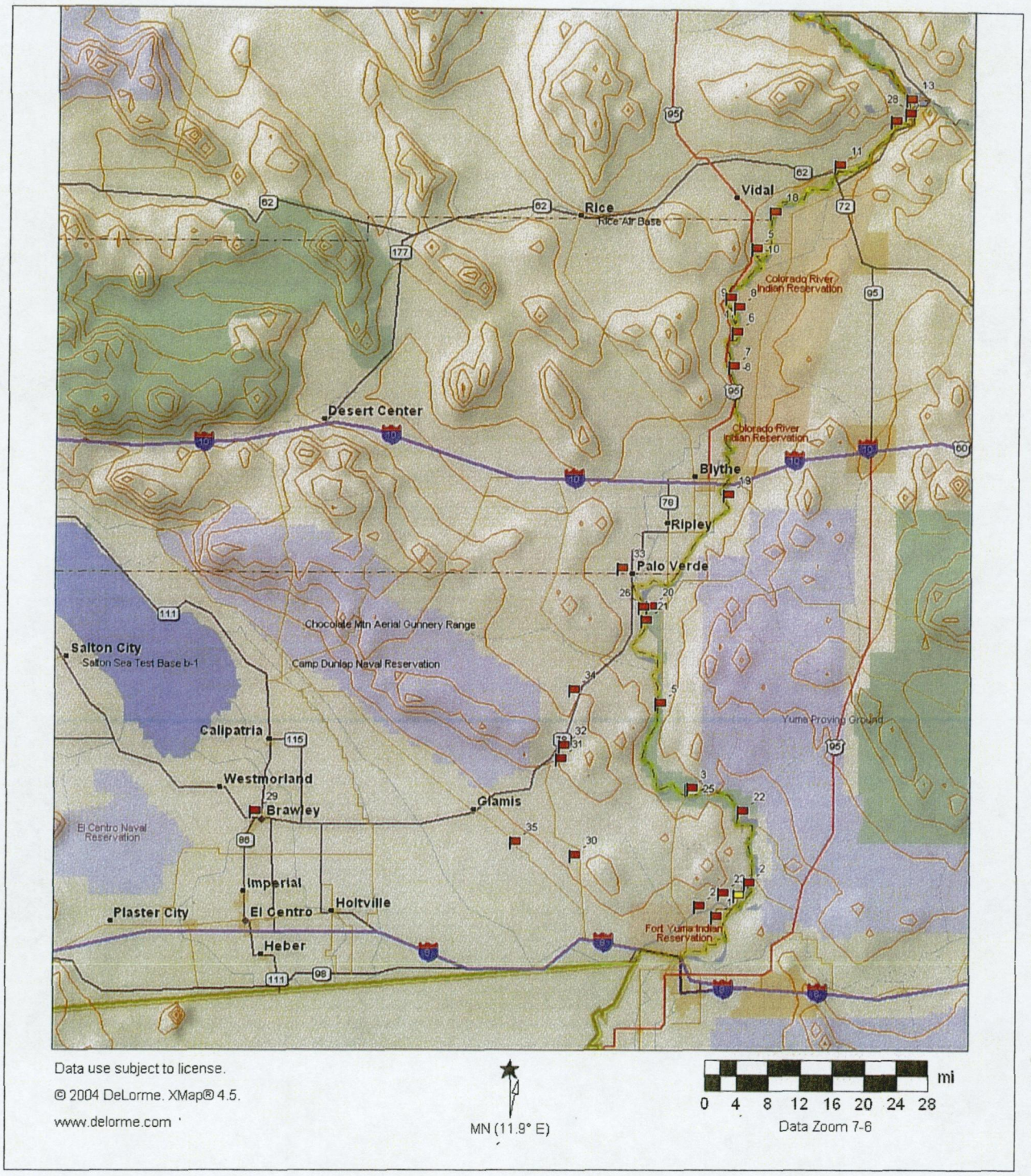
Land Committee Member – *Save Mt. Diablo*

TEACHING EXPERIENCE

Instructor: Wildlife Management, The Pennsylvania State University, 1998

Teaching Assistant: Ornithology, The Pennsylvania State University, 1996-1997

EXHIBIT 503



Attachment 2. Documented occurrences of Gila woodpeckers (red flags).[1] Flag numbers correspond with CNDDB occurrence numbers.

[1] From California Natural Diversity Database. 2009. Rarefind [computer program]. Version 3.1.0. Mar 2, 2010. Sacramento (CA): Wildlife & Habitat Data Analysis Branch. California Department of Fish and Game.

EXHIBIT 504

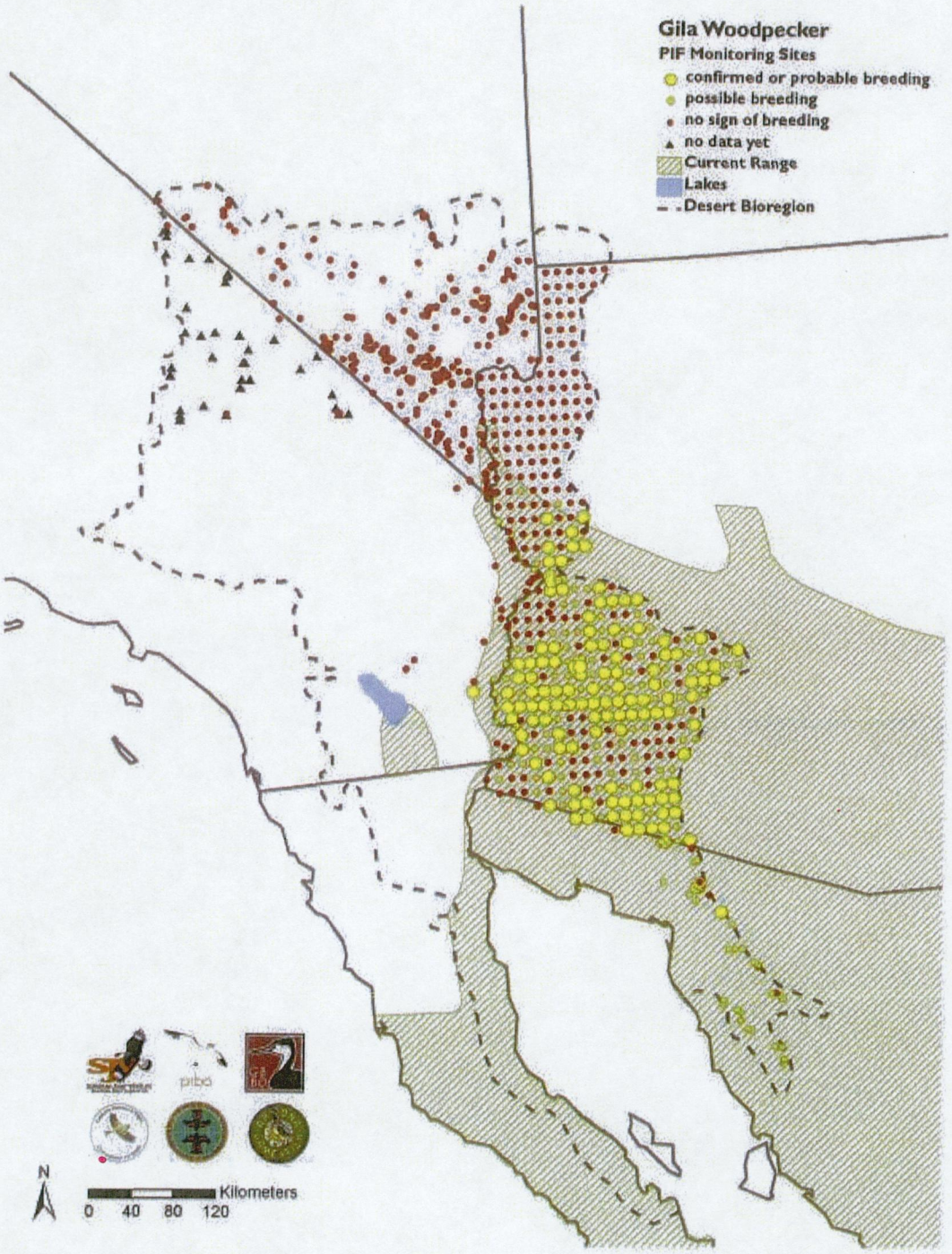


Figure 5-3. CalPIF monitoring sites, breeding status, and current range for the Gila Woodpecker in California.

EXHIBIT 505

DOCKET
09-AFC-5
DATE FEB 05 2010
RECD. FEB 24 2010

To: Craig Hoffman, Energy Commission Project Manager

From: Heather Blair, Energy Commission Staff Biologist (Aspen Environmental Group)

Date: February 5, 2010

Re: Abengoa Mojave Solar Project – time-sensitive issues and informational needs

Completion of the draft Staff Assessment and its review by USFWS and CDFG facilitated the identification of several time-sensitive issues. Staff believes it will benefit the project schedule to relay this information to the applicant now rather than wait to publish it in the Staff Assessment in March 2010. Staff strongly recommends continued coordination with USFWS (Ashleigh Blackford) and CDFG (Eric Weiss) regarding plan development, permit requirements/timing, compliance with updates to the Bald and Golden Eagle Act (e.g., survey and foraging habitat assessment procedures), and compensatory mitigation. Staff is also available to answer questions about these informational needs.

The documents and information listed below **need to be submitted** by the applicant to the Energy Commission, USFWS, and CDFG:

- Draft Desert Tortoise Exclusion Fencing, Clearance Survey, and Translocation Plan (Desert Tortoise Plan). See below.
- Draft Burrowing Owl Monitoring and Mitigation Plan (Burrowing Owl Plan). See below.
- Swainson's Hawk Survey Results – Spring 2010. As proposed by the applicant in their draft California Endangered Species Act Section 2081 Incidental Take Permit Application.
- Golden Eagle Survey Results and Foraging Habitat Assessment. Required to determine compliance with recent updates to the Bald and Golden Eagle Act, including whether the project would require a take permit. Contact USFWS for guidance on survey protocol and foraging habitat assessment methodology, as it becomes available. Analysis of the survey results and coordination between staff, the applicant, and USFWS is necessary to determine whether a take permit is required for impacts to golden eagle, including loss of foraging habitat.
- Compensatory Mitigation Details:
  - Identification of which 118.2 acre portion of the 233 acre applicant-owned parcel is proposed for mitigation;
  - Evaluation of the degree of disturbance, dumping, historical structures, etc. that may require cleaning, fencing, repairs, demolition, etc.; and
  - Determination of whether the applicant would conduct the aforementioned work (if required) prior to conserving the land or if additional lands or monies will be required to off-set the aforementioned impediments.

It is requested that these plans, survey results, and information be submitted as soon as possible to allow time for review, analysis, and incorporation into conditions of certification, in advance of the Supplemental Staff Assessment (publication scheduled for early May 2010). Of particular importance are the draft Desert Tortoise Plan, draft Burrowing Owl Plan, Swainson's hawk and golden eagle survey results and foraging habitat assessment, and compensatory mitigation details, all of which need to be addressed by staff in the Supplemental Staff Assessment. The following measures, which were developed in coordination with USFWS and CDFG, present substantive guidance for preparation of the draft Desert Tortoise and Burrowing Owl plans. The final Desert Tortoise Plan must be submitted to USFWS with the Biological Assessment, which is currently scheduled to be submitted to the U.S. Department of Energy in February 2010; therefore, a draft plan must be submitted and reviewed as soon as possible.

Staff recommends that careful consideration be given to the timing of burrowing owl and desert tortoise clearance surveys in relation to the overall project construction schedule. As described below, the clearance surveys must be conducted within specific timing and environmental parameters. In coordination with USFWS and CDFG, staff identified two potential scenarios specific to the AMS project that would allow construction to proceed in compliance with these timing restrictions. It is understood that there are other potential scenarios and staff encourages the applicant to present these and other scenarios for approval in the draft Desert Tortoise and Burrowing Owl plans.

1. At site mobilization in Fall/Winter 2010, install temporary desert tortoise exclusion fencing partially around (within 250 feet of) all potential tortoise burrows ***while maintaining connectivity to suitable natural habitat*** adjacent to the project site. Determine presence or absence of burrowing owl during that same timeframe (to determine compensatory mitigation and the number of artificial burrows). Color-banding and passive relocation of non-nesting burrowing owl can occur outside of the temporary exclusion fence (within the proposed project area) at any time. However, if it is determined that an active nest is present onsite, a no disturbance buffer must be established within 250 feet of the active burrowing owl nest and remain until juveniles from the occupied burrows are foraging independently and are capable of independent survival. Desert tortoise clearance would be conducted April through May and/or September through October.
2. Fence the site and conduct burrowing owl and desert tortoise clearance concurrently in September or October (provided the environmental requirements below are satisfied).

Desert Tortoise Exclusion Fencing, Clearance Surveys, and Translocation Plan

A Desert Tortoise Exclusion Fencing, Clearance Surveys, and Translocation Plan shall be developed in consultation with the CPM, CDFG, and USFWS. This plan shall include detailed measures to avoid and minimize impacts to desert tortoise in and near the construction areas as well as methods for clearance surveys, fence installation, tortoise handling, artificial burrow construction, egg handling and other procedures, which shall be consistent with those described in the USFWS Desert Tortoise Field Manual (www.fws.gov/ventura/speciesinfo/protocols_guidelines) or more current guidance provided by CDFG and USFWS. At a minimum, the following measures shall be included in the plan and implemented by the project owner to manage their construction site, and related facilities, in a manner to avoid, minimize, or mitigate impacts to desert tortoise.

1. Fence Installation. Prior to ground disturbance, the entire project site shall be fenced with desert tortoise exclusion fence. To avoid impacts to desert tortoise during fence construction, the proposed fence alignment shall be flagged and the alignment surveyed within 24 hours prior to fence construction. Surveys shall be conducted by the Designated Biologist using techniques approved by the USFWS and CDFG. Biological Monitors may assist the Designated Biologist under his or her supervision. These surveys shall provide 100 percent coverage of all areas to be disturbed during fence construction and an additional transect along both sides of the proposed fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 30 feet apart. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises and handled in accordance with USFWS-approved protocol.

    a. Timing and Supervision of Fence Installation. The exclusion fencing shall be installed prior to site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present.

    b. Fence Material and Installation. The permanent tortoise exclusionary fencing shall consist of galvanized hard wire cloth 1 by 2 inch mesh sunk 12 inches into the ground, and 24 inches above ground (refer to parameters for USFWS-approved tortoise exclusion fencing at www.fws.gov/ventura/speciesinfo/protocols_guidelines). For temporary exclusion fencing, a "folded bottom" technique shall be implemented. This method follows the same guidelines as installation of permanent fencing except instead of burying the bottom 12 inches of the fencing, it is bent at a approximately 90 degree angle (to follow the contour of the ground) and spikes or other retaining methods are driven into the ground every two linear feet in such a manner as to "anchor" the bottom of the fence. This method eliminates the need for trenching, which for short-term temporary impacts may be more beneficial to the recovery of the landscape, and thus the species.

c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. The gates shall remain closed except during vehicle passage and may be electronically activated to open and close immediately after vehicle(s) have entered or exited to prevent extended periods with open gates, which might lead to a tortoise entering. Cattle grating designed to safely exclude desert tortoise shall be installed at the gated entries to discourage tortoises from gaining entry.

d. Transmission Interconnection Fencing. The Transmission Interconnection Area shall be temporarily fenced with tortoise exclusion fencing to prevent desert tortoise entry during construction. Temporary fencing must follow guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity. Temporary exclusion and translocation of desert tortoise in the Transmission Interconnection Area shall be addressed in the Desert Tortoise Translocation Plan.

e. Stormwater Drainage Fencing. The onsite stormwater drainage channels, including the headwalls, outlet, and road crossings, shall be permanently fenced to ensure exclusion of desert tortoise during AMS operation.

f. Fence Inspections. Following installation of the desert tortoise exclusion fencing for both the permanent site and stormwater drainage fencing and temporary fencing in the interconnection area, the fencing shall be regularly inspected. Permanent fencing shall be inspected monthly and during/immediately following all major rainfall events. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within two days of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing must be inspected immediately following major rainfall events. All temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, the Designated Biologist shall inspect the utility corridor or tower site for tortoise.

2. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusionary fencing around the Plant Site, all fenced areas shall be cleared of tortoises by the Designated Biologist, who may be assisted by Biological Monitors. A minimum of two, 100 percent coverage protocol clearance surveys with negative results must be completed and these must coincide with heightened desert tortoise activity from April through May and September through October. Non-protocol clearance surveys may be conducted in areas of certainly unsuitable habitat (e.g., developed) with prior approval of specific areas by USFWS and CDFG (these proposed areas shall be identified in the draft Desert Tortoise Plan). To facilitate seeing the ground from different angles, the second clearance survey shall be walked at 90 degrees to the orientation of the first clearance survey. Additional clearance survey guidelines provided in the USFWS *Desert Tortoise Field Manual* (www.fws.gov/ventura/speciesinfo/protocols_guidelines).

3. Translocation of Desert Tortoise. If desert tortoises are detected during clearance surveys within the project impact area, the Designated Biologist shall safely

translocate the tortoise the shortest possible distance to the nearest suitable habitat as described below. Any handling efforts shall be in accordance with techniques described in the USFWS's *Desert Tortoise Field Manual* (www.fws.gov/ventura/speciesinfo/protocols_guidelines).

a. If a tortoise is discovered within the project site, it shall be safely translocated to the nearest desert saltbush scrub or Mojave creosote bush scrub east and south of section 33 or the nearest desert saltbush scrub west and south of section 30.

b. If a tortoise will be moved a distance greater than 5 km, disease testing and monitoring shall be conducted in accordance with the approved final Desert Tortoise Translocation Plan.

c. If a visibly diseased tortoise is encountered onsite, procedures shall be implemented in accordance with the approved final Desert Tortoise Plan.

4. Burrow Inspection. All potential desert tortoise burrows within the fenced area shall be searched for presence. To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined. Immediately following excavation and if environmental conditions warrant immediate translocation, tortoises excavated from burrows shall be translocated to unoccupied natural or artificial burrows within the location approved by USFWS and CDFG per the final Desert Tortoise Translocation Plan.

5. Burrow Excavation. Burrows inhabited by tortoises shall be excavated by the Designated Biologist using hand tools, and then collapsed or blocked to prevent re-occupation. If excavated during May through July, the Designated Biologist shall search for desert tortoise nests/eggs. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist in accordance with the USFWS-approved protocol (Desert Tortoise Council 1999) or more current guidance on the USFWS website.

6. Monitoring During Clearing. Following the installation of exclusionary fencing and after ensuring desert tortoises are absent from the project site, heavy equipment shall be allowed to enter the project site to perform earth work such as clearing, grubbing, leveling, and trenching. A Biological Monitor shall be onsite at all times during initial clearing and grading activities. Should a tortoise be discovered, it shall be relocated as described above in accordance with the final Desert Tortoise Translocation Plan.

7. Reporting. The Designated Biologist shall record the following information for any desert tortoises handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled desert tortoise as described in the paragraph below. Desert tortoise moved from within project areas shall be marked for future identification as described in *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert

Tortoise Council 1999) or more current guidance on the USFWS website. Digital photographs of the carapace, plastron, and fourth costal scute shall be taken. Scutes shall not be notched for identification.

Burrowing Owl Impact Avoidance and Minimization Measures

Prior to preconstruction surveys, a Burrowing Owl Monitoring and Mitigation Plan (Burrowing Owl Plan) shall be developed by the project owner in consultation with the CPM and CDFG. This plan shall include detailed measures to avoid and minimize impacts to burrowing owls in and near the construction areas (if indentified during surveys) and shall be consistent with CDFG guidance (CDFG 1995). In addition, the plan shall identify the optimal time to concurrently relocate both desert tortoise and burrowing owl. At a minimum, the following measures shall be included in the plan and implemented by the project owner to manage their construction site, and related facilities, in a manner to avoid, minimize, or mitigate impacts to breeding and foraging burrowing owls.

1. Pre-Construction Surveys and Nest Avoidance. The Designated Biologist shall conduct pre-construction surveys for burrowing owls within the project site and a 160-foot buffer. These surveys shall be conducted concurrent with desert tortoise clearance surveys, to the maximum extent possible. The following shall be included in the Plan and implemented to avoid and minimize impacts to burrowing owls onsite:

    a. Ground-disturbing actions should be carried out from September 1 to January 31, which is prior to the burrowing owl nesting season and also potentially within the desert tortoise active season, depending on ground and climate conditions.

    b. A 250-foot exclusion area around occupied burrows will be flagged and this area will not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. The exclusion area shall remain connected to natural area(s) to the extent possible, to avoid completely surrounding the owl with construction activities and/or equipment.

2. Artificial Burrow Installation. Prior to any ground-disturbing activities, the project owner shall install five artificial burrows for each identified burrowing owl burrow in the project area that would be destroyed, within in the approved compensatory habitat area. The Designated Biologist shall survey the site selected for artificial burrow construction to verify that such construction will not affect desert tortoise or Mohave ground squirrel or existing burrowing owl colonies in the relocation area. Installation of the artificial burrows shall occur after baseline surveys of the relocation area and prior to ground disturbance or heavy equipment staging. Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 1995) and shall be approved by the CPM in consultation with CDFG.

3. Passive Relocation. Prior to passive relocation, any owls that will be relocated shall be color banded in accordance with the guidance provided by USGS bird banding lab (http://www.pwrc.usgs.gov/bbl) to monitor relocation success; this shall not be conducted during the breeding season. During the non-breeding season, owls would

be given a minimum of three weeks to become familiar with the new artificial burrows, after which eviction of owls within the project site could begin. Use of one-way doors described by Trulio (1995) and Clark and Plumpton (2005) would be used to facilitate passive relocation of owls.

a. Monitoring and Success Criteria. The Designated Biologist shall survey the relocation area during the nesting season to assess use of the artificial burrows by owls using methods consistent with Phase II and Phase III Burrowing Owl Consortium Guideline protocols (CBOC 1993). Surveys shall start upon completion of artificial burrow construction and shall continue for a period of five years. If survey results indicate burrowing owls are not nesting on the relocation area, remedial actions shall be developed and implemented in consultation with the CPM, CDFG and USFWS to correct conditions at the site that might be preventing owls from nesting there. A report describing survey results and remedial actions taken shall be submitted to the CPM, CDFG and USFWS no later than January 31 of each year for five years.

4. Preserve and Manage Compensatory Habitat. For each individual owl or pair identified on the project site during pre-construction surveys, 6.5 acres shall be preserved and managed in perpetuity for the occupation of burrowing owls. This compensatory habitat shall be in addition to the acreage required to mitigate impacts to desert tortoise and Mohave ground squirrel.

   The compensatory habitat shall be managed for the benefit of burrowing owls, with the specific goals of:

   a. Maintaining the functionality of artificial and natural burrows; and

   b. Minimizing the occurrence of weeds (species considered "moderate" or "high" threat to California wildlands as defined by CAL-IPC [2006] and noxious weeds rated "A" or "B" by the California Department of Food and Agriculture and any federal-rated pest plants [CDFA 2009]) at less than 10 percent cover of the shrub and herb layers.

   The Burrowing Owl Plan shall also include monitoring and maintenance requirements, details on methods for measuring compliance goals and remedial actions to be taken if management goals are not met.

   The final Burrowing Owl Plan is due before preconstruction surveys begin to ensure that an approved relocation methodology will be followed for any owls occurring within the project area. Therefore, it is understood that the compensatory mitigation acreage (if required) will not be identified in the Burrowing Owl Plan. However, the Plan shall propose a location for compensatory mitigation land and the methodology to quantify the acreage required, as outlined above. If owls are identified during the pre-construction survey, the project owner shall submit an addendum to the Burrowing Owl Plan, which identifies the exact acreage to be preserved and

managed in perpetuity for burrowing owl based on the results of the preconstruction survey and as agreed to in consultation with CDFG.

EXHIBIT 506

Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations

Joel E. Pagel, Ph.D.[1],

Diana M. Whittington[1],

George T. Allen, Ph.D.[1].

U.S. Fish and Wildlife Service

February, 2010

[1] Division of Migratory Birds, U.S. Fish and Wildlife Service

Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations

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Recommended citation:

Pagel, J.E., D.M. Whittington and G.T. Allen. 2010. Interim Golden Eagle Inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, U.S. Fish and Wildlife Service.

I. Purpose

This document identifies the minimum inventory and monitoring effort recommended for determining and evaluating potential Golden Eagle (*Aquila chrysaetos canadensis*) use of habitat including nest sites, roosts, and territories, as well as the rationale for identifying and evaluating foraging locations during breeding and non-breeding periods. It also outlines the minimum monitoring techniques to ascertain occupancy and reproductive success at territories. These field efforts are the mutual responsibility of agencies authorizing activities and their permittees (i.e. action agency; see Glossary). They are essential components for avoiding and minimizing disturbance and other kinds of take, including lethal take, and are a necessary component of short and long-term site specific monitoring and management of local Golden Eagles and regional Golden Eagle populations. The data gathered will provide information on the baseline circumstances for evaluation of permit applications and foundation for permit conditions, as well as assist planners so they may conduct informed impact analyses and mitigation during the National Environmental Policy Act (NEPA) process. Data collected via this effort will also help:

1. Determine the fate and reproductive trends of regional nesting populations via collating information from observed territories.
2. Document and list historical and unsurveyed habitat for future analysis to assist in determining local and regional population trajectories.
3. Provide information to document whether local Golden Eagle conservation efforts are meeting goals for improvements in the status of Golden Eagle.
4. Provide a foundation for evaluation of whether and which activities or conditions may be affecting Golden Eagle.

II. Background

Golden Eagles are protected by the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act (Eagle Act), which both Acts prohibit take. Take means *pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest,* or *disturb*. When the Bald Eagle was delisted under the Endangered Species Act (ESA), and in order to improve management of both species of eagles under the Eagle Act, the U.S. Fish and Wildlife Service (Service) undertook a series of management actions, including:

- **Codifying a regulatory definition of "disturb"** under the Eagle Act (see 72 FR 31132, June 5, 2007). *Disturb* means to agitate or bother a Bald or Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1)

injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

- **Proposing permit regulations** to (1) Create a new permit type to authorize take of Bald Eagles and Golden Eagles that is associated with, but not the purpose of, the activity; and (2) Create a second new permit type to authorize purposeful take of eagle nests that pose a threat to human or eagle safety (subsequently broadened to accommodate additional circumstances). The regulations were finalized on September 11, 2009 (74 FR 43686).

Summary of the new regulations.

Permits issued under 50 CFR § 22.26 authorize take of Bald Eagles and Golden Eagles, where the take is associated with, but not the purpose of the activity, and cannot practicably be avoided. Most take authorized under this section will be in the form of disturbance; however, permits may authorize lethal take that results from, but is not the purpose of, an otherwise lawful activity. Purposeful take will not be authorized under § 22.26.

The second new permit regulation, at 50 CFR 22.27, establishes permits for removing eagle nests where (1) necessary to alleviate a safety hazard to people or eagles, (2) necessary to ensure public health and safety, (3) the nest prevents the use of a pre-existing human-engineered structure, or (4) the activity, or mitigation for the activity, will provide a net benefit to eagles. Only inactive nests during the non-breeding season may be taken, except in the case of safety emergencies.

Regulations under § 22.27 authorize removal and/or relocation of active and inactive eagle nests in cases where genuine safety concerns for people, eagles, or both, necessitate the take. Examples include: (1) a nest tree that appears likely to topple onto a residence; (2) at airports to avoid collisions between eagles and aircraft; and (3) to relocate a nest built within a reservoir that will be flooded.

Both regulations are provided for by the Eagle Act which gives the Secretary of the Interior the authority to permit the limited take of Bald Eagles and Golden Eagles "for the protection of . . . other interests in any particular locality." Additionally, both new regulations:

- Are applicable to Golden Eagles as well as Bald Eagles.
- Authorize take only where it is compatible with the preservation of the eagle. For purposes of these regulations, "compatible with the preservation of the Bald Eagle

and the Golden Eagle" means consistent with the goal of stable or increase of breeding populations.

- Authorize take only where it cannot practicably be avoided.
- Include provisions for programmatic take. Programmatic take (take that is recurring and not in a specific, identifiable timeframe and/or location) will be authorized only where it is unavoidable despite implementation of comprehensive measures developed in cooperation with the Service to reduce the take below current levels.

Additional needs for Golden Eagle information and evaluation.

As part of an adaptive management approach to the permits and eagle management, the Service will assess, at least every five years, overall population trends along with annual report data from permittees and other information to assess how likely future activities are to result in the loss of one or more eagles, a decrease in productivity of Golden Eagles, and/or the permanent loss of a nest site, territory, or important foraging area. Therefore, implementation of the new permit regulations will entail requirements for cumulative effects analyses and identifying the impacts of an activity. We include them here to provide the context and framework for the protocols and recommendations in this document.

Cumulative effect considerations.

Whether the take is compatible with eagle preservation includes consideration of the cumulative effects of other permitted take and additional factors affecting eagle populations. Cumulative effects are defined as: *"the incremental environmental impact or effect of the proposed action, together with impacts of past, present, and reasonably foreseeable future actions"* (50 CFR 22.3). Numerous relatively minor disruptions to eagle behaviors from multiple activities, even if spatially or temporally distributed, may lead to disturbance that would not have resulted from fewer or more carefully sited activities. The accumulation of multiple land development projects or siting of multiple infrastructures that are hazardous to eagles can cumulatively reduce the availability of alternative sites suitable for breeding, feeding, or sheltering, resulting in a greater than additive risk of take to eagles.

To ensure that impacts are not concentrated in particular localities to the detriment of locally-important eagle populations, cumulative effects need to be considered at the population management level—*Service Regions* for Bald Eagles and *Bird Conservation Regions* for Golden Eagles—and, especially for project-specific analyses, at local area population levels (the population within the average natal dispersal distance of the nest or nests under consideration). Eagle take that is concentrated in particular areas can lead to effects on the larger management population because 1) disproportionate take in local populations where

breeding pairs are 'high' producers may reduce the overall productivity of the larger population; and 2) when portions of the management population become isolated from each other the productivity of the overall management population may decrease.

Identifying the Impacts of the Activity

The applicant for an Eagle Act permit (who can be a project proponent or the agency preparing the NEPA), has four subtasks to determine the likely effects of a project or activity on eagles:

a. Collection and synthesis of biological data. The applicant is responsible for providing up-to-date biological information about eagles that breed, feed, shelter, and/or migrate in the vicinity of the activity that may potentially be affected by the proposed activity. Biological information can include locations and distribution of nests, delineation of territories, prey base, general composition and relative abundance, and productivity data.

b. Identifying activities that are likely to result in take. As part of the permit application, the applicant must include a complete description of the actions that: (1) are likely to result in eagle take, and (2) for which the applicant or landowner has some form of control. For most applications, the activity will be specific and well-defined (e.g., home construction; water use development) or land use activity (e.g., forestry). For larger-scale permits, applicants will need to determine the extent of impacts they want to include in the permit authorization and, if necessary, which ones they wish to exclude.

c. Avoidance and minimization measures. Applications for a § 22.26 permit must document the measures to which the applicant will commit to avoid and minimize the impacts to eagles to the maximum degree practicable.

d. Quantifying the anticipated take. The amount of take to be authorized under a permit depends on a variety of factors, including: (1) the number of eagles that breed, feed, shelter, and or migrate within the activity area, (2) the degree to which the eagles depend on that area for breeding, feeding, or sheltering, or migration, and thus are more likely to be present and affected, (3) the potential of that type of activity in general to take eagles, (4) the scale of the activity, and (5) the measures the applicant will undertake to avoid and minimize the take.

Federal agencies have additional responsibilities to Golden Eagles under Executive Order 13186 (66 FR 3853, January 17, 2001), which reinstated the responsibilities of Federal Agencies to comply with the Migratory Bird Treaty Act of 1918. The Executive Order establishes a process for Federal Agencies to conserve migratory birds by avoiding or minimizing unintentional take and taking actions that benefit species to the extent practicable. Agencies are expected to take

reasonable steps that include restoring and enhancing habitat. Environmental analyses of Federal actions required by NEPA or other environmental review processes must evaluate the effects of actions and Federal agency plans on migratory birds, including Golden Eagles.

Golden Eagle populations are believed to be declining throughout their range in the contiguous United States (Harlow and Bloom 1989, Kochert and Steenhof 2002, Kochert et al. 2002, Good et al. 2007, Farmer et al. 2008, Smith et al. 2008, 74 FR 46836-46879). The Service has modeled current data (USFWS 2009, Appendix C), employing Moffat's equilibrium (Hunt 1998) and Millsap and Allen's (2006) analysis of anthropogenic demographic removal, and estimated that the floating (non-breeding and surplus) component of the Golden Eagle population in some areas may be limited at this time. Data from the Western EcoSystems Technology Inc. surveys from 2006 – 2009 may suggest a decline since 2006 in the total Golden Eagle population within the area covered by the surveys (Neilson et al. 2010, USFWS 2009, Appendix C). Significant Golden Eagle breeding failures have been reported in some areas of the southwestern United States (WRI 2009), and declines in counts of migratory Golden Eagles have been reported in most areas in the western United States (Farmer et al. 2008, Smith et al. 2008), although it is unclear if the latter is linked to a decrease in the number of eagles.

III. Management Need

Prior to initiating inventory and monitoring efforts, land management agencies and/or proponents of land use activities should first assess all existing recent and historical data available on eagles, including their nests, reproductive activity and chronologies, natal dispersal, pertinent data from VHF and satellite telemetry, winter roosts, migration corridors, and foraging habitats contained by and within 4 - 10 + miles of areas slated for development or authorizations for increased human activity. This background search of available information may yield few data, but is necessary to alert project proponents and regulatory staff about data gaps, and existing knowledge of Golden Eagle for that area. Inventory, monitoring, and research activities may then be identified and funded to fill in site specific information gaps to avoid take of Golden Eagle. Specific recommendations for the number of years needed for baseline data and measures to avoid take should be developed in coordination with the Service, and, to reduce redundancy between management and permitting requirements, consistent with permit requirements outlined in the Draft Implementation Guidelines for the new rules (available fall 2010).

Projects in Golden Eagle breeding home ranges on federal, state, and private land possibly will have direct, indirect, and cumulative effects associated with or exacerbated by, factors such as: recreation disturbance, electrocution, urbanization, illegal shooting, invasive species altering prey densities, lead poisoning, other contaminants, climate change, and prolonged drought

which affects predator and prey abundance and distribution. In many cases, existing data may not be adequate for NEPA, planning, or permitting purposes. Therefore, inventory and subsequent monitoring of Golden Eagles and components of their habitats are important to 1) develop a baseline prior to project planning and prior to project development in Golden Eagle habitat, 2) analyze impacts to the species, 3) continue to evaluate and report on the effects of the action and mitigation on Golden Eagles, 4) essential to adaptive management approaches, and 5) provide information that may be required for permits.

Project design, type, and siting of project footprint and infrastructure are critical to avoid disturbance and take of Golden Eagle. In the Final Environmental Assessment on the rule and in the draft Implementation Guidance, the Service recommends that when planning locations of infrastructure and project boundaries, action agencies and project proponents consider life-history components such as productivity, age-class survival, dispersal, migration, winter-concentration behavior, and foraging behavior during breeding and non-breeding seasons in a concerted effort to avoid lethal take. The Service recommends use of the best available or gathered information applicable to the location of the project or plan, but also encourages efforts to conduct further research. For permitting purposes however, and to determine the likelihood and magnitude of take, as well as effectiveness of mitigation, monitoring will need to yield productivity information.

Note: This document does not address site specific observations for transitory and wintering eagles; these protocols will be forthcoming. Although the life history for transitory and wintering eagles is not discussed at length here, that does not imply a lack importance for site-specific observations from the Service's perspective. The document provides general recommendations for factors to consider outside nesting, until more specific protocols are developed.

IV. Basic Golden Eagle Ecology

This account is not intended as a compendium of Golden Eagle natural history, biology, ethology, or ecology; please refer to Watson (1997), Palmer (1988) and Kochert et al. (2002) for more detailed information.

Where they exist, Golden Eagles are an upper-trophic aerial predator, and eat small to mid-sized reptiles, birds, and mammals up to the size of mule deer fawns and coyote pups (Bloom and Hawks 1982). They also are known to scavenge and utilize carrion (Kochert et al. 2002)

Golden Eagles nest in high densities in open and semi-open habitat, but also may nest at lower densities in coniferous habitat when open space is available, (e. g. fire breaks, clear-cuts, burned areas, pasture-land, etc.). They can be found from the tundra, through grasslands,

woodland-brushlands, and forested habitat, south to arid deserts, including Death Valley, California (Kochert et al. 2002). Historically, Golden Eagles bred in the Plains and Great Lake states. Golden Eagles currently breed in and near much of the available open habitat in North America west of the 100th Meridian, as well as in eastern United States in the northern Appalachian Mountains (Palmer 1988, Kochert et al. 2002). Lee and Spofford's (1990) review of the literature for the eastern portion of the United States suggests historical nesting Golden Eagles south of New York in the Appalachians was unlikely. Nesting of introduced Golden Eagles have been reported in Tennessee and northwestern Georgia (Kochert et al. 2002), however it is currently unknown if these territories are still extant.

A nesting territory for the purpose of this monitoring protocol has been previously defined by Steenhof and Newton (2007), i.e. an area that contains, or historically contained, one or more nests within the home range of a mated pair: a confined locality where nests are found, usually in successive years, and where no more than one pair is known to have bred at one time.

Golden Eagles avoid nesting near urban habitat and do not generally nest in densely forested habitat. Individuals will occasionally nest near semi-urban areas where housing density is low and in farmland habitat; however Golden Eagles have been noted to be sensitive to some forms of anthropogenic presence (Palmer 1988). Steidl et al. (1993) found when observers were camped 400 meters from nests of Golden Eagles, adults spent less time near their nests, fed their juveniles less frequently, and fed themselves and their juveniles up to 67% less food than when observers were camped 800 meters from nests. In studies of Golden Eagle populations in the southwest (New Mexico and Texas) and the Front Range of the Rocky Mountains (New Mexico, Colorado and Wyoming), Boeker and Ray (1971) reported that human disturbance accounted for at least 85% of all known nest losses. Breeding adults are sometimes flushed from the nest by recreational climbers and researchers, sometimes resulting in the loss of the eggs or juveniles due to nest abandonment, exposure of juveniles or eggs to the elements, collapse of the nest, eggs being knocked from the nest by startled adults, or juveniles fledging prematurely. However, Golden Eagles rarely flushed from the nest during close approaches by fixed-wing aircraft and helicopters during various surveys in Montana, Idaho, and Alaska (Kochert et al. 2002).

Golden Eagles nest on cliffs, in the upper one third of deciduous and coniferous trees, or on artificial structures (windmills, electricity transmission towers, artificial nesting platforms, etc.; Phillips and Beske 1990, Kochert et al. 2002). Golden Eagles build nests on cliffs or in the largest trees of forested stands that often afford an unobstructed view of the surrounding habitat (Beecham 1970, Menkens and Anderson 1987). Usually, sticks and soft material are

added to existing nests, or new nests are constructed to create a strong, flat or bowl shaped platform for nesting (Palmer 1988, Watson 1997, Kochert et al. 2002). Sometimes Golden Eagle will decorate multiple nests in a single year; continuing to do so until they lay eggs in the selected nest. The completed nest structure(s) can vary from large and multi-layered; or a small augmentation of sticks in caves with little material other than extant detritus (Ellis et al. 2009). Each Golden Eagle territory may have anywhere from 1 to 14 alternative nests, with 1 to 6 nests per territory being the norm (Palmer 1988, Watson 1997, Kochert et al. 2002).

Onset of courtship and nesting chronology

Courtship for Golden Eagles involves stick-carrying, display flights, and vocalization (Ellis 1979, Kochert et al. 2002). Golden Eagles partake in undulating flight, however undulating flight has been observed year-round and is thought to be associated more with aggression and territory defense than with courtship (Newton 1979, Harmata 1982, Collopy and Edwards 1989, Watson 1997).

Nesting chronologies vary however there are some generalities. In California and in Texas, courtship at territories start in mid to late December (Palmer 1988, Hunt et al. 1997, D. Bittner pers. com); in Texas eggs have been detected as early as November (Olberholser and Kincaid 1974, *in lit.*). In Utah, courtship can commence in January. In northern tier states at upper latitudes and higher elevation sites, egg laying can occur as early as February and March, before late winter snows and storms have abated (Palmer 1988).

Golden Eagles lay 1 to 4 eggs, with 4 egg clutches rare. Most nests have 2 eggs. The laying interval between eggs ranges between 3 to 5 days. Incubation commences as soon as the first egg is laid, and hatching is asynchronous and can begin as early as late January in southern California (Dixon 1937, Hickman 1968), mid April to late May in southwest Idaho (Kochert et al. 2002) and late March–early May in central and northern Alaska (McIntyre 1995, Young et al. 1995; Fig. 3). In Texas, eggs have been noted from November to June (Oberholser and Kincaid 1974, in lit.). In the northeast United States, eggs have been laid in March/April (Palmer 1988). For more detail, please refer to Kochert et al. 2002 (Appendix 2).

Migration and Wintering

Golden Eagles will migrate from the Canadian provinces and northern tier and northeastern states to areas that are milder in the winter and/or may have less snow cover. Wintering Golden Eagles have been noted in all states in the continental U.S. (Wheeler 2003, 2007). Some segments of the population are non-migratory, and can be found near their nest sites throughout the year. See Kochert et al. 2002 for detailed listing of winter range.

Roosts or gathering behavior

Golden Eagles are not known to roost communally as is common with wintering Bald Eagles in some areas of the United States, but will gather together if local food sources are abundant. A caveat to this is that Golden Eagles have perched with bald eagles where there have been large concentrations of waterfowl or carrion (Palmer 1988).

V. Golden Eagle Responses to Disturbance

Golden Eagles, as with other raptors, visibly display behavior that signifies disturbance when they are stressed by anthropogenic activities; whether it is a lone hiker walking 1000 meters or more from a nest, or extended construction or recreation activities 2000 – 5000 meters from a territory. These postures, movements and behaviors can be overt. However with Golden Eagles, disturbance behaviors are often subtle and require an experienced observer. Olendorff (1971), Fyfe and Olendorff (1976), and Olsen and Olsen (1978) identified considerations when human interactions may disturb nesting activities, and how to ascertain critical distances to avoid agitating nesting, roosting, and foraging raptors. Factors affecting critical distances included:

a. Mannerisms of intruder.

b. Size of intruder.

c. Stage of breeding cycle.

d. Topography and exposure of intruder in relation to bird.

Golden eagle behavior varies among individuals and can be affected by previous experiences. However, some behavioral generalities relative to direct and indirect disturbance include the following:

- Agitation behavior (displacement, avoidance, and defense)
- Increased vigilance at nest sites
- Change in forage and feeding behavior
- Nest site abandonment

Of the preceding behaviors, nest-site abandonment can be readily identified as constituting take under the Eagle Act, as it is specifically cited in the definition of 'disturb'. The other behaviors, when considered cumulatively, may be evidence that activities are interfering with normal breeding behavior and are likely to lead to take. Human intrusions near Golden Eagle

nest sites have resulted in the abandonment of the nest; high nestling mortality due to overheating, chilling or desiccation when young are left unattended; premature fledging; and ejection of eggs or young from the nest (Boeker and Ray 1971, Suter and Joness 1981).

VI. Overall Objectives of the Golden Eagle Survey Protocol

This survey protocol is intended to standardize procedures to inventory and monitor Golden Eagles within the direct and indirect impact area of planned or ongoing projects where disturbance or lethal take from otherwise permitted human activities is possible. This protocol will; 1) identify eagle use areas, 2) identify and minimize potential observer-related disturbance to Golden Eagles by surveys when conducted by qualified and experienced raptor biologists.

Additionally, data collected using this protocol may be used for, at a minimum, 1), sampling other geographic areas where suitable habitat may be present; 2) short and long-term analysis of Golden Eagle occupancy and productivity at known nest sites, and historical locations where observation to determine occupancy maybe necessary; 3) identification and evaluation of potential disturbance factors. If followed, this protocol will standardize data collection for potential local and regional analysis of long-term occupancy, productivity and eagle use trends. This protocol was developed as minimum standards, and as such may require additional area-specific detail if used for research purposes.

Objectives of inventory and monitoring

The first objective of these surveys is to provide methods to identify areas occupied by Golden Eagles and select factors their behavior ecology. Additional objectives of these surveys include:

1. Record and report occupancy and productivity of local Golden Eagle territories.
2. Document and list historical and unsurveyed habitat for future analysis to assist in determining local and regional population trajectories.
3. Determine nesting chronologies.
4. Provide information to document whether local Golden Eagle conservation efforts are meeting goals for improvements in the status of Golden Eagles or meeting permit conditions.
5. Provide a foundation to evaluate whether and which activities or conditions may be affecting Golden Eagles.

6. Document foraging behavior, diet and habitat use within breeding and non-breeding home ranges.

VII. Inventory Techniques

CAUTION

Golden Eagles are one of several cliff and tree dwelling species sensitive to human disturbance. Monitoring eagles in a manner that 'disturbs' them, and causes them to be 'agitated or bothered' can cause nesting failure, and permanent site abandonment, constituting take under the Eagle Act.

These monitoring protocols should facilitate observer caution and identify techniques that will minimize potential for take of Golden Eagles. For additional information regarding preventing observer disturbance while surveying raptors, please refer to Fyfe and Olendorff (1976).

Inventory

Inventories for Golden Eagles should occur if nesting, roosting, and foraging habitat are contained within the project boundary and exist within 4 – 10 air miles from the project boundary. Local and regional Golden Eagle habitat variability will dictate the distance from the project boundary where surveys will occur; distances will be greater in xeric (arid) habitat, or where local prey may not be abundant. The Service will be basing its site-specific evaluations and final determinations on local conditions, not national averages.

Nesting habitat

This account is not intended as a compendium of Golden Eagle habitat available and used in North America; please refer to Palmer (1988) and Kochert et al. (2002) for more detailed information.

Golden Eagles use a wide variety of habitat throughout North America. Small xeric mountain ranges in the Mohave and Great Basin deserts, forested habitat in the Pacific coastal, southern desert, Great Basin, Rocky, Sierra, and Cascade Mountain ranges are also key nesting areas. Local and regional variation of nesting habitat should be considered prior to surveys; however should include cliff, desert scrub, juniper woodland, and forested habitat. For example, in the northern Great Basin, Golden Eagles nest on cliff and in scrub-forest habitat; surveys of both types of substrates are urged prior to projects that have a potential to affect eagles. Identification criteria for nesting habitat at the local scale should take place in coordination with the Service, State, or Tribal wildlife agencies, and raptor experts.

VII.a. Procedures for aerial and ground inventory and monitoring surveys

Golden Eagles generally show strong fidelity to the nesting area annually. Occupancy determination is the most important goal of nest searches. Considerable suitable habitat exists in western North America which has never been adequately surveyed. Inventory surveys should examine habitat where Golden Eagles are not currently known to exist but habitat may be present, as well as previously inventoried areas to detect new activity. Monitoring surveys examine all historical and extant territories where Golden Eagles have been detected either previously or in the current survey.

A nesting territory or inventoried habitat should be designated as unoccupied by Golden Eagles ONLY after at least 2 complete aerial surveys in a single breeding season. In circumstances where ground observation occurs, at least 2 ground observation periods lasting at least 4 hours or more are necessary to designate an inventoried habitat or territory is unoccupied as long as all potential nest sites and alternate nests are visible and monitored. These observation periods should be at least 30 days apart for inventory, and at least 30 days apart for monitoring of known territories. Intervals between observations at occupied nesting territories may need to be flexible and should be based on the behavior of the adults observed, the age of any young observed, and the data to be collected (see below, Section IX). Dates of starting and continuing inventory and monitoring surveys should be sensitive to local nesting (i.e. laying, incubating, and brooding) chronologies, and would be conducted during weather conditions favorable for aerial survey and/or monitoring from medium to long range distances (+ 300 – 700 meters).

The first inventory and monitoring surveys should be conducted during courtship when the adults are mobile and conspicuous. When survey of historical territories is conducted, observers should focus their search on known alternative nests, and also carefully examine the habitat for additional nests which may have been overlooked or recently constructed. A 'decorated' nest will be sufficient evidence to indicate the probable location of a nesting attempt. If a decorated nest or pair of birds is located, the search can then be expanded to inventory likely habitat adjacent to the discovered territory to see if additional golden eagle territories can be observed.

Note: Identification of alternate nests will be required by the Service for determination of relative value of individual nests to a territory in cases of applications for permits to take 'inactive' nests, and when determining whether abandonment of a particular nest is likely to result in abandonment of a territory. The Service has determined that territory loss or permanent abandonment of a territory is a greater impact to populations than temporary abandonment of a nest.

Weather: Avoid searching potential and known nesting locations during periods of heavy rain, snow, high winds, or severe cold weather. Golden Eagles should not be induced to flush at any time during the survey period. Flushing when the adults are incubating or have small young can be particularly hazardous for successful nesting, and could constitute lethal disturbance take. High temperatures also may cause problems for successful viewing over long distances due to heat waves. Further, observer related incidences of causing flight of adults that are shading young to prevent overheating during high temperatures may cause mortality of the young. Observation for Golden Eagles during inclement weather is impractical, uncomfortable, and unsafe for Golden Eagles and observers. Weather will be recorded by the observer.

Time of day: Aerial surveys should be conducted, at the beginning of the day if winds permit. Likewise, ground surveys should be initiated, where possible, in morning hours when the air is still to avoid heat waves. Prime observation periods are around dawn, or shortly thereafter. In some cases the angle of the sun in relation to the cliff can be a more important issue, and some cliffs are better observed in afternoon light, however observations of adult behavior that are used to determine nesting chronologies may be conducted during most of the day. Observers should be aware of the angle of the sun in relation to the observation post and the nest. Some sites are plagued by afternoon winds, heat waves, or dust storms; local observation conditions should be taken into account prior to establishing viewing periods. Time of day will be recorded by the observer.

Time of year: Breeding surveys for Golden Eagles are latitude and elevation dependent; however, their nesting season ranges in the contiguous United States from 01 January to 31 August (Kochert et al. 2002). Nesting failures and seasonal variations should be considered as potential anomalies to 'normal' behavior and nesting chronologies. Dates to be used as a cut-off period for observation and reporting of nesting failures or non-nesting status will vary per region. The dates listed below are to be used as general guides, and should not be used as final nest site failure survey determination dates. Location-specific determination dates should be developed in coordination with the Service, State, or Tribal wildlife agencies, and raptor experts.

Duration of stay at observation points: Ground observers will survey from observation points for a minimum of 4 hours, unless observations yield Golden Eagle presence, or Golden Eagle behavior indicate eggs or young, or observation suggests the observer is disturbing the birds. Slowly walking and observing all potential nesting substrate can be used to completely inventory potential habitat. Observation periods may last longer as longer observation periods may be necessary to accurately determine nesting chronologies. Duration of stay at known or suspected territories during helicopter reconnaissance, or during ground observation periods will be recorded by the observer.

VII.b Aerial surveys

Helicopters are an accepted and efficient means to monitor large areas of habitat to inventory potential habitat and monitor known territories only if accomplished by competent and experienced observers. They can be the primary survey method, or can be combined with follow-up ground monitoring. Disturbance to eagles is minimal only WHEN accepted aerial practices and techniques are followed. NOTE: Ground surveys can be used when their use is more efficient, or when other circumstances (i.e. bighorn sheep lambing areas) require this method.

Coordination between state and federal agencies is an important aspect of aerial surveys to develop acceptable search criteria to be used for identifying likely suitable nesting habitat and locating nests, as well as to be become acquainted with potential hazards and air space restrictions. Survey pilots should be aware of potential ground hazards within the habitat to be examined, including marked and unmarked transmission and wires. Other hazards to surveyors include rock-fall or tree fall from above the helicopter, raptors or other birds colliding with the helicopter, and collision with other aircraft. Although pilots are often the first to note a flying raptor during surveys, some accidents involving wildlife researchers have been attributed to the pilots focusing on the survey, rather than giving their complete attention to flying the helicopter.

Helicopters used for surveying Golden Eagle habitat should be light utility, i.e. small to medium sized (e.g. MD-500/520, Eurocopter 145, Bell Jet-Ranger 206, UH-72,) capable of vertical mobility in warm temperatures and higher elevations. Inventories for raptors can be conducted with the main observer door(s) removed (which may provide more lateral and horizontal

visibility), or with the doors closed. The decision regarding observer doors should remain a personal choice, with the safety of pilots and observers as the primary determinant.

Cliffs should be approached from the front, rather than flying over from behind, or suddenly appearing quickly around corners or buttresses. Inventories should be flown at slow speeds, ca. 30 – 40 knots. However, detection of nests may require slower speeds, e.g. 20 knots, while between nest speeds can be higher (+ 60 knots). All potentially suitable nesting habitats (as identified in coordination with the Service) should be surveyed; multiple passes at several elevation bands may be necessary to provide complete coverage when surveying potential nesting habitat on large cliff complexes, escarpments, or headwalls. Hovering for up to 30 seconds no closer than a horizontal distance of 20 meters from the cliff wall or observed nests may be necessary to discern nest type, document the site with a digital photograph of the nest, and if possible, allow for the observer to read patagial tags, count young, and age young in the nest (Hoechlin 1976). Confirmation of nest occupancy may be confirmed during later flights at a greater horizontal distance.

Re-nesting is rare, but Golden Eagles may fail at their first nest attempt, and move to, or create, an alternate nest site. Multiple visits to known or potential nesting habitat may be necessary to provide complete observation and coverage of habitat.

To inventory for the purpose of documenting presence/absence of Golden Eagles in potential habitat, at least 2 aerial observation flights of habitat are necessary. These flights will be spaced no closer than 30 days apart. Additional inventory work in the territory is not necessary after nests have been located where Golden Eagles are found incubating, or where eggs or young and number of eggs or young are noted. At this point, the observation effort should switch to monitoring of the known territory. The nest location should be documented (see territory/nest naming convention, pp. 21).

Inventory and monitoring flights will be based on local knowledge of known nesting chronologies for that latitude and elevation, and should be timed to be the most efficient to reduce the number of visits to the nest site. Flights may occur preferentially during a) late courtship, b) egg-laying though hatch, and/or c) when the young are between 20 – 51+ days old. Productivity surveys are best scheduled when the young are approximately 51+ days old (prior to fledging). Aerial visits at known nests may be augmented or replaced by ground observation (see below).

Other raptors or special status species may be observed during the flight, and should be recorded/reported. Coordination with state and federal agencies will be necessary when state or federally listed Threatened, Endangered or special status (species of concern, sensitive, etc.) species are present in the flight survey area (i.e. big-horn sheep, peregrine falcons, etc.).

Bighorn sheep share the same type of cliff complexes Golden Eagles use for nesting, and are hyper-sensitive to helicopters (Weyhausen 1980, Bleich et al. 1990). Specifically for bighorn sheep lambing areas, helicopter reconnaissance and surveys for Golden Eagles are not possible as these flights will induce unpermitted take during the lambing season; all helicopter survey work for Golden Eagles should be avoided in known lambing areas. Ground observation will be necessary for inventory of cliff complexes and monitoring of potential and known Golden Eagle territories in bighorn sheep lambing areas.

Most Golden Eagle respond to fixed wing aircraft and helicopters by remaining on their nests, and continuing incubation or roosting (DuBois 1984, McIntyre 1995). Perched birds may flush. During aerial surveys, deference to flying eagles should be given at all times. Flights at nest sites should be terminated and the helicopter should bank away and move to the next location if Golden Eagles appear to be disturbed; i.e. behavior that indicates the birds are agitated by the presence of the helicopter. In short, observers should obtain their data, and leave as soon as possible.

Any disturbance behavior observed should be noted so that consecutive aerial surveys would be sensitive to Golden Eagles at that location. Aerial reconnaissance to inventory/survey for potential habitat and additional visits at known nests may be augmented/replaced by ground observation from a safe distance (see below). Ground observation may be the recommended alternative to additional survey flights due to convenience or necessitated by other sensitive wildlife species. Follow-up ground observation from a safe distance may also be the recommended alternative for additional nest site monitoring.

Observers in helicopters have specific duties. At least two observers may be best for aerial surveys; one the lead observer, the other(s) supplement survey effort. One observer is assigned to record data on a tape recorder (unless the verbal interchange can be recorded on the helicopters internal communication system), and the other briefly records data on hard-copy and with digital photographs. Aerial observation routes should be recorded, downloaded, and reported using Global Positioning System track routes or applicable software programs. Observation locations and time-on-site should be recorded on applicable maps to ascertain coverage of cliff systems and other potentially suitable habitat.

Summary:

- Qualified observer(s) (as defined in section VIII).
  No closer than 10-20 meters from cliff; no farther than 200 meters from cliff (safety dependent).
- Close approach and extended hovering is allowed when there are no birds on the nest to allow observers to count eggs, dead young, or confirm nest failure.
- Multiple passes or 'bands' (i.e. back and forth at different elevations above ground level) of observation across cliff habitat may be necessary to achieve complete coverage in large cliff complex'.
- Occupied territories and current and alternative nest sites will be documented; nests 'decorated' with fresh branches should also be delineated.
- Once a nest with eggs, young, or an incubating adult has been located, there is no need to search for other nests within the territory.
- Minimal hovering time at known or potential nest; ca < 30 seconds.
- At least 2 surveys of previously unsurveyed habitat will be spaced at least 30 days apart.

VII.c. Ground Surveys

Ground surveys of potential habitat

Ground surveys for Golden Eagles in potential habitat may be achieved without aerial support, or may be used to augment extant aerial surveys. Ground surveys to detect Golden Eagle nests and the selected nest at known territories are effective in habitat where observation points are established to observe areas on cliffs, utility towers, or in trees suspected to be nesting habitat. As with aerial surveys, identification criteria for nesting habitat should take place in coordination with the Service, State or Tribal wildlife agencies, and raptor specialists.

Observation posts (OP) are established during initial reconnaissance of potential or known nest cliffs, and are established in locations that are far enough from the potential nest site to effectively observe the behavior of the adults (if present) without disturbing nesting behavior. Well-placed OPs provide unobstructed viewing of the potential nest location or of the area to be surveyed; including a broad panorama of the surrounding habitat. Multiple OPs or walking surveys may be necessary to observe potential nest sites. OPs located in front of, and below the potential nest cliff or tree are best. Placing OPs below the potential nest cliff reduces stress if an incubating adult may be present. The distance from an OP to the potential nest site may range from 300 – 1600 meters (latter represents extreme circumstances) from the cliff base to the observer, and generally no greater than 700 meters.

Golden Eagles may use alternative nests. Detection of previously unknown alternate nests and observation of all known alternative nests will become important if Golden Eagles fail in their initial nesting attempt, or are not observed at the probable nest location.

Ground monitoring: known territories

Monitoring to document nesting success at known territories may occur solely via ground observations. Observation of known territories should use the methodology described for ground monitoring of potential habitat (see section VIIc). Dates of all visits to the nesting territory will be recorded; date of confirmation of nesting failure will be key data for site specific and regional analysis.

Nesting outcomes

Fledging success will be determined via the observation of young that are at least 51 days of age, or are known to have fledged from the observed nest. If there is whitewash (Golden Eagle defecation) and a well worn nest, young were previously observed in the nest to be > 4 weeks old during a previous visit, and the young would have been > 51 days old at the time of the visit, and no dead young are found after a thorough ground search, the nesting attempt can be deemed successful.

Nesting failure occurs when a nest where eggs were laid or where incubation behavior was observed fails to have any young reach 51 days of age. If necessary, nesting failure will be confirmed by using a spotting scope to view the nest to determine if dead young are observed. Nesting failures may also be determined if observations of the nest prior to the projected fledge date yields no young or fledglings where eggs or young were previously observed. In these instances observation periods should last 4 hours (consecutively), or are confirmed by aerial survey. If dead young are observed in the nest (i.e. all young are dead), monitoring efforts may cease. Nest failures may also be confirmed by an approach (walk-in) to the nest no more than 4 weeks after fledging was scheduled to occur. Observers will look for dead chicks at the base of the nest cliff or tree, where access is reasonable and safe.

Observers must document the criteria they use to conclude that success or failure occurred.

Summary

- Observation posts for monitoring known territories will be no closer than 300 meters for extended observations, and generally no further than 700 meters, where terrain allows. Maximum OP distance would be 1600 meters.

- To inventory and determine occupancy of cliff systems, there will be *at least* 2 observation periods per season. To determine fledging success, additional observations may (or may not) be necessary.
    - Observation periods will last at least 4 hours for known nest sites, or until territory occupancy can be confirmed.
    - Observation periods will last for at least 4 hours per 1.6 km of cliff system, based from the center point of that cliff complex.
    - Observation periods will be at least 30 days apart for monitoring efforts.
- To collect monitoring data at a known nest territory; there will be at least 2 observation periods per season.
    - Observation periods from ground observation points will last at least 4 hours for known nest sites or until nesting chronology can be confirmed per visit. Observation periods will be at least 30 days apart.

VIII. Observer qualifications

Surveyor experience affects the results of protocol-driven raptor surveys. All surveyors/observers should have the equivalent of 2 seasons of intensive experience conducting survey and monitoring of Golden Eagle and/or cliff dwelling raptors. That experience may include banding, intensive behavioral monitoring, or protocol-driven survey work. Experience should be detailed and confirmed with references, and provided to action and regulatory agencies. All surveyors should be well-versed with raptor research study design and Golden Eagle behavior and sign, including nests, perches, mutes, feathers, prey remains, flight patterns, disturbance behavior, vocalizations, age determination, etc. **Aerial surveys will be conducted by raptor specialists who have at least 3 field seasons experience in helicopter-borne raptor surveys around cliff ecosystems.**

In lieu of limited or no Golden Eagle experience, ground surveyors should attend at least a 2-day Golden Eagle training session convened with classroom and field components; trainers will be designated by the USFWS/USGS. Inexperienced or limited experience surveyors will be mentored by Golden Eagle specialists for at least 1-2 field seasons, depending on their experience level, and should assist with the preparation of at least 3 surveys and reports over at least 3 years. A Golden Eagle specialist is defined as a biologist or ecologist with 5 or more years of Golden Eagle or cliff dwelling raptor research/survey experience, possession of state/federal permit allowing capture, handling, and/or translocation of Golden Eagles and/or

cliff dwelling raptors; and/or relevant research on raptors published in the peer reviewed literature.

IX. Documentation and accepted notation of territory/nest site and area surveyed

Data for each territory/nest site(s) and area visited will be reported annually to the applicable regional office of the USFWS Division of Migratory Bird Management for collation into a national database.

Minimum data collected at known Golden Eagle territories

Observation of potential sites and known nest territories will produce data helpful to determine territory occupancy, productivity, and fate of the nesting attempt. Each observation and all site specific data collected should include at least;

a) date of observation,
b) time of observation(s),
c) weather during observation,
d) duration of observation,
e) name of observer(s),
f) location of observation,
g) description of observation.

Data collected during inventory and monitoring will include (at least) the following:

- Territory status (Unknown; Vacant; Occupied-1 eagle; Occupied-2 eagles- laying or non-laying; Breeding successful (chick observed to be at least +51 days-fledging), Breeding unsuccessful (failed-nesting attempt failed after eggs were laid)].
- Nest location (decimal degree lat/long or UTM).
- Nest elevation.
- Age class of Golden Eagles observed.
- Document nesting chronology;
  - Date clutch complete (estimated). Describe incubation behavior observed to derive this date, and/or use backdating from known nestling age).
  - Hatch date (estimated from age of nestlings).
  - Fledge date (known or estimated; see nesting outcomes, pp. 18).
  - Date nesting failure first observed and/or confirmed.

- Number of young at each visit and at >51 days of age.
- Digital photographs; a) landscape view of area inventoried, b) landscape view of territory, and c) nest(s).
- Substrate upon which the nest is placed (tree species, cliff, or structure).

Additional data that can be collected include (but are not limited to):

- Presence or absence of bands (USGS and VID), patagial tags (number and color), or telemetry unit.
- Forage location (if known).
- Prey items noted (if discerned).
- Height of nest on cliff or in tree, and description of technique used to estimate height.
- Species of tree, type of rock, or type of structure used to support the nest.
- Overall cliff or tree height, and description of technique used to estimate height.
- Nest aspect.
- Other nesting raptors present nearby.

Each area surveyed under the requirements of this protocol, including surveyed habitat, occupied nesting territory, historical territory, and suspected/alternative nests will be recorded in a standardized manner to allow local, regional, and national data analysis.

Recommended Golden Eagle Territory/site naming convention:

XX^1-XXX^2-XXXXX/XX^3-XXX^4-XX^5 Territory name

XX^1 = State (two letter alpha)

XXX^2 = County (three letter alpha)

XX^3 = USGS Quad [five numeric/two letter alpha] (when the territory straddles adjacent quad maps, the quad in which the first nest was found will be used to describe the territory; XX^5 is used to document the locations of alternate nests within a territory).

XXX[4]=Assigned Territory number within USGS quad (three numeric)

XX[5]=Assigned Nest number within territory in instances of alternate nests (two numeric)

Site name=traditional site name, or if new, use local naming convention (e.g. Upper fork Amundsen Creek, Fort Peck flatland, Farmer Jane's back 40).

Example CA-KER-38512/DG-03-02 Abbot Creek

X. Additional considerations

This interim document primarily contains methods for inventorying and monitoring at nest sites, but the prohibitions against take and the new regulations apply at nest sites and foraging areas, as well as during migration and other non-breeding times. The Service will develop or adopt recommendations for surveys applicable to non-nesting in other documents.

Suitable foraging habitat

Golden Eagles forage close to and far from their nests, i.e. < 6 km from the center of their territories, but have been observed to move 9 km from the center of their territories in favorable habitat (McGrady et al. 2002). These distances may be further in xeric habitat.

Suitable wintering habitat

During winter, Golden Eagles are found throughout the contiguous United States. Inventories for wintering Golden Eagles will encompass all habitat where Golden Eagles have been known to nest, roost, and forage. Refer to Wheeler (2003, 2007) for maps elucidating suitable wintering range.

Winter surveys

Survey information gathered during the non-breeding period is needed to identify foraging areas and determine numerical estimates of use by Golden Eagles. Presence of Golden Eagles during winter surveys does not necessarily mean that breeding individuals are present; however follow-up surveys during the breeding season are necessary to denote occupancy at suspected or known territories.

Migration surveys

The location of migration routes or areas in relation to a proposal that are likely to take Golden Eagles through injury or mortality may have critical implications. Therefore, evaluations should assess whether migratory or transient Golden Eagles are likely to be present during the construction and the life of the project. Other factors to consider include numbers of Golden Eagles moving through the project area, movement patterns (including a three-dimensional spatial analysis), time of day, and seasonal patterns. In the case of wind development, surveys will need to identify the locations of migration routes and movements during migration in relation to proposed turbines and rotor-swept area.

XI. Acknowledgments.

The authors are indebted to the expertise, experience, effort and kindness expended on all phases of this protocol by Dr. Mark Fuller (USGS), Mike Kochert (USGS Emeritis), and Karen Steenhof (USGS Retired). We greatly appreciate the time they took to review multiple drafts, and provide sound advice and guidance where necessary regarding all aspects of Golden Eagle inventory and monitoring. Robert Murphy's comments on earlier drafts were also appreciated. We also appreciated Peter Bloom's input and good humor regarding his observations of Golden Eagle natural history and monitoring, and the cover photograph of a Golden Eagle taken from beneath a calf carcass while he was in a southern California pit trap.

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XIII Glossary

Action agency – an agency or entity authorizing an action or plan, or providing funding for actions and plans.

Active nest (from the regulations) — a Golden Eagle nest characterized by the presence of any adult, egg, or dependent young at the nest in the past 10 consecutive days immediately prior to, and including, at present. Applies only to applications for permits to take eagle nests.

Breeding home ranges - the spatial extent or outside boundary of the movement of individuals from Golden Eagle pairs during the course of everyday activities during the breeding season.

Inactive nest (from the regulations) — a Golden Eagle nest that is not currently being used by eagles as determined by the continuing absence of any adult, egg, or dependent young at the nest for at least 10 consecutive days immediately prior to, and including, at present. An inactive nest may become active again and remains protected under the Eagle Act.

Inventory – systematic observations of the numbers, locations, and distribution of Golden Eagles and eagle resources such as suitable habitat and prey in an area.

Local area population — the population within the average natal dispersal distance of the nest or nests under consideration (43 miles for bald eagles, 140 miles for golden eagles). Effects to the local area population are one consideration in the evaluation of the direct, indirect, and cumulative effects of take, and the mitigation for such take, under eagle take permits.

Migration corridors - the routes or areas where eagles may concentrate during migration. Golden Eagles begin migrating across a broad front, but tend to concentrate along leading lines (geographical features such mountain ridges) as they move between geographic locations. Golden Eagles are observed in largest numbers along north-south oriented mountain ranges where they soar on mountain updrafts. The species typically avoids lengthy water-crossings. In North America, migrating Golden Eagles concentrate along the Appalachian Mountains in the East and Rocky Mountains in the West.

Management agency - see Action Agency.

Monitoring - inventories over intervals of time (repeated observations), using comparable methods so that changes can be identified. Monitoring includes analysis of inventory data or measurements to evaluate change within or to defined metrics. Monitoring also includes repeated observations of a known nesting territory.

Occupied Nests - those nests which are used for breeding in the current year by a pair. Presence of raptors (adults, eggs, or young), freshly molted feathers or plucked down, or

current years' mute remains (whitewash) suggest site occupancy. Additionally, for the purposes of these guidelines, all breeding sites within a breeding territory are deemed occupied while raptors are demonstrating pair-bonding activities and developing an affinity to a given area. If this culminates in an individual nest being selected for use by a breeding pair, then the other nests in the nesting territory will no longer be considered occupied for the current breeding season. A nest site remains occupied throughout the periods of initial courtship and pair-bonding, egg laying, incubation, brooding, fledging, and post-fledging dependency of the young.

Unoccupied Nests - those nests not selected by raptors for use in the current nesting season. Nests would also be considered unoccupied for the non-breeding period of the year. The exact point in time when a nest becomes unoccupied should be determined by a qualified wildlife biologist based upon observations and that the breeding season has advanced such that nesting is not expected. Inactivity at a nest site or territory does not necessarily indicate permanent abandonment.

Productivity — the mean number of individuals fledged per occupied nest annually.

Survey –is used when referring to inventory and monitoring combined.

10 mile buffer around GENESIS For GDEA surveys.

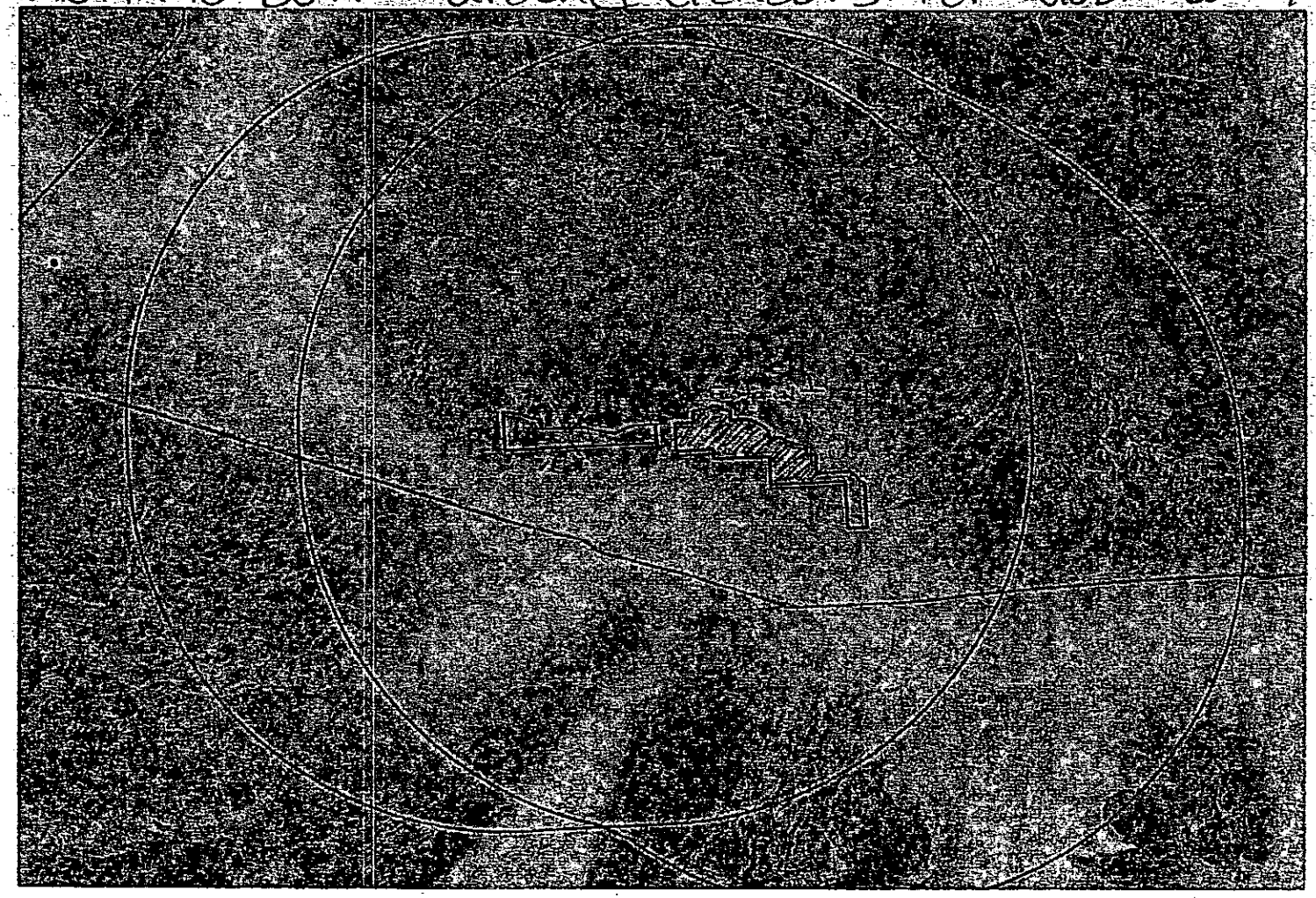

EXHIBIT 507

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

REBUTTAL TESTIMONY OF SCOTT CASHEN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON BIOLOGICAL RESOURCES FOR THE GENESIS SOLAR ENERGY PROJECT

June 25, 2010

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I. INTRODUCTION

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Project") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential environmental impacts and alternatives.

I have a Master's of Science Degree in Wildlife and Fisheries Science from the Pennsylvania State University, University Park. The degree program included coursework in Landscape Ecology, Biometrics, Statistics, Conservation Biology, and Wetland Ecology. For my thesis, I conducted seven seasons of independent research on avian use of restored wetlands. The U.S. Fish and Wildlife Service subsequently used my technical report as a model for other habitat restoration monitoring projects in Pennsylvania.

My employment experience has included work in the fields of wildlife biology, forestry, and natural resource consulting. Much of my work over the past two and a half years has involved review of environmental documents associated with development of large-scale solar energy facilities. To date, I have served as an expert on 12 different solar projects, 9 of which are being sited in the Mojave or Sonoran Desert. I am currently concluding a two-year contract I hold with the State of California to conduct surveys for the Peninsular bighorn sheep near Anza-Borrego Desert State Park. I serve as a member of the scientific review team responsible for assessing the effectiveness of the U.S. Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.

For the past two and a half years I have operated my own consulting business. I previously served as a Senior Biologist for TSS Consultants and ECORP Consulting. Other positions I have held have included conducting wildlife research for the National Park Service, the Point Reyes Bird Observatory, and the University of California. While in graduate school I served as an instructor of Wildlife Management and as a teaching assistant for a course on ornithology.

My testimony is based on the activities described above, the Applicant's Revised Opening Testimony dated June 18, 2010, and the knowledge and experience I have acquired during more than 18 years of working in the field of natural resources management.

II. IMPACTS TO WILDLIFE FROM PROJECT NOISE

The Applicant has proposed modifications to noise mitigation measures such that loud noises would be avoided from February 15 to April 15 when the Project would result in noise levels over 60 dBA in nesting habitat "*within 250 feet of the site's borders, to avoid impacts to breeding birds immediately outside the Project area.*"[1] In addition, the Applicant has proposed scenarios under which it would ***not*** be required to provide mitigation for Project noise. These include:

a. if these same noise levels and types began prior to Feb 15, in which case it would be assumed that birds had become habituated to the noise prior to nesting;

b. if nesting bird surveys confirm that no birds are nesting within 250 feet of the Project border, or have completed nesting; and

c. if nest monitoring confirms that birds do not alter their nesting behavior in response to the noise.[2]

The Applicant's proposed changes would undermine the effectiveness of Staff's proposed mitigation. The Applicant did not perform full noise modeling for Project operation.[3] However, Staff has estimated that at a distance of five miles from the Project site, steam blows would attenuate to about 82 dBA and noise from pile driving would attenuate to 47 dBA.[4] Based on his literature review, Kaseloo (2006) reported that breeding bird densities decreased when nesting birds were exposed to noise levels ranging from 36 to 58 decibels (depending on the species.).[5] Research conducted by Reijnen et al. (1997) led the researchers to conclude that sound levels above 50 dBA could be considered potentially deleterious to breeding birds.[6] These conclusions—which are based on scientific research—indicate that habitat within several miles of the Project would be subject to noise disturbance, and that without appropriate mitigation, some species would be adversely affected. The Applicant's proposal to consider mitigation only for areas within 250 feet of the Project border ignores the majority of land (and thousands of acres) susceptible to adverse Project noise effects. It also focuses on land where many bird species will have already abandoned their territories due to the Project's "edge effect."

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[1] Applicant's Revised Opening Testimony, p. 7.
[2] Id.
[3] RSA, p. C.7-9.
[4] Id, p. C.7-8.
[5] Id.
[6] Reijnen R, R Foppen, G Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and planning and managing road corridors. Biodiversity and Conservation 6: 567-581.

A. The Applicant Has No Basis to Presume Habituation

The Applicant's presumption that birds would become habituated if these "same" noise levels and types began prior to February 15 relies on the assumption that the species of interest would be present both before and after nesting is initiated. However, it does not account for the fate of birds that arrive on the breeding grounds after Project noise has begun. Exclusion of wildlife from suitable habitat via disturbance is often equivalent to human-caused mortality.[7] Project noise would deter many species from nesting in the Project region, particularly if alternative sites are not readily available. Demonstrating alternative sites are available requires more than a cursory examination of other nearby habitats that would not be exposed to Project noise; it would require data indicating the availability of an unoccupied territory for each bird that is displaced by Project noise. Obtaining such data would require rigorous scientific study, which has not been attempted by the Applicant.

Evidence is accumulating that impulse noise and continuous noise differ both in their potential physical effects, namely hearing damage, and in their sensory-mediated physiological and behavioral effects.[8] Context, including acoustic context, is an important influence on habituation and other learning (Shalter 1984), as is illustrated in a series of laboratory experiments on sensitization (which is the reverse of habituation).[9] Davis (1974) presented albino rats with sudden-onset loud tones (110-120 dB) in the presence of a background of continuous white noise.[10] When the background noise was moderate (60 dB), the rats' startle response diminished after a few presentations of the tone, showing habituation.[11] However, with only 20 dB louder background noise, the rats showed successively stronger startle responses, or sensitization.[12] The Applicant's presumption that birds would become habituated to Project noise ignores the context of noise exposure, including the various environmental variables (e.g., weather) that would affect noise levels at various times (e.g., before and after nesting is initiated).

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[7] National Park Service. 1994. Report to Congress: Report on effects of aircraft overflights on the National Park System; Larkin R. 1996. Effects of military noise on wildlife: A literature review. USA CERL Technical Report [internet; cited 22 Jun 2010]. Available from: http://nhsbig.inhs.uiuc.edu/bioacoustics/noise_and_wildlife.pdf

[8] Id.

[9] Id.

[10] Id.

[11] Id.

[12] Id.

B. The Absence of Bird Nests Cannot Be Confirmed and is Not an Appropriate Metric to Conclude No Impact

Bird nests are difficult to detect. As a result, the Applicant has no scientific basis to conclude it would be able to confirm that no birds are nesting within 250 feet of the Project border (especially through the two surveys proposed by Staff). Furthermore, even if a bird is not nesting within 250 feet of the Project border, it may be using the area (within 250 feet) for foraging and communication (e.g., territory defense). The Applicant's proposal ignores these functions, which are essential to nesting success and survival.

C. The Applicant Has Not Provided Techniques for Nest Monitoring

The Applicant's proposal to eliminate mitigation if nest monitoring confirms that birds do not alter their nesting behavior in response to the noise lacks support. Specifically, the Applicant has not provided any information on how it would conduct monitoring, or how it would determine birds are not altering their nesting behavior.

Wildlife may be adversely affected by noise, yet exhibit no visual cues of disturbance.[13] For example, there have been several studies that have demonstrated increased stress hormones (but no visual response) in animals exposed to noise.[14] Elevation of these hormones can reduce reproductive output and result in numerous physiological ailments.[15] Psychological tests on humans clearly indicate that noise affects performance on tasks conducted after the noise ceases.[16] This occurs even if no effects appear during the noise. Such behavioral after-effects of noise are well documented for both steady and time-varying noises (Cohen 1980, Glass and Singer 1972).[17] Even when habituation to a stimulus has occurred, significant physiological effects may nevertheless be taking place.[18]

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[13] Id.

[14] Manci KM, DN Gladwin, R Villella, MG Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. National Ecology Research Center Report # NERC-88/29.

[15] Id.

[16] National Park Service. 1994. Report to Congress: Report on effects of aircraft overflights on the National Park System; Larkin R. 1996. Effects of military noise on wildlife: A literature review. USA CERL Technical Report [internet; cited 22 Jun 2010]. Available from: http://nhsbig.inhs.uiuc.edu/bioacoustics/noise_and_wildlife.pdf

[17] Id.

[18] Id.

Monitoring avian response to Project noise represents a *reactive* measure (i.e., implemented after disturbance has occurred). Given the numerous, significant consequences noise can have on wildlife, and given most bird species are protected by the Migratory Bird Treaty Act, the Applicant's mitigation measures should be *proactive* (i.e., designed to avoid a disturbance).

D. The Applicant's Rationale is Not Supported by Scientific Literature

In its testimony, the Applicant states "[t]he purpose of minimizing noise impacts is to ***insure*** that wildlife outside the project disturbance area, especially nesting birds, are not adversely affected by construction noise."[19] If the purpose is to insure wildlife are not adversely affected, noise mitigation measures should be strengthened—not weakened.

The Applicant claims a buffer distance of 250 feet is mandated for nesting burrowing owls "so it [250 feet] is used as the benchmark for species that have a lesser legal status or none."[20] The Applicant's statement is misleading. First, the Migratory Bird Treaty Act (Act) provides legal protection to almost all of the bird species that may nest within the Project region. The Act makes it unlawful to cause a "take" to any covered bird species, and individuals have been successfully prosecuted for violating the Act, even when take was unintentional. Second, 250 feet is ***not*** used as a benchmark for other species with similar legal status. For example, Suter and Joness (1981) recommended keeping construction and similar noisy activities at least one kilometer (3,280 feet) away from golden eagle, prairie falcon, and ferruginous hawk nest sites to avoid nest abandonment.[21, 22] As I discussed in my opening testimony, there is considerable intra and inter-species variation in wildlife response to noise disturbance. If such variation is ignored, conservation strategies and biological descriptions will be inaccurate and rarely effective. As a result, noise buffers should be based on the ecology of the various target species, not the buffer distance recommended for burrowing owls.

Scientific literature suggests burrowing owls are more tolerant of noise disturbance than many other species. Miller (2003) reported that burrowing owls can tolerate a certain amount of non-threatening human activity, noise,

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[19] Applicant's Revised Opening Testimony, p. 7. [emphasis added].
[20] Id.
[21] Suter GW II, JL Joness. 1981. Criteria for golden eagle, ferruginous hawk, and prairie falcon nest site protection. Raptor Research 15(1):12-18.
[22] Ferruginous hawk and prairie falcon have legal status comparable to the burrowing owl, although ferruginous hawks do not breed in California. Although the golden eagle is not a "listed" species, it is protected under the Bald and Golden Eagle Protection Act.

and disturbance as long as other habitat requirements are met.[23] Plumpton and Lutz (1993) found that burrowing owls largely ignored road traffic.[24] Other bird species (including other special-status species) are much less tolerant of noise disturbance. Therefore, to insure that ***all*** wildlife outside the project disturbance area are not adversely affected by Project noise, the Applicant should establish a buffer that is based on the requirements of the most sensitive species, not one of the least sensitive ones.

III. SELECTION CRITERIA FOR COMPENSATION LANDS

The Applicant has proposed modifying the selection criteria for compensation lands. Specifically, the Applicant has proposed that (a) the quality and function of the compensation lands selected for acquisition be equal to or better than the quality and function of the habitat impacted; and (b) compensation lands need not be occupied by desert tortoise.[25]

Establishing the "quality and function" of habitat is a complicated endeavor. For it to be a useful measure, habitat quality must be explicitly linked with demographic features.[26] Thus, habitat quality should not be based on the number of organisms, but on the demographics of individual populations.[27] Both biotic and abiotic factors contribute to land "functions." For example, soils (abiotic) enhance water quality, whereas bats (biotic) prevent insect outbreaks. Thus, understanding the ecological roles of a species is essential to establishing "functions." [28]

The Applicant has not established the "quality and functions" of the Project site, nor has it established how it would measure them at the compensation lands. Furthermore, the absence of desert tortoise on the compensation land (as proposed by the Applicant) inherently reduces its functions, and may indicate that it is lower quality. As a result, the Applicant's proposed changes to the selection criteria should be rejected.

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[23] Miller J. 2003. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cunicularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. Available from Ctr. Biol. Diversity, 1095 Market St., Suite 511, San Francisco, CA 94103.

[24] Plumpton DL, RS Lutz. 1993. Influence of vehicular traffic on time budgets of nesting burrowing owls. Journal of Wildlife Management 57:612-616.

[25] Applicant's Revised Opening Testimony, pp. 9,10.

[26] Morrison ML. 2002. Wildlife restoration: techniques for habitat analysis and animal monitoring. Washington (DC): Island Press.

[27] Id.

[28] Id.

IV. MITIGATION FOR BURROWING OWLS

The Applicant's proposed changes to Staff's recommended mitigation for Project impacts to burrowing owls include conducting surveys "in areas where burrowing owls or burrows showing owl use were observed during desert tortoise clearance surveys."[29] The measures that have been proposed to mitigate Project impacts to burrowing owls remain vague. Consequently, additional information is required before Staff can conclude the measures might be effective. I outline the basis for this assertion in the subsequent testimony.

First, although the methods used for pre-construction burrowing owl surveys were not provided in the RSA, the Applicant's testimony suggests desert tortoise clearance surveys will be the primary means of detecting owls. Desert tortoise clearance surveys involve implementing linear transects throughout the Project area.[30] Scientific research suggests linear transects are an ineffective method for surveying burrowing owls. Conway and Simon (2003) studied the detection probability associated with burrowing owl survey methods. The researchers concluded "[w]alking line-transect surveys proved ineffective and inefficient for monitoring burrowing owls at large (statewide) scales."[31] Additional research by Conway and others (2008) concluded a significant ($P < 0.025$) relationship between detection probability and nestling period, ambient temperature, and the interactions among the other five factors that were examined (i.e., study area, time of day, timing within the breeding season, wind speed, % cloud cover).[32] The proposed pre-construction surveys for burrowing owls do not appear to consider any of these variables except perhaps time of day (the Applicant did not specify whether desert tortoise clearance surveys would adhere to the time of day restrictions identified for burrowing owl surveys).[33]

Based on their research, Conway and others recommended three surveys (one during the egg laying and incubation phase, another when most owls have young nestlings, and a third when most nestlings will be spending time above ground).[34] They further recommended conducting surveys when

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[29] Applicant's Revised Opening Testimony, p. 19.
[30] RSA, p. C.2-227.
[31] Conway CJ, JC Simon. 2003. Comparison of detection probability associated with burrowing owl survey methods. Journal of Wildlife Management 67(3):501-511.
[32] Conway CJ, V Garcia, MD Smith, K Hughes. 2008. Factors affecting detection of burrowing owl nests during standardized surveys. Journal of Wildlife Management 72(3):688-696.
[33] *See* RSA, p. C.2-244.
[34] Conway CJ, V Garcia, MD Smith, K Hughes. 2008. Factors affecting detection of burrowing owl nests during standardized surveys. Journal of Wildlife Management 72(3):688-696.

ambient temperature is > 20° C, and wind speed is < 12 km per hour.[35] Lastly, call-broadcast surveys were shown to significantly increase the number of owls detected ($P < 0.001$). These recommendations and findings should be incorporated into the Applicant's pre-construction owl surveys.[36]

Second, the Applicant has proposed maintaining the functionality of replacement burrows "for a maximum of two years"[37] (the RSA recommends five years).[38] The Applicant has not identified the appropriate variable of interest, which is the *minimum* length of time burrows would be maintained. The Applicant's stated rationale for reducing the maintenance period is "[i]f owls do not use the burrows for two years, then it is assumed that the relocated owls have chosen other nest burrows."[39] However, equally valid assumptions are that the Applicant did not provide appropriate replacement burrows, or that it did not maintain their functionality. Both of the latter assumptions would suggest the need to implement adaptive management and additional monitoring—not relinquishment of responsibility.

The Applicant's testimony states "[i]f owls are using the burrows, then the burrows should not be disturbed."[40] Presumably this means the Applicant will not be disturbing occupied burrows to construct the Project (the RSA suggests potential for passive relocation).[41]

Third, the Applicant has proposed eliminating the RSA's requirement for weed control at the burrowing owl relocation area. The Applicant's stated rationale is that "[w]eeds are already present throughout the Project Vicinity. The relocation area will not be in an area with unusually high concentrations of weeds."[42] The Applicant's rationale does not support its position. If weeds are already present in the vicinity, and if the relocation area will not be an area with unusually high concentrations of weeds, then it is the exact type of area where weed control *should be* implemented (i.e., to prevent conversion from non-infested to infested). Furthermore, the Applicant's testimony fails to explain how it was able to conclude the relocation area will not be in an area with unusually high concentrations of weeds because the relocation area has not been identified.

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[35] Id.
[36] Id.
[37] Applicant's Revised Opening Testimony, p. 21.
[38] RSA, p. C.2-248.
[39] Applicant's Revised Opening Testimony, p. 21.
[40] Id.
[41] *See* RSA, p. C.2-245.
[42] Applicant's Revised Opening Testimony, p. 21.

V. MITIGATION FOR PROJECT IMPACTS TO MOJAVE FRINGE-TOED LIZARD

In its Revised Opening Testimony, the Applicant states it does not believe the Project will have indirect impacts to sand transport, and thus it has eliminated Staff's proposed mitigation for what the Applicant calls "non-existent indirect effects."[43] I cannot comment on the validity of the Applicant's argument about sand transport. However, I have reviewed the testimony of Dr. Greg Okin, whose research was cited in the RSA. Dr. Okin testified that "[r]emoval or disturbance of the pavement clasts that protect the [Project] surface can be expected to have major impacts on the availability and transport of wind-borne material."[44] Dr. Okin further testified "Qal and Qsr surfaces, while stable in the absence of a disturbance, have the potential to become significant sources of offsite impacts in terms of both biological resources (e.g., vegetation and fauna in the downwind area) and air resources (e.g., dust). The potential for these surfaces to yield significant offsite impacts appears to have been inadequately evaluated in the RSA."[45]

In addition to sand transport, the RSA identified numerous other indirect Project impacts that are expected to adversely affect Mojave fringe-toed lizards. These include the introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; fragmentation and degradation of remaining habitat; increased road kill hazard from construction and operations traffic; and harm from accidental spraying/drift of herbicides and dust suppression chemicals.[46] These are not "non-existent indirect effects" as suggested by the Applicant.[47] Therefore, I concur with Staff's conclusion that compensatory mitigation should be provided for indirect Project impacts to Mojave fringe-toed lizards. However, as stated in my opening testimony and in the testimony provided by the Center for Biological Diversity, effectively offsetting Project impacts requires a higher mitigation ratio than the 0.5:1 ratio currently proposed by Staff.[48]

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[43] Applicant's Revised Opening Testimony, pp. 45,46.
[44] Testimony of Dr. Greg Okin, p. 3.
[45] Id., p. 4.
[46] RSA, p. C.2-65.
[47] Applicant's Revised Opening Testimony, p. 46.
[48] Testimony of Ilene Anderson, Center for Biological Diversity, p. 4.

VI. MITIGATION MEASURES FOR EVAPORATION PONDS

A. Deterrent Methods

The Applicant has requested that a variety of deterrent methods, including but not limited to netting, be considered as mitigation for the potentially significant impacts associated with the proposed evaporation ponds.[49] Specifically, the Applicant proposes to investigate feasible and effective technologies by monitoring and analyzing the effectiveness of each technology that it implements.[50] The Applicant's proposed changes to Staff's recommended mitigation should be rejected for the following reasons.

First, the Applicant's proposal significantly undermines CEQA's goals of full disclosure and informed decision making. The Applicant has not provided **any** information on the technologies that would be implemented or data that substantiate other technologies are effective deterrents for the species of concern. In contrast, complete screening or netting has been demonstrated to be effective in excluding birds and it has been adopted by many state and federal fish hatcheries.[51]

Second, the Applicant has not provided **any** information on how it would monitor and analyze each technology, including the data that would be collected, the methods for collecting these data, and whether statistical procedures would be used to support its analyses.

Third, many visual and sound-making devices are commercially available for frightening birds. However, the value of these devices is usually limited to short-term control.[52] Because of all the variables involved, the success of a frightening program is dependent on the skill and motivation of the operator.[53] Gorenzal et al. (1994) reports that frightening devices are not effective unless used aggressively in a carefully planned program.[54] The Applicant has not provided a carefully planned program.

Fourth, sound-making devices that are used as deterrents have the potential to exacerbate unmitigated Project noise (e.g., steam blows). If the Applicant proposes use of such devices, it needs to provide an analysis of their contribution to adverse noise impacts.

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[49] Applicant's Revised Opening Testimony, p. 48.
[50] Id., p. 48.
[51] Gorenzel WP, FS Conte, TP Salmon. 1994. Bird Damage at Aquaculture Facilities in Hygnstrom SE, RM Timm, GE Larson, editors. Prevention and Control of Wildlife Damage. University of Nebraska, Lincoln.
[52] Id.
[53] Id.
[54] Id.

B. Pond Monitoring

The Applicant has modified Staff's recommended mitigation, such that it now states: "[i]f dead or entangled birds are detected, the Designated Biologist shall take immediate action ***to assess the situation and*** to correct the source of mortality or entanglement, ***if appropriate***."[55] The Applicant needs to provide additional information before its proposed modification to the condition is considered. Specifically, the Applicant needs to clarify how it will "assess the situation." In most instances, a necropsy would be the most accurate way to assess the situation and correct the source of mortality. I recommend a necropsy be required for any dead birds found not only at the evaporation ponds, but anywhere within the Project site where cause of death cannot be readily identified.

Further, the clause "if appropriate" appears to introduce a large element of subjectivity into the monitoring program and it eliminates identifiable triggers for remediation. As a result, it should be rejected.

VII. MITIGATION FOR SPECIAL-STATUS PLANT SPECIES

A. Avoidance and Minimization Measures

The RSA concluded that the avoidance, minimization and compensation measures described in Condition of Certification BIO-19 (special-status plant mitigation) would minimize the impacts to Harwood's eriastrum, Harwood's milk-vetch, and any other special status plant species to a level less than significant.[56] The conclusion presented in the RSA was based on Staff's recommended avoidance and minimization measures being applied to all special-status plants.[57]

In its Revised Opening Testimony, the Applicant stated that onsite avoidance will not be possible "where 100% site grading and surface disruption is necessary to construct and operate the Project, or on any area that has been cleared during construction."[58] The RSA indicates grading activities will occur over an extensive portion of the site (including the Colorado River Substation).[59] Staff's conclusion on significance was based on the presumption that the Applicant would implement the recommended avoidance and mitigation measures. Because the Applicant is unable to

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[55] Applicant's Revised Opening Testimony, p. 48.
[56] RSA, p. C.2-70.
[57] Id., p. C.2-102.
[58] Applicant's Revised Opening Testimony, p. 23.
[59] RSA, pp. B.1-19,21.

implement these measures, the Project would result in unmitigated significant impacts to special-status plants.

The Applicant has proposed eliminating the need to prepare a Special-Status Plant Impact Avoidance and Minimization Plan ("Plan").[60] The Applicant's rationale for eliminating the Plan includes the statement that "[n]o listed, special-status plants have been observed at Genesis; nor are they expected to be found during Fall 2010 surveys, and therefore a separate Plan is not necessary."[61] The Applicant's statement is misleading and lacks foundation.

First, it needs to be clear that the Applicant's use of the term "listed" incorporates only those species that are listed under the State or Federal Endangered Species Act (CESA and ESA, respectively); it does not incorporate the rare and/or sensitive species listed by the California Native Plant Society (CNPS), Bureau of Land Management, California Department of Fish and Game, U.S. Forest Service, and U.S. Fish and Wildlife Service. In some cases, species that are not covered by CESA or ESA face greater risk of extinction (or extirpation) than those that are covered. California Department of Fish and Game guidelines explicitly state that a species may meet the definition of rare or endangered if it: (a) is on CNPS Lists 1A, 1B, or 2; (b) has local significance; or (c) is listed in the California Natural Diversity Database (CNDDB).[62] The RSA notes that very rare and critically imperiled species may occur on the Project site, and for these species, the Project owner would be required to incorporate site design modifications to minimize impacts and meet the avoidance standard.[63]

Second, the RSA indicates "listed" plant species have the potential to occur in the Project study area.[64] Whereas the Applicant may not expect to be find listed plant species during the fall 2010 surveys, listed plant species may be present.

Finally, mitigation for the Project should not be decided by expectations of survey results for surveys that have not yet been conducted. Such a presumption is unrealistic for two reasons. First, it is difficult to predict the outcomes of surveys due to the new and unexpected plant discoveries that have been occurring in the desert. Second, the flora of the Desert Floristic Province is poorly understood and therefore surveys may

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[60] Applicant's Revised Opening Testimony, p. 24.
[61] Id.
[62] CDFG. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Available at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Plants.
[63] RSA, p. C.2-113.
[64] Id., Biological Resources Table 3, p. C.2-22.

yield completely unexpected results. These rationalizations are supported throughout the RSA, and are best exemplified by the RSA's discussion of a potentially ***new taxon*** of saltbush (*Atriplex*) that was discovered on the margins of Palen Dry Lake last year.[65] The RSA also discusses the "unpredictability of the region's rare plant flora,"[66] and indicates "rare plants have very specific microhabitat requirements that are often poorly understood."[67]

B. Triggers

The Applicant proposes to eliminate triggers for implementation of mitigation. Triggers for remedial measures, as well as specific and mandatory performance standards are essential to an effective mitigation program. As a result, the Applicant's proposal to eliminate triggers should be rejected.

C. Considerations for Increased Protection

The RSA requires additional protection for plant populations that represent a significant range extension or disjunct occurrence (e.g., is located outside of the 9-quad region centered on the nearest known occurrence). The Applicant proposes to modify this consideration with the clause "that is not likely solely the result of a lack of surveys."[68] Conclusions reached through the Applicant's clause would be totally subjective. As a result, the Applicant's proposed modification should be rejected.

The Applicant states "[s]pecies that are largely on private lands already generally have a higher CNPS listing or sensitivity ranking than other species. A new threats analysis for each species, based on these factors, is not warranted."[69] The Applicant's statement is unsubstantiated, and at best represents an inappropriate generalization. As a result, it has not provided a sufficient basis to eliminate threats analysis.

D. Compensation Ratios

The Applicant has proposed reducing each of the various compensation ratios recommended in the RSA. The Applicant's stated rationale for doing so is that "[t]here are no listed species."[70] Surveys to document rare plant

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[65] Id., p. C.2-30.
[66] Id., p. C.2-112.
[67] Id., p. C.2-169.
[68] Applicant's revised opening testimony, p. 33.
[69] Id.
[70] Id, pp. 38, 40.

species on the Project site ***have not been completed.*** Therefore, the Applicant's rationale lacks any merit and the RSA's proposed compensation ratios should be maintained (or increased).

E. Alternatives to Compensation

In lieu of acquiring lands or undertaking habitat enhancements, the Applicant has proposed seed collection.[71] Collected seeds would be stored and made available for contingency efforts.[72] There is no conceivable way that the Applicant's proposed seed collection measures could be considered adequate replacement for acquiring lands or undertaking habitat enhancements.

First, CNPS guidance explicitly states losses of plant populations considered "significant" under CEQA cannot be mitigated to less-than-significant levels using *ex situ* conservation techniques (e.g., propagation and transplantation).[73] Second, the Applicant does not identify or discuss any of the variables associated with the mitigation proposal. These include (a) the location of lands for seed dispersal, and a mechanism for the conservation and management of these lands; (b) the success criteria associated with the mitigation program, and triggers for remedial measures if success criteria are not achieved; (c) the means for assessing and preventing genetic contamination at the receiving site; and (d) the monitoring that will be conducted to evaluate success of the proposed mitigation. Each of these variables is likely critical to the potential for the proposed mitigation to succeed.

Although seed collection and dispersal might have some merits, I reiterate that it cannot be considered an effective means of mitigating impacts. Fiedler (1991) conducted a thorough review of mitigation-related transplantation, relocation and reintroduction attempts involving special-status plants in California.[74] The author reported only 8 of the 53, or 15 percent of the 53 attempts reviewed in her study should be considered fully successful.[75] Although Fiedler reported several causes for the failed attempts, the common result was that the plants died.

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[71] Applicant's revised opening testimony, p. 43.
[72] Id.
[73] California Native Plant Society. 1992. Policy on appropriate application of *ex situ* conservation techniques. Available from: http://www.cnps.org/cnps/archive/ex_situ.pdf
[74] Fiedler PL. 1991. Mitigation-related transplantation, relocation and reintroduction projects involving endangered and threatened, and rare plant species in California. Final Report. Available at: nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=3173.
[75] Id.

VIII. METHODS FOR SPECIAL-STATUS PLANT SURVEYS

The Applicant proposes to "[d]etermine locations of special-status plant populations during preconstruction surveys, if those surveys can be conducted when plants would be present and identifiable."[76] Presumably this means the Applicant would conduct plant surveys while conducting clearance surveys for desert tortoise and other taxa. The "catch-all" survey approach is not reliable. The Staff Assessment for the Imperial Valley Solar Project concluded plant survey results were not adequate because surveyors were distracted by looking for certain special-status wildlife species.[77]

A. Documenting Occurrence

The Applicant proposes to document the full extent of special-status plant species populations, both onsite and offsite, "as practical."[78] The Applicant has not defined what it considers "practical." Consequently, the need to document existing conditions is at the sole discretion of the Applicant, and is therefore unenforceable.

The Applicant states the full extent of "commonly occurring" special-status species, and species that are "dense within the population," need not be documented.[79] For these species, the Applicant proposes to identify the part of the plant population that may be affected by Project activities.[80] It is well established that there are numerous indirect impacts of the Project, and that many of these impacts are likely to affect plants occurring offsite. As a result, the Applicant should be required to document all special-status species occurring within one mile of the Project footprint.

IX. BUFFERS FOR ENVIRONMENTALLY SENSITIVE AREAS

The RSA discusses the need to establish buffers around environmentally sensitive areas (ESAs). ESAs would be established for protected plant species occurrences, and they would be a minimum of 20 feet from the uphill side of the occurrence and 10 feet from the downhill side.[81] The Applicant proposes establishment of ESAs "as much as feasible," and where establishment of a buffer is not practical, the Applicant would install

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[76] Applicant's Revised Opening Testimony, p. 25.
[77] Staff Assessment for the Imperial Valley Solar Project, p. C.2-3.
[78] Applicant's revised opening testimony, p. 29.
[79] Id.
[80] Id.
[81] RSA, p. C.2-249.

other barriers such as coirs or drift fences.[82] The Applicant has not defined what is considered "feasible." Consequently, implementation of ESAs is at the sole discretion of the Applicant, and is therefore unenforceable.

Moreover, scientific knowledge further dictates the proposed protection measures would be ineffective. Protection measures (including buffer size) need to be based on a plant's ecological requirements (e.g., sunlight; moisture; shade tolerance; edaphic, physical, and chemical characteristics) and the threats to its viability (including adjacent land use). Staff presented this very conclusion in the Staff Assessments prepared for the Ivanpah Solar Electric, Imperial Valley Solar, and Calico Solar projects (among others). Staff on the Calico Solar project concluded a 250-foot buffer would be needed for on-site plant protection.[83] There is no basis to conclude a buffer roughly 1/12th the size of that recommended for the Calico Solar Project would provide sufficient protection at the Genesis Project site, especially when considering the technology associated with the Calico Solar Project would cause considerably *less* of a threat to ESAs.[84]

The ecological requirements of most plant species are poorly understood. However, scientific knowledge supports the inference that a project of this size (i.e., approximately 1,800 acres) will disrupt the ecological processes (e.g., seed dispersal, pollination, and gene flow) that may be necessary to maintain viable populations. The RSA lists at least 10 distinct, indirect impacts that Staff anticipates will affect special-status plants.[85] I cannot envision a scenario in which a buffer of 10 feet would be likely to protect a plant from these impacts. The Energy Commission Staff that evaluated the Ivanpah Solar Electric Project derived a verdict. Specifically, Staff concluded mitigation that relied on maintaining islands of protected plants within a disturbance matrix was "infeasible to protect the special-status plants from significant indirect impacts (i.e., from introduction and spread of non-native plants, alterations of the local hydrology, higher than normal dust levels, etc.)."[86] A similar conclusion is warranted for special-status species within the Project site, regardless of the buffer size, and irrespective of the Applicant's proposed changes to the condition of certification.

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[82] Applicant's Revised Opening Testimony, p. 25.
[83] Calico Solar Project SA/DEIS, p. C.2-175.
[84] The SunCatcher technology does not require mass-grading, uses less water (including for mirror washing), and may generate less shade. *See* Calico Solar Project SA/DEIS, Section C.2.
[85] RSA, p. C.2-111.
[86] Energy Commission Staff's Rebuttal Testimony, Ivanpah Solar Electric Generating System. p. 28.

X. MONITORING OF ENVIRONMENTALLY SENSITIVE AREAS

The RSA recommended monitoring of the ESAs for the duration of Project construction, and for the life of the Project. The Applicant has proposed eliminating this monitoring. The Applicant's stated rationale is: "[t]he purpose of the ESA is to avoid impacts to special status plants. Once the potential for impacts in the vicinity of the ESA is no longer present, monitoring of the ESA is no longer necessary."[87] The Applicant's rationale lacks any merit and its proposed changes should be rejected. As I discussed in the previous section, Staff expects the Project to generate at least 10 types of indirect impacts that are expected to affect special-status plants.[88] Most of these impacts would pose a threat for the life of the Project (and after).

The RSA requires the Applicant to submit a monitoring report every year for the life of the Project.[89] The stated intent of the monitoring report is to monitor the effectiveness of protection measures for all avoided special-status plants. According to the RSA, the monitoring report shall include "a description of the remedial action, if warranted and planned for the upcoming year."[90] However, the RSA does not provide the triggers for remedial action or a means of enforcing it. As a result, the proposed mitigation lacks assurance that potentially significant Project impacts will be mitigated.

XI. GROUNDWATER-DEPENDENT VEGETATION SPECIES WITHIN THE PROJECT VICINITY

The Applicant's Revised Opening Testimony states, "Genesis has demonstrated that there are no groundwater dependent communities or vegetation within the Project Disturbance area or vicinity, including Ford Dry Lake."[91] This is not an accurate statement.

The Applicant's statement is not supported by its own data. Desert dry wash woodland communities occur in the Project vicinity.[92] According to the California Department of Fish and Game, desert dry wash woodland typically contains species such as "blue leaf palo verde, littleleaf palo verde, [and] desert ironwood."[93] In its "Survey for Jurisdictional Waters and Wetlands" report, the Applicant states, "the larger washes (typically over 6 feet) that contain sandy, gravely substrate and well-defined banks typically

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[87] Applicant's Revised Opening Testimony, p. 26.
[88] RSA, p. C.2-111.
[89] RSA, p. C.2-262.
[90] Id.
[91] Applicant's Revised Opening Testimony, p. 51.
[92] AFC, Bio Tech Report, p. ES-1; RSA, Figure 11-B.
[93] Laudenslayer WF Jr. 1988. Desert Wash Vegetation In A Guide to Wildlife Habitats of California. State of California, Resources Agency, Department of Fish and Game.

include scattered desert wash tree species such as ironwood [and] palo verde."[94] Within the survey area[95] alone, the Applicant estimated ironwood trees were associated with four different ephemeral washes and palo verdes with at least six washes.[96] Large communities of between 740 and 832 trees were estimated present in washes 24, 25, and 26.[97] Varieties of palo verde as well as ironwood are characterized as groundwater-dependent species throughout the scientific literature.[98]

Furthermore, the Applicant's assertion that no groundwater-dependent communities or vegetation exist within the Project vicinity contradicts information presented in the NECO Plan and the conclusions made by Staff in the RSA. According to the NECO Plan, "[l]arge nonsucculent perennials [in the plan area] are able to survive using moisture **deep in the soils**" (i.e., by using groundwater).[99] The RSA provides extensive discussion of groundwater-dependent vegetation in the Project area, and it sufficiently justifies its presence.[100]

XII. INACCURATE CLASSIFICATION OF PHREATOPHYTES WITHIN THE PROJECT VICINITY

The Applicant has testified that phreatophytes[101] ***are*** located within the Project area.[102] This is in direct contradiction to its claim that no groundwater-dependent species exist within the Project area and vicinity.

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[94] TetraTech EC, Inc. 2009 Aug. Survey for Jurisdictional Waters and Wetlands at the Genesis Solar Energy Project, Eastern Riverside County, California. p. 7.
[95] Defined by the Applicant as the proposed disturbance area, as well as a 500-foot buffer corridor for the linear facility routes. *See* TetraTech EC, Inc. 2009 Aug. Survey for Jurisdictional Waters and Wetlands at the Genesis Solar Energy Project, Eastern Riverside County, California.
[96] TetraTech EC, Inc. 2009 Aug. Survey for Jurisdictional Waters and Wetlands at the Genesis Solar Energy Project, Eastern Riverside County, California.
[97] Id, p. C-1; TetraTech EC, Inc., 2010. Revisions to Jurisdictional Waters for the Genesis Solar Energy Project.
[98] Nilsen, Erik Tallak, M. Rasoul Sharifi, and Philip W. Rundel. 1984. Comparative Water Relations of Phreatophytes in the Sonoran Desert of California. *Ecology*, 65(3), pp. 767-778.; Solbrig and Orians (1977) as cited in Barbour, Michael G., Todd Keeler-Wolf, and Allan A. Schoenherr. 2007. Terrestrial Vegetation of California, Third Edition, University of California Press.
[99] BLM and CDFG. 2002. Final Environmental Impact Statement. Proposed Northern & Eastern Colorado Desert Coordinated Management Plan. Bureau of Land Management, California Desert, Riverside, CA. p. 3-3. [emphasis added].
[100] *See* C.2-18,19.
[101] Defined as a deep-rooted plant that obtains a significant portion of the water that it needs from the zone of saturation or the capillary fringe above the zone of saturation. Wikipedia contributors. Phreatophyte [Internet]. Wikipedia, The Free Encyclopedia; 2009 Jun 8, 21:45 UTC [cited 2010 Jun 18]. Available from: http://en.wikipedia.org/wiki/Phreatophyte.
[102] Applicant's Revised Opening Testimony, p. 51.

The Applicant's assertion that these plant species are facultative phreatophytes (as opposed to obligate) is used to defend the claim that groundwater pumping for Project activities will not impact the plant communities because the plants can rely on surface water alone. Specifically, the Applicant's testimony states: "[n]o obligate phreatophytes occur within the 10-mile pumping centroid of the Project wells. All tree and shrub species that occur in this zone and *could be considered* facultative phreatophytes (ironwood, bush seepweed, palo verde) are dependent on surface water, not groundwater, even considering capillary rise."[103] This statement cannot be substantiated by the scientific literature.

On the contrary, palo verde has been documented to have root systems that extend up to 80 meters in depth.[104] There is no consensus within the scientific community on whether ironwood or palo verde can be considered solely facultative phreatophytes, nor is there consensus on how regional variations in climatic conditions influence their groundwater requirements. With the combined effects of drought events and potential climate change impacts on precipitation levels in the Sonoran Desert, phreatophytes may increasingly rely on groundwater resources for survival. The assumption made by the Applicant that these vegetation communities are facultative (after denying their existence in the first place), and therefore unaffected by groundwater pumping, is indefensible and unreliable. The Applicant would have had to conduct site-specific evaluations to make this claim, which were not performed.

XIII. THE GROUNDWATER-DEPENDENT VEGETATION MONITORING PLAN ("BIO-25")

The Applicant proposed deleting the Groundwater-Dependent Vegetation Monitoring Program ("BIO-25") as a mitigation measure. In addition to the inaccurate and unfounded statements discussed above, the Applicant cites the survival of a honey mesquite community northwest of Palen Lake during record groundwater drawdowns throughout the 1980s and 1990s as proof that predicted minimal groundwater drawdowns from Project activities would have no effect on phreatophytes in the Project vicinity.

It is illogical to base a scientific claim regarding the drought response of unrelated species within a 10-mile radius on the observations of an isolated honey mesquite community, especially based on historical aerial imagery and not field data. Every desert plant species responds differently to drought and

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[103] Id. [emphasis added].

[104] Solbrig and Orians. 1977. Cited in Barbour, Michael G., Todd Keeler-Wolf, and Allan A. Schoenherr. 2007. Terrestrial Vegetation of California, Third Edition, University of California Press.

water stress[105] and cannot be generalized through the aerial image data of one community of a different species. Furthermore, the Groundwater Resources Cumulative Impact Analysis Technical Memorandum that emphasizes the survival of the honey mesquite community clearly states that the western portion of the basin (in which the honey mesquite community is located) "may be expected to respond differently than the eastern portion of the basin during pumping."[106] The Genesis Project Area is located within the eastern portion of the basin, and Project groundwater pumping may therefore impact groundwater-dependent vegetation in this region very differently. The survival of the honey mesquite community on the western portion of the basin cannot be used as an indicator that Project groundwater pumping will have no impact on groundwater-dependent plant species in the Project area.

The Applicant's proposal to reject the vegetation monitoring plan ("Plan") would prevent timely awareness of potentially significant adverse Project affects on groundwater-dependent vegetation communities. The Plan was explicitly created to monitor the unresolved uncertainties in the Project's impacts on these plant communities. The expert testimony of Dr. Tom Meyers (on behalf of intervenor Center for Biological Diversity) underscores the substantial level of uncertainty within the Applicant's groundwater impact analysis and the RSA. Dr. Meyers testified "[t]he SA and Revised SA and the hydrology reports from the applicant's contractor vastly underestimate the impacts the proposed project will have on the groundwater balance and flow systems of Chuckwalla Valley and the nearby Colorado River."[107]

The Applicant also proposed deleting Condition of Certification BIO-26,[108] which requires remedial action for adverse effects to groundwater-dependent vegetation. Elimination of the remedial actions required through Condition of Certification "BIO-26" could result in long-term and potentially irreparable landscape-wide ecological consequences.

The potentially significant adverse impacts of Project water pumping on groundwater resources and groundwater-dependent vegetation were discussed extensively in the RSA. My opening testimony and the testimony of CBD intervenor Tom Meyers support the RSA's conclusion that the

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[105] Nilsen, Erik Tallak, M. Rasoul Sharifi, and Philip W. Rundel (1984). Comparative Water Relations of Phreatophytes in the Sonoran Desert of California. *Ecology*, 65(3), pp. 767-778.
[106] WorleyParsons. 2009. Technical Memorandum-Groundwater Resources Cumulative Impact Analysis for the Genesis Solar Power Project, Riverside County, CA. p. 6.
[107] Meyers, Tom. 2010. Testimony of Tom Meyers, Re: Impacts to Water Resources from the Proposed Genesis Solar Energy Project Docket No. (09-AFC-8), Intervenor Center for Biological Diversity.
[108] Applicant's Revised Opening Testimony, p. 52.

Applicant must prepare mitigation and remedial action strategies for potential impacts to groundwater-dependent vegetation.

XIV. THE DECOMMISSIONING AND CLOSURE PLAN ("BIO-23")

Staff's proposed Condition of Certification "BIO-23" requires the Applicant to develop a Decommissioning and Closure Plan and cost estimate that meets the requirements of BLM's guidelines in 43 CFR 3809.550 et seq., subject to review and revisions from the CPM in consultation with BLM, USFWS and CDFG.[109] The Applicant proposes to delete "BIO-23" in its entirety on the grounds that "[t]he full disturbance area will have been mitigated by Conditions of Certification and therefore the only requirement for such a plan is BLM administering regulations."[110] The Applicant also states the condition "is not necessary to mitigate any significant environmental impact nor is it necessary to comply with any LORS over which the Commission has jurisdiction."[111]

The development of mitigation strategies at the beginning of the Project does not preclude the need for a comprehensive and agency-reviewed Decommissioning and Closure Plan. I concur with Staff's conclusion that a comprehensive Decommissioning and Closure Plan needs to be developed and cannot be deferred.[112] I also agree with expert Ileene Anderson (on behalf of intervenor Center for Biological Diversity) who testified,

> [t]he Draft Decommissioning and Closure Plan is woefully inadequate in proposing how the almost 3 square miles is to be revegetated. The Draft Revegetation Plan appears to only address the 59.8 acres of temporary construction impacts due to project and transmission line construction. Clearly a more comprehensive revegetation strategy needs to be developed for the entire site of approximately 1800 acres.[113]

XV. THE APPLICANT'S UNSUPPORTED REVISIONS OF THE DECOMMISSIONING AND CLOSURE PLAN CONDITION OF CERTIFICATION, "BIO-23"

In the event that the Commission does not delete "BIO-23" from the Conditions of Certification and instead requires the Applicant to include a Decommissioning and Closure Plan for biological resources, the Applicant recommended a variety of unsupported modifications to the RSA. Specifically, the Applicant removed the requirement to prepare a cost

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[109] RSA, p. C.2-270.
[110] Applicant's Revised Opening Testimony, p. 51.
[111] Id.
[112] RSA, pp. C.2-123, 124.
[113] Testimony of Ilene Anderson, Center for Biological Diversity. p. 7.

estimate for "BIO-23" according to the guidelines set forth in BLM's 43 Code of Federal Regulations (CFR) 3809.550 et seq. The Applicant also removed the requirement set forth in the RSA and mandated by BLM'S guidelines that the Project owner must provide financial assurances to guarantee an adequate level of funding to implement and complete the Decommissioning and Closure Plan. The Applicant's proposed changes lack foundation and should be rejected.

EXHIBIT 508

Declaration of Scott Cashen
Genesis Solar Energy Project

Docket 09-AFC-8

I, Scott Cashen, declare as follows:

1) I am an independent biological resources consultant. I have been operating my own consulting business for the past three years. Prior to starting my own business I was the Senior Biologist for TSS Consultants.

2) I hold a Master's degree in Wildlife and Fisheries Science. My relevant professional qualifications and experience are set forth in the attached testimony and are incorporated herein by reference.

3) I prepared the testimony attached hereto and incorporated herein by reference, relating to the biological resource impacts of the Genesis Solar Energy Project.

5) It is my professional opinion that the attached testimony and maps contained therein are true and accurate with respect to the issues that they address.

6) I am personally familiar with the facts and conclusions described within the attached testimony and maps, and if called as a witness, I could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: 6/24/10 Signed: [signature]

At: Walnut Creek, CA

EXHIBIT 509

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	
The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

TESTIMONY OF GREG OKIN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES AND BIOLOGICAL RESOURCES FOR THE GENESIS SOLAR ENERGY PROJECT

June 18, 2010

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2364-071a

1. Introduction

I have reviewed those documents that address evidence of offsite ecological impacts of the project known as the Genesis Solar Energy Project ("Project") in eastern Riverside County. It is my opinion that the aforementioned documents have inadequately portrayed the potential for there to be offsite impacts from the western portion of the installation (i.e. from the eastern side of the Project's western solar array to the western boundary of the Project).

I am an Associate Professor of Geography at the University of California, Los Angeles, having received my Ph.D. from the California Institute of Technology in 2001. I maintain an active research program as a member of the Faculty at UCLA, with particular emphasis on deserts. My dissertation research was conducted not far from the Project site, between Baker and Barstow in San Bernardino County. I have written and taught extensively on the topic of soils and ecology of deserts. My *curriculum vitae* is attached as Attachment 1.

My critique centers on three primary areas of concern. (1) The potential hydrological effects of the western portion of the installation on vegetation downstream (south) of the Project; (2) the potential effects of the western portion of the installation on erosion and soil mobilization from the Project; and (3) the potential for stabilization of disturbed areas within the western portion of the installation. The western portion of the installation lies primarily on an alluvial surface mapped as Qal and Qoaf (Worley Parsons, 2010). I do not dispute this mapping, but do dispute claims made in both the Geological Report (GR; Worley Parsons, 2010) and the Revised Staff Assessment (RSA) on the ecological and geomorphic functioning of these units. It is my opinion that the Project would significantly impact these geomorphic surfaces and that dismissal of impacts on these surfaces, as well as the offsite areas downwind and downstream, as insignificant is not appropriate.

2. Hydrological impacts on vegetation south of the Project

The Applicant plans on implementing a Drainage Plan (Appendix E, Fig 19 of RSA) that involves channelization of flow from ephemeral streams to divert around the solar arrays, with spreading of the redirected flow downstream of the Project. This type of water control has been used throughout the Mojave Desert, as acknowledged by the RSA, and nearby along the I-10 corridor. Based on a site visit, the RSA suggests that this drainage plan will have little to no effect on local geomorphology and desert vegetation.

A significant amount of research has been conducted along the western flank of the nearby Coxcomb Mountains on the geomorphic and ecological impact of water diversions which were constructed to protect the Colorado River aqueduct. Schlesinger and Jones (1984) showed that the diversions caused significant decreases in plant density and overall biomass for two key Sonoran creosote bush scrub species (*Larrea tridentata* and *Ambrosia dumosa*) as well as an increase in mortality of larger

specimens of *L. tridentata.* This research and that of Schlesinger et al. (1989) shows that overland flow from upstream on alluvial desert piedmonts ("bajadas") is key to the maintenance of biological productivity. Sonoran creosote bush scrub communities aren't simply reliant upon direct precipitation for their water. Water is concentrated and stored in soils during rain that produces overland flow, and this water contributes to the survival and reproduction of shrub species that serve as habitat for much of the fauna of the region.

There will be significant areas of the bajada south (downstream) of the western solar array that will be blocked from overland flow. Though the redistribution channels on the south side of the solar array will reduce these impacts, and will also reduce the potential for increased fluvial erosion due to concentrated water flow, there will also be considerable areas that will be completely blocked from overland flow (Appendix E, Fig 19, RSA). These areas can be expected to experience reduced growth and shrub mortality of the type documented by Schlesinger and Jones (1984).

Thus, it is my opinion that the Project's diversion of flow from small ephemeral channels would result in significant offsite impacts to vegetation that have not been adequately addressed by the RSA.

3. The potential effects of the western portion of the installation on erosion and soil mobilization from the Project

It is my opinion that the mapping of the geomorphic units in the western portion of the Project is correct. However, I believe that the interpretation of the meaning of these geomorphic units is outdated and their potential response to disturbance is inadequately addressed by the RSA.

The Qal and Qoaf surfaces are discussed in both the GR and the RSA as comprised of a lag gravel atop finer-grained sediments. They take the presence of this so-called lag gravel, desert varnish and rubification of surface clasts, and the presence of subsurface soil horizons as evidence that these surfaces have been "stable for 1000s of years", implying that "sand deposition is not taking place" (Appendix E, p. 9, RSA). The RSA concludes that "from a geomorphic perspective, construction of the project on the Qal should have relatively little off-site impact because there is little sediment transport occurring on this surface, construction of the proposed project does not appear likely to disrupt the movement of sediment to habitat areas" (Appendix E, p. 19, RSA). My experience and the scientific literature disputes this conclusion.

Both the GR and the RSA are incorrect in classifying the clasts on the surface of the Qal unit as a lag deposit. The GR and RSA's approach to pavement formation holds that large clasts are concentrated at the surface by the continual erosion (by wind or water) of fine particles. I know of no evidence for deflationary pavement on an alluvial fan within the Mojave Desert.

Rather, a series of papers in the scientific literature (e.g., McFadden et al., 1987; Wells et al, 1995; Anderson et al, 2002) studied the development of desert pavements in the Mojave Desert (along Kelbaker Road between Kelso and Baker, San Bernardino County in the Cima volcanic field). Through a series of geomorphic, geochemical, and micromorphometric techniques, these studies show that desert pavements arise when large surface clasts rise vertically on an accreting aeolian mantle. In essence, pavements arise when wind-blown material is deposited on the top of large clasts and is washed underneath them by subsequent rains. Depending on the age of the surface, meters of material can accumulate in this way, and geochemical evidence suggests that the clasts on the surface have, since their original deposition, remained at the soil surface.

Given the amount of aeolian activity that occurs naturally in the area near the Project, evidenced by clear sand transport corridors both east and south of the Project as well as the prevalence of dust storms in the basin, the pavements observed on the Qal surface (incorrectly called 'gravel lag deposits') are almost certainly accretionary pavements. In the field, these accreting mantles can be identified clearly by the presence of a so-called Av horizon, or vesicular A horizon, in the fine-grained sediments just below the large surface clasts. Photographs and descriptions of the soils in the western portion of the Project (e.g. Plates 11B, 12B, and 24B) indicate the presence of this Av horizon, thus strengthening the case that this is an accretionary surface.

The RSA is correct to conclude, nonetheless, that the Qal surface has been stable for thousands of years. The continual presence of the clasts atop the surface have allowed for slow processes (such as the formation of varnished surfaces and the formation of subsurface soil horizons) to take place even while there was a slow accumulation of material within the accretionary mantle.

Removal or disturbance of the pavement clasts that protect the surface can be expected to have major impacts on the availability and transport of wind-borne material. A study by Belnap et al. (2007) found that even minor disturbances, such as that caused by a single vehicle pass, leads to significant decreases of the threshold wind speed (the wind speed at which particle movement is initiated) and increases in the total amount of aeolian flux observed. Several other studies have also determined the impact of the disturbance of desert soils on threshold wind speed and sediment flux (e.g., Gillette, 1980; Field et al. 2010), all concluding that even modest disturbance can lead to significantly increased aeolian activity.

This is particularly the case with accretionary desert pavements. The aeolian materials that have been protected for millennia beneath the surface clasts are highly erodible due to their original aeolian origin. Studies from the Cima volcanic fields (Anderson et al., 2002) show that the accretionary mantle is largely made of fine sands and silt-sized particles which are easily moved by the wind once exposed at the surface.

Also within the western portion of the Project is the Qsr geomorphic unit comprised of relict sand sheets displaying a low degree of aeolian activity under current conditions.

This surface, too, can be expected to be largely remobilized once surface disturbances associated with the Project are initiated.

Thus, the large-scale disturbance that is to occur on the Qal and Qsr geomorphic surfaces in the western portion of the Project will lead to extensive new aeolian activity. Given the predominant southwestern wind direction, this will mean that a plume of sand, eroded from the disturbed area, will begin to extend from the southern edge of the Project.

In my own research, I have investigated the impacts of this sort of sand plume originating from disturbed soils, on nearby vegetation communities that were not directly disturbed. The relevant publications are Okin et al. (2001a, 2001b, 2006, and 2009). What occurs during this enhanced aeolian activity is that sand, blown from the area of the disturbance, is deposited on the downwind area, potentially burying plants. While it is moving, the sand can abrade, damage, and/or kill offsite vegetation, and the removal of fine-particles during transport (i.e. "winnowing") leaves the deposited soil with lower water-holding capacity, cation-exchange capacity, and lower levels of critical nutrient elements such as C, N, and P. The result is a downwind area with reduced vegetation cover, reduced soil fertility, shifting sands, and lower probability of establishment of new vegetation.

Of course, any disturbance of the soil surface that encourages increased aeolian activity in a soil with dust-sized (< 50 um) particles, will also lead to the production of dust. The potential for the Project to increase dust emission from the site has been evaluated in the RSA, though the emphasis appears to have been on dust emissions from vehicles, and mitigation techniques for vehicular fugitive dust emissions differ from those that would be required on large areas of land disturbed land. The potential for mitigation of both the sand and dust impacts of disturbances associated with the project will be addressed in the next section.

Thus, in my opinion the Qal and Qsr surfaces, while stable in the absence of a disturbance, have the potential to become significant sources of offsite impacts in terms of both biological resources (e.g., vegetation and fauna in the downwind area) and air resources (e.g., dust). The potential for these surfaces to yield significant offsite impacts appears to have been inadequately evaluated in the RSA. Though the staff identified the potential of the Project to increase dust emissions, the potential for the wind-driven impact on the area immediately downwind of the Project was not considered by the Staff.

4. The potential for stabilization of disturbed areas within the western portion of the Project

As mentioned above, the RSA did evaluate the potential of the Project to increase fugitive dust emissions in the basin and in the absence of effective mitigation, determined that the Project would likely have significant impacts on air quality. In light of this, the RSA has required a set of fugitive dust mitigation measures (RSA C1.-44 to 45). All but one of these focus on roads and vehicular traffic as sources of fugitive dust emissions. The only item to discuss the potential of surface disturbance to cause fugitive dust emissions reads:

> n. Wind-erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered by vegetation.

With the exception of chemical dust suppressants, which probably do not significantly reduce the movement of sand grains, the wind erosion control techniques might also be suggested to be useful in the mitigation of wind erosion (sand transport) from disturbed areas. Dust emission and wind erosion are tightly linked: saltation of sand-sized particles is initiated when the wind speed exceeds the wind speed required for transport. At this threshold windspeed, the finer particles that comprise the "dust" fraction are still held to the surface by interparticle forces. However, upon the initiation of saltation, moving particles impart sufficient energy to the surface when they strike it to liberate the dust-sized particles from the surface. These particles then become suspended in the air flow and leave the area as "fugitive dust".

However, it is my opinion that the measures required by the RSA to mitigate fugitive dust emissions from disturbed areas (i.e. not roads and not including dust emission from vehicular traffic) are insufficient to mitigate significant impacts from wind erosion, including offsite effects discussed above. Because wind erosion and dust emission are so tightly linked in disturbed areas, I also do not think that the required mitigation measures will significantly impact fugitive dust emissions from disturbed areas.

By far the most important factor controlling the erodibility of the surface by wind is the threshold wind velocity at which particle transport is initiated. A surface with a sufficiently high threshold wind velocity is not wind erodible even in the absence of vegetation or other objects such as windbreaks. If, on the other hand, the threshold wind velocity is sufficiently low so as to make the soil erodible under natural wind conditions, windbreaks and vegetation have limited ability to reduce the amount of aeolian activity that the surface will experience.

As discussed above, even light disturbance can reduce the threshold wind velocity sufficiently to make soils highly erodible. Disturbance at the level envisioned in this Project (grading) is sure to make the soils extremely wind erodible. There is very little

that the wind-erosion control techniques suggested by the RSA can do to significantly reduce the erodibility of the surface once it has been disturbed.

As evidence of this, I point to my own research in the Manix Basin of the Mojave Desert between Barstow and Baker along I-15 (Okin et al. 2001b). In this area, soils were disturbed for agricultural purposes, though many of the fields were later abandoned. For the purposes here, the most notable aspect about the trajectory that this area took after the abandonment of agriculture is that, on some of the fields, vegetation grew back to covers several times that found in the pre-disturbance vegetation (e.g., 30% cover vs. 5 - 10% cover). Despite this, the fields with significant vegetation cover remained the source for blowing sand plumes downwind of the abandoned fields. This illustrates that, even if permanent vegetation recovers on disturbed areas, it is highly unlikely that wind erosion will be reduced in the decades following the establishment of the Project.

To make matters worse, vegetation recovery in the Mojave Desert is famously slow. A review by Lovich and Bainbridge (1999) suggested that vegetation recovery in the deserts of California takes between 50 - 300 years, with full recovery taking up to 3000 years. Recovery interventions are expensive and have low probability of success.

Thus, it is clear that natural recovery processes cannot be counted upon to limit wind erosion, and potentially dust emission, from disturbed areas. Even if vegetation recovers quickly through natural means or human intervention, my research shows that once the soil surface has been disturbed there is little that can be done to limit wind erosion and dust emission.

Windbreaks can hardly be expected to be more effective at erosion control than vegetation. The efficacy of windbreaks or chemical dust suppressants in limiting wind erosion and dust emission must be made based on the specifics of the system to be used, but there are good reasons to believe that these will not be completely effective in limiting wind erosion and dust emission. Windbreaks, for example, like plants, do not completely eliminate wind in their lee. They function to reduce the wind speed in their lee, but this effect decreases as the distance from the windbreak increases (Bradley and Mulhearn, 1983) becoming minimal at a distance of about 5 times the height of the windbreak. To be effective in limiting wind erosion (rather than dust emission) a chemical dust suppressant must be able to bind all of the most wind-erodible particles (~70 um) on the surface. However, it is my understanding that chemical dust suppressants act to aggregate dust-sized particles limiting their ability to become suspended.

In sum, the measures required by the RSA for mitigating fugitive dust emissions from disturbed areas are insufficient to mitigate significant impacts from wind erosion, including the offsite effects discussed above.

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Schlesinger, W. H., P. J. Fonteyn, and W. A. Reiners (1989), Effects of overland flow on plant water relations, erosion, and soil water percolation on a Mojave Desert landscape, Journal of the Soil Science Society of America, 53, 1567-1572.

Schlesinger, W. H., and C. S. Jones (1984), The comparative importance of overland runoff and mean annual rainfall to shrub communities of the Mojave Desert, Botanical Gazette, 145, 116-124.

Wells, S. G., L. D. McFadden, J. Poths, and C. T. Olinger (1995), Cosmogenic 3He surface-exposure dating of stone pavements: implications for landscape evolution in deserts, Geology, 23(7), 613-616.

Worley Thomas (2010) Aeolian Transport Evaluation and Ancient Shoreline Delineation Report.

EXHIBIT 510

DECLARATION

I, Greg Okin, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at Athens, Greece.

Dated: June 16, 2010 Signed: Greg Okin

EXHIBIT 511

GREGORY STEWART OKIN

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EDUCATION

Postdoctoral Research:	Department of Geography, University of California, Santa Barbara, Mentor: Oliver A. Chadwick	2001-2002
Ph.D.	Geochemistry, California Institute of Technology Wind-Driven Desertification: Process Modeling, Remote Monitoring, and Forecasting. Thesis Advisors: Bruce Murray, William H. Schlesinger.	2001
M.S.	Geology, California Institute of Technology	1997
B.A.	Chemistry & Philosophy (Double Major), Middlebury College	1995

APPOINTMENTS AND POSITIONS

Editor, *Reviews of Geophysics*	2010 – Present
University of California, Los Angeles, Dept. of Geography, Associate Professor	2008 – Present
New Mexico State University, Dept. of Plant and Environmental Science, Adjunct	2007 – Present
University of California, Los Angeles, Dept. of Geography, Assistant Professor	2006 – 2008
University of Virginia, Dept. of Environmental Sciences, Assistant Professor	2002 – 2006
University of California, Santa Barbara, Dept. of Geography, Postdoctoral Researcher	2001 – 2002
California Institute of Technology, Div. of Geol. and Plan. Sci., Graduate Student	1995 – 2001
Middlebury College, Undergraduate Student Researcher	1994 – 1995
University of Denver, Dept. of Chemistry, Undergraduate Researcher	1994 – 1995

GRANTS AND CONTRACTS

University of California, Los Angeles (2006-present)

Jornada Basin LTER V: Landscape Linkages in Arid and Semiarid Ecosystems. (NSF-LTER). Current NSF Long Term Ecological Research grant to study desertification and remediation processes in the Chihuahuan Desert. Co-Investigator. PI: Peters. Total Grant: $4.92M.

The Effect of Sandblasting on Desert Plant Physiology. (Sol Leshin Program for Collaboration between UCLA and BGU in Plant Sciences & Social Sciences & Humanities) Grant with Haim Tsoar of Ben Gurion University to conduct experiments on sandblasting of US and Israeli plant species. PI: Okin. Total Grant: $25,000.

Determining rates of dust emission and wind erosion on US Rangelands: A National Assessment. (National Resource Conservation Service) Grant to conduct field measurements for calibration of a wind erosion model. PI: Okin. Total Grant: $150,000.

Distribution and Dynamics of Belowground Carbon in Savannas. (NSF-DEB). Grant to study belowground carbon in the Kalahari Desert of Botswana. PI: Okin. Total Grant: $700,000. Additional REU and RET supplement in 2008. Additional REU supplement in 2008-2010.

Quantifying feedbacks between groundwater decline, wind erosion, and ecological change in desert vegetation. (NSF-EAR). Grant to study vegetation change and wind erosion associated with groundwater decline in the Owens Valley of California. PI: Elmore. Total Grant ~$450,000.

Field spectroscopy in support of aeolian geomorphology, snow hydrology, and teaching at UCLA. (NSF-EAR). Grant to acquire an ASD FieldSpec portable spectroradiometer and accessories. PI: Okin. Total Grant: $89,000.

Dust Hotspots: An advanced method for characterizing desert dust sources. (UCLA FRG). Grant to use LIDAR to detect patterns of dust emission in the Chihuahuan Desert. PI: Okin. Total Grant: $10,000.

University of Virginia (2002 – 2006)

Remote Spectral Identification of Human Activities. (DOD) Grant to study the spectral signature of human activities in arid and semiarid environments with the purpose of improving remote intelligence. Grant supports UVA Ph.D. student and UCLA visiting student Cheney Shreve. PI: Okin (2005-2006), Fuentes (2006-2008). Total Grant to date: $70,000. 2006-2008

The Role of Wind Erosion in Ecosystem Change in Desert Grasslands. (NSF-DEB Ecosystem Studies) Grant to measure and model the effects of wind on nutrient loss and vegetation change in grasslands of the Southwest. PI: Okin. Total Grant: $500, 000. Includes REU Supplemental Grant in 2006. 2003-2006

Hydrological and nutrient controls on the structure and function of southern African savannas: A multi-scale approach. (NASA-IDS) Grant to assess the feedback and stability of interactions in the savanna ecosystems of southern Africa. Co-Investigator. PI: Shugart. Total Grant: $900,000 2004-2007

Feedbacks between vegetation change and dust emission in deserts: a novel observational approach. (UVA Fund for Excellence in Science and Technology) Grant to assess the use of LIDAR for landscape-scale analysis of wind erosion and dust emission. PI: Okin. Total Grant: $50,000 2005-2006

Planning Visit: Nutrient, hydrologic, and physiological controls on belowground productivity and carbon sequestration in Kalahari savanna ecosystems. Funds for visit to Botswana for planning of savanna carbon sequestration proposal. PI: Okin. Total funds: $22,000. 2005-2006

California Institute of Technology, Graduate Student (1995 – 2001)

Supercomputing Visualization Workbench. (Caltech President's Fund) Grant to develop high-performance imaging spectrometer data analysis tools. Principal grant author and research leader. PI: Murray. 1998-1999

Time Critical Observations for Arid Region Greening. (NASA-OES) Grant to collect and analyze AVIRIS data and field spectra. Principal grant author and research leader. PI: Murray. 1997-1998

FELLOWSHIPS AND AWARDS

Editors' Citation for Excellence in Refereeing for JGR-Atmospheres 2008
UCLA Academic Advancement Program Faculty Appreciation Award 2008

NASA Earth Sciences Enterprise Fellowship	1998-2000
Koons Fellowship in Geological and Planetary Sciences	1998
Conoco Fellowship in Geological and Planetary Science	1995-1996
Valedictorian, Middlebury College Class of 1995	1995
Junior Phi Beta Kappa	1994
NSF REU Fellowship, University of Denver	1994

OTHER RESEARCH EXPERIENCE

Middlebury College, Undergraduate Student (1991 – 1995)

Variable-Field Variable-Temperature Magnetic Circular Dichroism of Co(II) Monomers and Dimers. Undergraduate Chemistry Thesis. PI: Larrabee. 1994-1995

University of Denver, Undergraduate Researcher (1994 – 1995)

Laser-induced emission from NFCl radicals isolated in low-temperature argon matrices. Summer Research. Mentor: Gilbert. 1994-1995

PUBLICATIONS

Journal Articles Submitted or In Preparation

Katjiua, Mutjinde, L. Wang, P. D'Odorico, G. S. Okin, Submitted, Nutrient and water limitations in savanna vegetation along the Kalahari rainfall gradient, *Journal of Arid Environments*

Ballantine, J.A., N.M. Mahowald, G.S. Okin, T. Dunne, Submitted, Temporal and spatial influences of precipitation and landforms on low visibility in North Africa. *Journal of Geophysical Research.*

Ravi, S., P. D'Odorico, D.D. Breshears, J.P. Field, A.S. Goudie, T.E. Huxman, G.S. Okin, R.J. Swap, A.D. Thomas, S. van Pelt, J.J. Whicker, T.M. Zobeck, submitted, Aeolian processes and the biosphere: Interactions and feedback loops, *Reviews of Geophysics.*

Okin, G.S., P. D'Odorico, In Preparation, Counterintuitive effect of climate fluctuations on grass invasions in fireproof desert shrublands, *New Phytologist*

Stewart, J., A.J. Parsons, J. Wainwright, G.S. Okin, B.T. Bestelmeyer, E.L. Fredrickson, W.H. Schlesinger, In Preparation, Modelling emergent patterns of dynamic desert ecosystems as a function of changing landscape connectivity, *Ecological Modelling.*

Alvarez, L.J., H.E. Epstein, J. Li, G.S. Okin, submitted, The effects of grass reduction and increased wind erosion on photosynthesis rates of desert grassland plants. *Oecologia.*

Shreve, C.M., G.S. Okin, T.H. Painter, In Preparation, Spatial and temporal trends in fractional snow covered area and daytime land surface temperature in the Tibetan Plateau 2000-2007 using MODIS data. *Environmental Science Letters.*

Alvarez, L.J., G.S. Okin, H.E. Epstein, in preparation, Evaluation of current shear stress partitioning models in a sparsely vegetated ecosystem, *Journal of Geophysical Research-Earth Surfaces.*

Alvarez, L.J., G.S. Okin, H.E. Epstein, J. Li, in preparation, Spatial distribution of vegetation in a desert environment.

Alvarez, L.J., G.S. Okin, H.E. Epstein, J. Li, in preparation, Community responses to wind erosion.

Peer-Reviewed Journal Articles and Articles in Press

Okin, G.S., 2010. The contribution of brown vegetation to vegetation dynamics, *Ecology*, v. 91, pp. 743-755.

Estes, L.D., P.R. Reillo, A.G. Mwangi, G.S. Okin, H.H. Shugart, 2010 Remote sensing of forest structural complexity indices or habitat and species distribution modeling, *Remote Sensing of Environment,* 14, p. 792-804.

Field, J.P., J. Belnap, D.D. Breshears, J.C. Neff, G.S. Okin, J.J. Whicker, T.H Painter, S. Ravi, M.C. Reheis,

R.L. Reynolds, In Press, The ecology of dust: local- to global-scale terrestrial perspectives, *Frontiers in Ecology and the Environment.*

Myint, S.W., A. Brazel, G.S. Okin, A. Buyantuyev, In Press. Combined effects of impervious surface and vegetation cover on the urban heat island effect in a rapidly expanding desert city, *IEEE Journal of Selected Topics in Earth Observations and Remote Sensing.*

Li, J., G.S. Okin, H.E. Epstein, 2009, Effects of enhanced wind erosion on surface soil texture and characteristics of windblown sediments, *Journal of Geophysical Research-Biogeosciences, 114.*

Ravi, S., P. D'Odorico, L. Wang, C. White, G.S. Okin, S.A. Macko, S. Collins, in press, Post-fire resource redistribution in desert grasslands: A possible negative feedback on land degradation, *Ecosystems*, 12(3): 434-444.

Shreve, C.M., G.S. Okin, T.H. Painter, 2009, Introduction of a new optical snow index and validation of optical snow indices for estimating fractional snow cover in the Western Tibetan Plateau. *Journal of Glaciology*, 55(192): 737-745.

Li, J., G.S. Okin, L.J. Alvarez, and H.E. Epstein, 2009, Sediment deposition and soil nutrient heterogeneity in two desert grassland ecosystems, southern New Mexico, *Plant and Soil,* 319(1-2): 67-84..

Wang, L., P. D'Odorico, G.S. Okin, S. Macko, 2009, Isotopic composition and anion chemistry of soil profiles along the Kalahari Transect, *Journal of Arid Environments,* 73(4-5): 480-486..

Wang, L., Okin, G.S., Macko, S.A., 2009, Satellite prediction of soil $\delta^{13}C$ distributions in a southern African savanna, *Journal of Geochemical Exploration*, 102, 137-141.

Gu, J., X. Li, C. Huang, G.S. Okin, 2009, A simplified data assimilation method for reconstructing time-series MODIS NDVI data, *Advances in Space Research*, 44, 501-509.

Wang, L., G.S. Okin, K. K. Caylor, S. Macko, 2009, Spatial heterogeneity and sources of soil carbon in southern African savannas, *Geoderma*, 149, 402-408.

Okin, G. S., P. D'Odorico, and S. R. Archer, 2009, Impact of feedbacks on Chihuahuan desert grasslands: Transience and metastability, *Journal Geophysical Research - Biogeosciences*, 114, G01004, doi:10.1029/2008JG000833

Okin, G.S. A.J. Parsons, J. Wainwright, J.E. Herrick, B.T. Bestelmeyer, D.P.C. Peters, and E.L. Fredrickson, 2009, Do changes in connectivity explain desertification? *BioScience*, 59 (3): 237-244.

Mahowald, N., T.D. Jickells, A.R. Baker, P. Artaxo, C.R. Benitez-Nelson, G. Bergametti, T.C. Bond, Y. Chen, D.D. Cohen, B. Herut, N. Kubilay, R. Losno, C. Luo, W. Maenhaut, K.A. McGee, G.S. Okin, R.L. Siefert, S. Tsukuda, 2008. The global distribution of atmospheric phosphorus deposition and anthropogenic impacts, *Global Biogeochemical Cycles.* 22, GB4026, 10.1029/2008GB003240.

Myint, S., G.S. Okin, In Press, Modeling urban land covers using multiple endmember spectral mixture analysis, *International Journal of Remote Sensing.*

Elmore, A.J., J.M. Kaste, G.S. Okin, M.S. Fantle, 2008. Groundwater influences on atmospheric dust generation in deserts, *Journal of Arid Environments*, 72(10), 1753-1756.

Marshall, J.D., J.M Blair, D.P.C. Peters, G.S. Okin, A. Rango, M. Williams, 2008, Predicting and understanding ecosystem responses to climate change at continental scales, *Frontiers in Ecology and the Environment*, 6(5) pp 273-280. doi: 10.1890/070165

Li, J., G.S. Okin, L.J. Alvarez, and H.E. Epstein, 2008, Effects of wind erosion on the spatial heterogeneity of soil nutrients in two desert grassland communities, *Biogeochemistry,* 8(1) pp. 73-88, 10.1007/s10533-008-9195-6.

Okin, G.S., N. Mladenov, L. Wang, D. Cassel, K. K. Caylor, and S. Ringrose, 2008, Spatial patterns of soil nutrients in two southern African savannas, *JGR-Biogeosciences, 113:G02011.*

Estes, L.D., G.S. Okin, A.G. Mwangi, H.H. Shugart, 2008, Identifying a large forest herbivore's habitat: a multi-scale approach combining field data and imagery from four sensors, *Remote Sensing of Environment*, 112: 2033-2050.

Okin, G. S., 2008, A new model of wind erosion in the presence of vegetation, Journal of Geophysical Research-Earth Surface, 113, F02S10, doi:10.1029/2007JF000758.

Ravi, S., D'Odorico, P., and G.S. Okin, 2007, Hydrologic and aeolian controls on vegetation patterns in arid

landscapes, *Geophysical Research Letters*, 34, L24S23, doi:10.1029/2007GL031023.

D'Odorico, P., K.K. Caylor, G.S. Okin, T.M. Scanlon, 2007, On soil moisture-vegetation feedbacks in dryland plant ecosystems, *JGR-Biogeosciences, 112,* G04010, DOI: 10.1029/2006JG000379

Li, J., G.S. Okin, L.J. Alvarez, and H.E. Epstein, 2007, Quantitative assessment of wind erosion and soil nutrient loss in desert grasslands of the southwestern United States, *Biogeochemistry*, 10.1007/s10533-007-9142-y, 85(3) 317-332.

Diekmann, L., D. Lawrence, and G.S. Okin, 2007. Changes in the spatial variation of soil properties following shifting cultivation in a Mexican dry tropical forest, *Biogeochemistry*, 10.1007/s10533-007-9107-1.

Okin, G.S., 2007, Relative Spectral Mixture Analysis - a multitemporal index of total vegetation cover, *Remote Sensing of Environment*, 106(4), 467-479.

Wang, L., G.S. Okin, J. Wang, H.E. Epstein, and S. Macko, 2007, Predicting ^{15}N concentration from Reflectance Spectra (400-2500 nm) at Leaf and Canopy Scales, *Geophysical Research Letters*, 35, L02401, doi:10.1029/2006GL028506

Scull, P. and G.S. Okin, 2007, Sampling challenges posed by continental scale soil landscape modeling, *Science of the Total Environment*, 372, 645-656.

McGlynn, I.O., and G.S. Okin, 2006, Characterization of shrub distribution using high spatial resolution remote sensing: ecosystem implication for a former Chihuahuan Desert grassland. *Remote Sensing of Environment*, 101, 554-566.

Ravi, S., T.M. Zobeck, T.M. Over, G.S. Okin, and P. D'Odorico, 2006, On the effect of wet bonding forces in air-dry soils on threshold friction velocity of wind erosion, *Sedimentology*, doi: 10.1111/j.1365-3091.2006.00775.x,

Okin, G.S., D.A. Gillettte, and J.E. Herrick, 2006, Multi-scale controls on and consequences of aeolian processes in landscape change in arid and semiarid environments, *Journal of Arid Environments*, 65, 253-275.

Mahowald N.M, P.E. Artaxo, A.R. Baker, D. Jickells, G.S. Okin, J.T. Randerson, and A.R. Townsend, 2005. Impacts of biomass burning emissions and land use on Amazonian atmospheric phosphorus cycling and deposition, *Global Biogeochemical Cycles*, 19, No. 4, GB4030, 10.1029/2005GB002541.

Scull, P., G. Okin, O.A. Chadwick, and J. Franklin, 2005. A comparison of methods to predict soil surface texture in an alluvial basin, *Professional Geographer*, 57(3), 423-437.

Ballantine, J.A.C., G. S. Okin, D.E. Prentiss, and D.A. Roberts, 2005. Mapping North African landforms using continental-scale unmixing of MODIS imagery, *Remote Sensing of Environment*, 47(4) 470-483.

Okin, G.S., 2005. Dependence of wind erosion on surface heterogeneity, *Journal of Geophysical Research*, 110, D11208.

Okin, G.S., and T.H. Painter, 2004, Effect of grain size on spectral reflectance of sandy desert surfaces, *Remote Sensing of Environment*, 89(3) pp 272-280.

Okin, G.S., N. M. Mahowald, O.A. Chadwick, P.E. Artaxo, 2004, The impact of desert dust on the biogeochemistry of phosphorus in terrestrial ecosystems, *Global Biogeochemical Cycles*, 18(2), 10.1029/2003GB002145.

Okin, G.S., and M.C. Reheis, 2002, An ENSO predictor of wind erosion and dust emission in the southwest United States: *Geophysical Research Letters*. V 29, no. 9. 10.1029/2001GL014494.

Okin, G.S., W.J. Okin, B. Murray, and D.A. Roberts, 2001, Practical limits on hyperspectral vegetation discrimination in arid and semiarid environments: *Remote Sensing of Environment*, v. 77, 212-225.

Okin, G.S., and D.A. Gillette, 2001, Distribution of vegetation in wind-dominated landscapes: Implications for wind erosion modeling and landscape processes: *Journal of Geophysical Research*, v. 106, 9673-9683.

Okin, G.S., W.H. Schlesinger, and B. Murray, 2001, Degradation of Sandy Arid Shrubland Environments: Observations, process modeling and management implications: *Journal of Arid Environments*, v. 47, 123-144.

Gilbert, J.V., and G.S. Okin, 1995, Laser-induced emission from NFCl radicals isolated in low-temperature argon matrices, *Journal of Physical Chemistry*, v. 99, p. 11365-11369.

Larrabee, J.A., C.M. Alessi, E.T. Asiedu, J.O. Cook, K.R. Hoerning, L.J. Klingler, G.S. Okin, S.G. Santee, and T.L. Volkert, 1997, Magnetic circular dichroism spectroscopy as a probe of geometric and electronic structure of Cobalt(II)- substituted proteins: Ground-state zero-field splitting as a coordination number indicator, *Journal of the American Chemical Society*, v. 119, p. 4182-4196.

Mulinax, R.L., G.S. Okin, and R.D. Coombe, 1995, Gas-Phase synthesis, structure, and dissociation of boron triazide, *Journal of Physical Chemistry*, v. 99, p. 6294-6300.

Refereed Book Chapters

Wang, L., G.S. Okin, S.A. Macko, In Press, Remote sensing of nitrogen and carbon isotopic composition in terrestrial ecosystems in *Isoscapes*, Springer Netherlands.

Okin, G.S., 2002, Toward a Unified View of Biophysical Land Degradation Processes in Arid and Semi-arid Lands, in *Global Desertification: Do Humans Cause Deserts?* J.F. Reynolds & D.M. Stafford Smith, eds. Dahlem University Press, Berlin, pp. 95-109.

Robbins, P.F., N. Abel, H. Jiang, M. Mortimore, M. Mulligan, G.S. Okin, D.M. Stafford Smith, B.L. Turner II, 2002, Desertification at the community scale: sustaining dynamic human-environment systems in *Global Desertification: Do Humans Cause Deserts?* J.F. Reynolds & D.M. Stafford Smith, eds. Dahlem University Press, Berlin, pp. 326-355.

Okin, G.S., B. Murray, and W.H. Schlesinger, 2001, Desertification in an arid shrubland in the southwestern United States: Process modeling and validation, *in Land Degradation: Papers Selected from Contributions to the Sixth meeting of the International Geographical Union's Commission on Land Degradation and Desertification, Perth, Western Australia, 20-28 September 1999*, pp. 53-70, edited by A. Conacher, Kluwer Academic Publishers, Dordrecht.

Unrefereed Book Chapters

Li, J. and G.S. Okin, in press, Carbon and nitrogen dynamics with enhanced wind erosion-Model evaluation and prediction in *Title TBD*, Nova Publishers.

Hartley A.E., N. Barger, J. Belnap, G.S. Okin. 2007. Nutrient Cycling in Dryland Ecosystems. In: Marschner P, Rengel Z (eds) Nutrient Cycling in Terrestrial Ecosystems. Soil Biology Series. Springer Verlag.

Okin, G.S., and D.A. Gillette, 2004, Modelling wind erosion and dust emission on vegetated surfaces *in Spatial Modelling of the Terrestrial Environment* R. Kelly, N. Drake, and S. Barr, eds, John Wiley and Sons, pp. 137-156.

Okin, G.S. and D. A. Roberts, 2004, Remote Sensing in Arid Environments: Challenges and Opportunities, *in Manual of Remote Sensing, Remote Sensing for Natural Resource Management and Environmental Monitoring*, Volume 5, S. Ustin, ed., John Wiley and Sons, New York.

Other Publications

Epstein, H.E., G.S. Okin, J. Li, L.J. Alvarez, 2009 Wind erosion and ecosystem consequences following vegetation removal in a Chihuahuan Desert grassland, *Newsletter of the Global Land Project International Project Office*, n. 5, June 2009, pp. 3 – 4.

INVITED PRESENTATIONS

Okin, G.S., New Perspectives on Desertification, August 31, 2009, Univ. Eduardo Mondlane, Dept. of Forestry Engineering.

Okin, G.S., Connectivity and Ecohydrological Feedbacks in Desertification, AGU Chapman Conference on Examining Ecohydrological Feedbacks of Landscape Change along Elevation Gradients in Semiarid Regions, Sun Valley, Idaho, October 5 – 9, 2009.

Okin, G.S. Aeolian Geomorphology: a lesson in scaling, Civil and Environmental Engineering, UCLA, January 20, 2009.

Okin, G.S. Wind as a geomorphic agent: "Connecting" aeolian studies with hillslope hydrology, January 16, 2009, Smith Lecture Series in the Department of Geological Sciences, University of Michigan, Ann Arbor, MI.

Wang, L. and G.S. Okin, Earth system understanding through the use of satellite products, April 8-10, 2007, Isoscapes 2008, Santa Barbara, CA.

Okin, G.S. Deserts as exemplars of the importance of connectivity in geomorphology, February 4, 2008, UCLA Earth and Space Sciences.

Okin, G.S. Wind erosion in the presence of nonerodible elements, April 12, 2007, Division of Geological and Planetary Sciences, California Institute of Technology.

Okin, G.S., Transport in a "dead world?" The importance of aeolian processes in desertification, March 9, 2007, Geography Department Seminar, Indiana University, Bloomington, IN.

Okin, G.S., Wind erosion in the presence of vegetation, February 9, 2007, Geology Department seminar, University of Texas, El Paso, TX.

Okin, G.S., Wind erosion feedbacks to desertification, February 8, 2007, Earth System seminar, University of Texas, El Paso, TX.

Okin, G.S. Aeolian processes in deserts, UCLA Eos Seminar, November 13, 2007, Los Angeles, CA.

Okin, G.S., Aeolian processes can create islands of fertility, Jornada LTER Research Symposium, July 13, 2006, Las Cruces, NM.

Okin, G.S., J. Li, L Hartman, H.E. Epstein, Impact of Aeolian Processes on Soil Surface Resource Distribution, AAG Annual Meeting, 2006.

Mahowald, N., D. Muhs, S. Levis, M. Yoshioka, P. Rasch, C. Zender, G. Okin, and T. Painter, Deposition changes in the past and the future, AGU Fall Meeting, 2005.

Mladenov, N., G. S. Okin, D. Cassel, and K.K. Caylor, Geostatistical analyses reveal nutrient-vegetation relationships in savanna soils, AGU Fall Meeting, 2005.

Hartman, L., G.S. Okin, H.E. Epstein, J. Li, Interactions among wind erosion, vegetation, and dust flux in the Jornada Experimental Range, Jornada Research Symposium, July 14, 2005, Las Cruces, NM.

Okin, G.S., T.H. Painter, 2005, Grain size effects on spectral reflectance of desert soil surfaces, Desert Trafficability Workshop, Winthrop, Washington, January 21-23.

Okin, G.S., 2004, Deserts: The Cradle of Civilization, University of Virginia, Department of Environmental Sciences Undergraduate Seminar.

Okin, G.S., 2004, The role of spatial heterogeneity in modeling wind erosion, Boulder, CO.

Okin, G.S., 2004, The role of wind erosion in ecosystem change, Jornada LTER Research Symposium, Las Cruces, NM.

Okin, G.S., 2004, Blowing in the Wind, Harvard University Department of Earth and Planetary Sciences.

Okin, G.S., 2004, Multiscale Controls on Wind Erosion and Dust Emission, University of Arizona Department of Soil, Water, and Environmental Sciences.

Okin, G.S., 2004, Multiscale Controls on Wind Erosion and Dust Emission, University of California, Santa Barbara, Department of Geography.

Okin, G.S., 2004, Spatially explicit stochastic modeling of wind erosion and dust emission. Geological Society of America, Washington, D.C.

Okin, G. S., N. Mahowald, O.A. Chadwick, P. Artaxo, 2003. The Influence of Desert Dust on the Biogeochemistry of Phosphorus in Terrestrial Ecosystems, The Soil Science Society of America Annual Meeting, Denver, CO.

Okin, G. S., 2002, Land use, land cover change, and desert dust, 2nd IANABIS workshop, San Luis Potosi, Mexico.

OTHER PROFESSIONAL PRESENTATIONS (Incomplete List)

Ribeiro, N., G.S. Okin, H.H. Shugart, R.J. Swap, the influence of rainfall, vegetation, elephants and people on fire frequency of miombo woodlands, northern Mozambique, IGARSS 2009, July 13-17, 2009, Cape Town, South Africa

Ravi S., P. D'Odorico, S.L. Collins, C. White, G.S. Okin, S. Macko, and L. Wang, Aeolian processes at the plant-interspace scale: Implications for patch dynamics, Ecological Society of America Annual Meeting, Milwaukee, WI, August 3 – 8, 2008.

Hewins, D.B., H.L. Throop, S.R. Archer, G.S. Okin, Soil-litter mixing enhances decomposition rates in a Chihuahuan Desert grassland Ecological Society of America Annual Meeting, Milwaukee, WI, August 3 – 8, 2008.

Herrick, J.E., D.P.C. Peters, N.K. Hansen, J.C. Ritchie, H.C. Monger and G.S. Okin, 2008, Application of soil physical models to predict soil deposition effects on plant establishment, Ecological Society of America Annual Meeting, Milwaukee, WI, August 3 – 8, 2008.

Wainwright, J. A.J. Parsons, J. Stewart, G.S. Okin, L. Turnbull, R.E. Brazier, Ecogeomorphology and Scale: Desertification due to Woody Shrub Encroachment in the US Southwest, 7th International Conference on Geomorphology (IAG), Melbourne, Australia, July 6 – 11, 2009.

Ravi, S., P. D'Odorico, L. Wang, S.L. Collins, C.S. White, G.S. Okin, 2008, Resource homogenization in degraded arid landscapes induced by fire-erosion interactions, American Geophysical Union, Fall Meeting.

Vest, K.R., A.J. Elmore, G.S. Okin, 2008, Wind erosion and vegetation structure in groundwater affected plant communities, American Geophysical Union, Fall Meeting.

Ballantine, J.C., N.M. Mahowald, G.S. Okin, 2008, The influence of source landforms, antecedent precipititation, and windspeed on dust events in North Africa, American Geophysical Union, Fall Meeting.

Shreve, C.M., G.S. Okin, 2008, Spatiotemporal dynamics of snow cover in the western Tibetan Plateau using a MODIS derived fractional snow cover index, American Geophysical Union, Fall Meeting.

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Ravi, S., P. D'Odorico, G.S. Okin, 2007, Hydrologic and aeolian controls on vegetation patterns in arid landscapes, ESA/SER Joint Meeting, San Jose, CA, August 5 – 10.

Wang, L., G.S. Okin, and S. Macko, 2007, Spatial heterogeneity of soil $\delta^{13}C$ and $\delta^{15}N$, ESA/SER Joint Meeting, San Jose, CA, August 5 – 10.

Ravi, S., P. D'Odorico, G.S. Okin, 2007, Hydrologic and aeolian controls on vegetation patterns in arid landscapes, 2007 AGU Joint Assembly, Acapulco, Mexico, May 22-25.

Caylor, K.K., P. D'Odorico, G.S. Okin, 2007, Evidence and implications of soil moisture-vegetation feedbacks in semiarid savannas, 2007 AGU Joint Assembly, Acapulco, Mexico, May 22-25.

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Reynolds, R. P. Chavez, Jr., M. Reheis, T. Gill, G. Clow, R. Forester, J. Yount, H. Goldstein, F. Urban, R. Fulton, and G.S. Okin, 2003, Sources, transport paths, and impacts of atmospheric dust in the American Southwest, 2nd Workshop on Mineral Dust, Paris.

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Okin, G.S., 1997, Towards Sustainable Land Use: Leading Desertification Indicators, Western Geography Graduate Student Conference, Tucson, Arizona.

TEACHING EXPERIENCE

University of California, Los Angeles

Earth's Physical Environment (GEOG 1)	Fall, 2006-8
Soils and Environment (GEOG/EEB/ENVIRO 127)	Winter, 2007-9
Modeling the Environment (GEOG 166)	Spring, 2008-9
Remote Sensing of Environment (GEOG 269)	Winter, 2008

University of Virginia

Physical Geology	Spring, 2003 & 2004
Introduction to Remote Sensing	Fall, 2003 & 2004
Advanced Remote Sensing	Spring, 2004 & 2005
Remote Sensing	January, 2005
Two-week short course on the physics and techniques of remote sensing	
Soils and Geomorphology	Spring, 2005

California Institute of Technology

Teaching Assistant (Earth as a Planet, Mineral Spectroscopy, Global Biogeochemical Cycles, Radioisotope Geochemistry, Terrestrial Surface Systems)

STUDENTS

Committee Chair: Kebonyethata Dintwe (M.A., in progress), Marie Javdani (Ph.D., in progress), Patrick Kahn (Ph.D., in progress), Junran Li (Ph.D., 2008), Ian McGlynn (M.S., 2006), Cheney Shreve (UVA, Ph.D., i2009), David Rachal (NMSU Plant and Environmental Sciences, Ph.D., in progress)

Committee Member: Anne Priest (UVA M.S., 2005), James Eaton (UVA M.S., 2004), Lucy Diekmann (UVA M.S., 2003), Sujith Ravi (UVA M.S., 2004; Ph.D. 2008), Natasha Ribeiro (UVA Ph.D., 2007), Mike O'Connell (UVA Ph.D., 2009), Lyndon Estes (UVA Ph.D, 2008), Lorelei Alvarez (UVA Ph.D., in progress), Will Hobbs (UCLA Geography Ph.D. 2009), Jelena Tomic (UCLA ESS, Ph.D. in progress), Travis Brooks (UCLA EEB, Ph.D. in progress), Paul Levine (UCLA Geography, Ph.D. in progress), Vena Chu (UCLA Geography, M.S., 2009), Dayna Quick (UCSB, Geography, Ph.D., in progress), Keith Gaddis (UCLA EEB, Ph.D., In Progress)

Undergraduate Thesis Students: Allen Smith (UVA 2003-4), David Cassel (UVA 2005-6)

SERVICE ACTIVITIES

University of California, Los Angeles	
Geography Department	
Graduate Affairs Committee	2006-present
University Service	
Reviewer, ISR Summer Fellowships	
Member, Faculty advisory committee, Stunt Ranch Santa Monica Reserve	2007-present
Member, Environmental Science Major Oversight Committee	2008-present
Member, Faculty advisory committee, ISR	2009-present
Member, Center for Tropical Research	2008-present
Panelist, "Negotiation skills for academic careers", UCLA Career Center, March 17	2007
Panelist, "Mastering the academic interview", UCLA Career Center, October 26	2006
University of Virginia, Department of Environmental Sciences	
Departmental Committees	
Graduate admissions	2002-2005
Distinguished Majors Program	2002-2004
Undergraduate academic requirements committee (UGARC)	2002-2005
Computing	2003-2005
Graduate academic requirements committee (GARC)	2004-2005
University Service	
Undergraduate Academic Advisor	2002-2004
Faculty Associate, Center for South Asian Studies	2002-2005
Faculty Associate, Center for East Asian Studies	2002-2005
Member, Friends of the LGBT Resource Center Board	2005-2006
Member, LGBT Resource Center Advisory Board	2005-2006
Service to the Profession	
Member, UN/GESAMP Working Group (38) on The Atmospheric Input of Chemicals to the Ocean	2008-present
Co-convener special session on "Dynamics and interactions of belowground carbon pools in dryland ecosystems", AGU Joint Assembly, Acapulco, Mexico	2007
Co-convener special session on "Soil-Water-Nutrient Interactions With Savanna Vegetation", AGU Fall Meeting	2005
Co-convener special session on "Intracontinental Mass and Energy Transport Between Alpine and Desert Ecosystems", AGU Fall Meeting	2005

Co-convener special session on "Ecosystem Effects of Dust Deposition", AGU Fall Meeting	2003
Task force on wind erosion, International Geographic Union, Commission on Land Degradation	1997-2004
Member, Geological Society of America	2001-present
Member, American Geophysical Union	1997-present
Member, American Association of Geographers	2005-present
Member, Soil Science Society of America	2006-present

SYNERGISTIC ACTIVITIES

Development of the UCLA IMAGE laboratory	2009-present
An innovative multidisciplinary laboratory for research and teaching	
UCLA Environmental Science Major Oversight Committee	2008-present
Participate in curricular decisions for this new multi-displinary major at UCLA	
Faculty advisory committee, Stunt Ranch Santa Monica Reserve	2007-present
Participate in research, training, and educational decisionmaking for this UC Reserve	
Development of Relative Spectral Mixture Analysis	2007-present
A new MODIS-based phenological remote sensing technique	
Panelist, UCLA Career Center	2006-2007
"Negotiation skills for academic careers", "Mastering the academic interview"	

EXHIBIT 512

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

REBUTTAL TESTIMONY OF DAVID S. WHITLEY ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON CULTURAL RESOURCES FOR THE GENESIS SOLAR ENERGY PROJECT

June 25, 2010

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I. Introduction

I am a professional archaeologist. I received a Ph.D. in Anthropology, with a specialization in Archaeology, from the University of California, Los Angeles, in 1982. I have been previously employed as Chief Archaeologist at UCLA; have served as US Representative and on the Council of Directors for the International Council of Monuments and Sites (ICOMOS); and was appointed as Prehistoric Archaeologist to the State of California, Historical Resources Commission (1986-7). In 2001 I received the Thomas F. King Award for Excellence in Cultural Resource Management from the Society for California Archaeology. I have provided cultural resources consulting services for CEQA and NEPA applications for over 30 years. My professional publications include over 100 articles and book chapters, and seventeen books and monographs, and I fully meet the Secretary of the Interior's Standards and Guidelines for Professional Qualifications as a Principal Investigator for archaeological projects (see 36 CFR Part 61). A summary of my education and experience is attached to this testimony as Attachment 1.

The California Unions for Reliable Energy (CURE) retained my firm, ASM Affiliates, Inc., to review the cultural resources Staff assessments for the Genesis Solar Energy Project (Genesis or Project) and to prepare expert testimony regarding strategies for the identification, avoidance and mitigation of cultural resources impacts associated with Genesis project development, especially with respect to compliance with CEQA guidelines and standards.

The June 2010 CEC Revised Staff Assessment concludes that: "With the adoption and implementation of the entire complement of cultural resources conditions, Conditions of Certification **CUL-1** through **CUL-17**, the GSEP project would be in conformity with all applicable laws, ordinances, regulations, and standards" (C.3-2). In the following testimony, I demonstrate that the CEC Staff analysis and recommended Conditions of Certification instead fail to comply with the letter and intent of CEQA.

II. Points of Concurrence

The June 2010 Revised Staff Assessment of the Genesis Project cultural resources has changed significantly since the earlier March 2010 preliminary analysis. The March 2010 Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) estimated that the Genesis Project would have significant direct impacts to 14 archaeological sites, and significant indirect impacts to one ethnographic resource. The June 2010 Revised Staff Assessment analysis upward revises these figures to include significant direct impacts to 27 archaeological resources, and significant indirect impacts to 248 cultural resources.

CEC Staff has, appropriately, begun to appreciate the gravity of the significant adverse impacts to cultural resources that will result from the Genesis Project. They have also correctly acknowledged the cumulative adverse impacts that will result from this project in combination with similar development applications in the California deserts.

I concur with Staff's identification of the Prehistoric Trails Network Cultural Landscape (PTNCL) and the Desert Training Center California-Arizona Maneuver Area Cultural Landscape (DTCCL) as historical districts/cultural landscapes. I also concur with their recommendation that these cultural landscapes be considered eligible to the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR). I also concur with Staff's determination that significant direct adverse impacts to 27 archaeological sites will occur as a result of the proposed Project.

III. Failure to Follow Standard Archaeological Practice for CEQA Compliance and Implementation

As is widely understood, the CEQA Guidelines encourage state and local agencies to develop their own implementation procedures for regulatory compliance. As is further understood, although this permits some agency-specific latitude, such procedures must satisfy the CEQA requirement that "each significant environmental effect" be identified, and that the potential mitigation measures for each adverse effect must be discussed (CEQA Guidelines 15126.4(a)1). CEQA lead agencies and agency staffs have both formally and informally adopted a set of standard archaeological procedures intended to comply with these requirements. For the preparation of a DEIR, the widely followed CEQA standard practice includes a Phase I archaeological survey (intensive site "inventory"), and a Phase II test excavation and determination of significance. Final recommendations for the management of cultural resources are developed, and included in a DEIR, based on the results of these two procedures.

As is discussed below, these two procedures are necessary to develop appropriate mitigation measures for each identified adverse impact. Such measures will vary depending upon the nature of the specific resource, and the significance values that these procedures identify. A prehistoric village containing a cemetery, for example, will likely be determined significant based both on its religious importance to Native Americans, and its potential to yield valuable scientific information about the past. A prehistoric tool-making workshop, in contrast, may be identified as significant solely due to its potential to provide archaeological information.

As the Revised Staff Assessment acknowledges, the Applicant's archaeological consultants have completed site inventories but ***not*** determinations of significance, based on test excavations that provide affirmative information concerning the size,

integrity and nature of each cultural resource. Determinations of significance for the sites are proposed by the Staff instead, based on, in effect, a "laboratory exercise," using extrapolations from the Phase I survey data.

The completion of a Phase II test excavation and determination of significance, as standard CEQA practice, represents the tacit acknowledgment that survey level data alone are inadequate for accurate significance determination. That is, the completion of test excavations, as standard CEQA practice, reflects the well-known archaeological fact that surface evidence obtained during site surveys is at best incomplete and, at worst, may be entirely misleading. Certainly, survey level data do not necessarily provide information concerning all of the significance values a resource may include. The use of survey level data alone, hence, is considered inadequate to develop appropriate mitigation measures.

Staff's justification for this departure from CEQA standard practice cites federal regulations (36 CFR 800.14b) that allow for the resolution of "complex" cultural resource project situations through the development of a Programmatic Agreement (PA), providing for site evaluations and mitigation measures after project certification. Two points are important to emphasize in this regard:

(1) The proposed Project involves approximately 2,000 acres and contains 27 archaeological sites. There is nothing complex about the Genesis Project from the cultural resources survey perspective, especially relative to numerous CEQA-regulated California land developments. Within the last four years alone, for example, I have conducted two projects for land developments, each involving acreage figures an order of magnitude larger than the Genesis application, each with double or more the number cultural resources. In both cases, Phase I archaeological surveys and Phase II test excavations were required by the CEQA lead agencies (Los Angeles and Kern counties) as base-line data for the DEIRs. My firm, similarly, is currently conducting evaluations (equivalent to CEQA Phase II test excavations) for another federal agency involving 85 archaeological sites; the fieldwork timeline for this project is six weeks.

As the SA/DEIS makes clear (C.3-16 – 17), CEQA implementation for the proposed Project was determined not by the CEC Staff, and not to ensure adequate regulatory compliance, but instead by the Project Applicant, for reasons of expediency alone. Insofar as I am aware, nothing in the CEQA statutes or guidelines directs agencies to ensure regulatory compliance predicated on the over-riding importance of expediency for an Applicant.

(2) Whereas federal regulations allow for these kinds of data gaps and procedures in the development of a DEIS, CEQA has no such dispensation for cultural resources information and significance evaluations. CEQA instead requires

that each potential adverse impact be identified, and appropriate mitigation measures be identified, described and considered.

Staff's analysis fails to acknowledge that the proposed Project has not complied with standard CEQA practice with respect to cultural resources, nor complied with the kinds of base-line data and analysis required by CEQA.

IV. Failure to Identify All Potential Project Impacts

As both the SA/DEIS and Revised Staff Assessment acknowledge, the final Project area of potential effect (APE) has not yet been determined inasmuch as the route for a secondary access road has not been established. Unless and until that route has been specified, and archaeological studies completed on it, it is not possible to identify each of the Project's adverse impacts, as is required by CEQA.

V. Failure to Identify Appropriate Mitigation Measures for Significant Adverse Impacts

As noted above, appropriate mitigation measures for the Project's adverse impacts to each cultural resource have not been identified or considered. This failure results from the Staff's analysis which has either inferred or, at the Applicant's request, assumed that all 27 of the sites within the APE are significant with respect to a single significance value: scientific research importance. The proposed mitigation measures—data recovery (salvage excavations)—reflect Staff's unsupported assumption that research importance is the only potential value that the sites may contain, and that salvage excavations are in every case adequate to mitigate the sites' destruction.

Staff's conclusions in this regard fail to apprehend the fundamental point: while scientific value qualifies the sites as significant under CEQA, these sites may contain additional heritage values which might also qualify them as CEQA significant, and these must also be considered when developing appropriate mitigation measures. Indeed, as the CEQA Guidelines explicitly acknowledge: "Preservation in place is the preferred manner of mitigating impacts to archaeological sites" (15126.4(b)2(A)). Nowhere does Staff's analysis consider this CEQA preferred mitigation measures, for example through Project re-design. Yet there are many cases where preservation in place is the only appropriate mitigation measure, because of the nature of an archaeological site's significance values.

A well-known recent example of this fact—and a demonstration of the inadequacy of the proposed compliance approach—is provided by the U.S. Army Corps of Engineer's Playa Vista project, in the City of Los Angeles. In a fashion similar to the Genesis Project, the Corps failed to require test excavations prior to project approval, instead assuming that a PA and archaeological data recovery

would serve as the appropriate mitigation for a known archaeological site, following project approval. The result was the discovery, removal and therefore destruction, of an early 19th century Tongva-Gabrielino tribal cemetery containing 386 burials, at an archaeological cost of greater than $12 million.

At least three of the prehistoric archaeological sites within the Genesis APE, based on the surface evidence alone as described in the Revised Staff Assessment, appear to represent lakeshore village sites that have the potential to contain burials/cemeteries. (Staff's categorization of these sites as "temporary camps" is misleading and inappropriate in light of the last century of archaeological research in the California deserts.) Adequate determination of the appropriate mitigation measures for these and the other sites requires the identification of each site's significance values, not the selection of a single value, as if this is necessarily appropriate to all cultural resources. The Staff's proposed CEQA compliance, in this respect, is not based on the responsible stewardship and treatment of the cultural resources, but instead on the procedure that is most expedient for the Applicant.

VI. Inappropriate Conditions of Certification

Staff's recommended Conditions of Certification include measure CUL-17, which is directed at large, complex sites with sub-surface archaeological deposits. Staff proposes that the excavation of systematically located backhoe trenches will serve to adequately mitigate the adverse impacts resulting from the destruction of these sites.

Even under archaeological supervision, the use of backhoe trenches to excavate large and complex prehistoric sites is massively inappropriate, if not literally offensive to the sensibilities of Native Californian tribal peoples and the professional California archaeological community. Large and complex sites are exactly the kinds of sites that commonly contain human burials and other kinds of sensitive remains and features. The use of a backhoe in such circumstances is as likely to destroy these kinds of archaeological remains as allow for their recovery and analysis.

Following long and widely-accepted professional California archaeological practice, subsurface testing and data recovery procedures should include the controlled hand-excavation of sites, not the mechanical excavation of the sites.

ATTACHMENT 1

David S. Whitley, Ph.D., RPA
Principal/Principal Archaeologist

Total Years of Experience: 35 years

Education:

Ph.D.	1982/Anthropology/University of California, Los Angeles
M.A.	1979/Geography/University of California, Los Angeles
B.A.	1976/Anthropology and Geography/University of California, Los Angeles

Registrations:

1979	Register of Professional Archaeologists

Professional Profile:

David S. Whitley, Ph.D., specializes in the prehistoric archaeology and ethnography of far western North America, with particular interests in sacred sites, rock art, chronometrics and cultural heritage management. He has also worked in southern Africa, the European Upper Paleolithic and Guatemala. His professional publications include 17 books/monographs and approximately 100 articles and chapters. Included among his recent books are *The Rock Art of California* (University of Utah Press, 2000), the edited volume *Handbook of Rock Art Research* (AltaMira Press, 2001), and *Introduction to Rock Art Research* (Left Coast Press, 2005), which received a *Choice* Outstanding Academic Book Award for 2006. His latest book is *Cave Paintings and the Human Spirit: The Origin of Creativity and Belief* (Prometheus Books, 2009).

Whitley has written the nominations for 470 sites that are now listed on the NRHP, and has a nomination for an 89 site NHL district that is currently under consideration. For a decade he served on the Council of Directors of the ICOMOS International Rock Art Committee. In 2001 he received the Thomas King Award from the Society for California Archaeology for Excellence in Cultural Resource Management.

Selected Project Experience:

Coso NHL Management Plan, NAWS China Lake, Inyo County, California, 2009-ongoing. Co-Principal Investigator and report co-author of a management plan for the Coso NHL district, a 57-square-mile area containing the largest concentration of petroglyph sites in North America. This has involved coordination with stakeholders, including Native American tribes; the development of management and conservation protocols; and the identification and prioritization of future preservation tasks for the only rock art NHL west of the Rockies.

Carrizo Plain Ecological Reserve Land Management Plan, Jodi McGraw Consulting, Carrizo Plain, San Luis Obispo County, California, ongoing. Principal investigator, field director and report author for an archaeological reconnaissance, overview and management plan for cultural resources on four California Department of Fish and Game units totaling 39,016 acres; and authorship of cultural sections for a Fish and Game Land Management Plan.

Draft Environmental Impact Statement, Twentynine Palms Marine MAGTF Land Expansion, TEC Inc., San Bernardino County, California, ongoing. Co-Principal Investigator and co-author for cultural resources sections of a NEPA draft EIS for a proposed 150,000-acre land expansion.

Tejon Mountain Village Project, Tejon Mountain Village LLC, Tejon Ranch, Kern and Los Angeles counties, California, 1999–2009. Principal Investigator and report author for a Phase I survey of 28,000 acres and Phase II testing of 38 prehistoric sites, for CEQA compliance.

Assessment of CA-INY-434 and -7117, Epsilon Systems Solutions, NAWS China Lake, Inyo County, California, 2008. Principal Investigator, field director and report author for condition assessments of petroglyph sites CA-INY-434 and -7117, involving site documentation and mapping; evaluation of current conditions and identification of natural and cultural impacts to the sites; and management recommendations for long-term preservation.

Rosamond Space-Port Survey, United Engineering Group, Rosamond, Kern County, California, 2008. Principal Investigator, field director and report author for Phase I archaeological survey of 546 acres, resulting in the identification and recording of nine sites.

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Boeing Corporation Santa Susana Field Lab Projects, MWH Americas, Inc., Los Angeles County, California, 2001-2008. Principal investigator, field director and report author for six Class III inventories/Phase I surveys required for maintenance, hazardous waste clean-up and other activities on the Santa Susana Field Lab; and evaluation and preliminary condition assessment for NRHP listed rock art site CA-LAN-1072 (Burro Flats).

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Vintage Well Pad Survey, Vintage Production California, Tejon Ranch, Kern County, California, 2006. Principal Investigator and report author for a Phase I archaeological survey of a well-pad.

Hueneme Pipeline Survey, City of Hueneme, Wastewater Division, Hueneme, Ventura County, California, 2006. Principal Investigator, field director, report author for a Class III inventory/Phase I survey of a 3400 linear feet pipeline route, requiring SHPO consultation.

Searles Lake High-Stand Shoreline Survey, Bureau of Land Management, San Bernardino County, California, 2005. Principal Investigator, field director and report author for a Class III inventory of the high-stand (Late Pleistocene) pluvial lake shoreline (2,343 acres) of the Christmas Canyon sub-basin of Searles Valley.

Tejon Ranch Water Management and Exchange WRMWSD 850 Canal/Reservoir No. 1 Pumpback Project, Tejon Ranch Company, Tejon Ranch, Kern County, California, 2003-2004. Principal Investigator, field director and report author for a Phase I archaeological survey of 1268 acres related to water rights and usage.

Christmas Canyon Site Assessment, Bureau of Land Management, San Bernardino County, California, 2003. Principal Investigator, field director and report author for an assessment of 16 surface sites within the Christmas Canyon area of the Searles Lake Basin.

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Newhall Ranch Projects, Newhall Land and Farms/Lennar Homes, Valencia, Los Angeles County, California, 1993-2009. Principal Investigator, field director and report author for 24 separate studies/contracts involving Phase I CEQA studies and NHPA Class III inventories of approximately 20,000 acres, Class II test excavations at 11 prehistoric sites, and Class III data recovery at one site.

Golden Queen Mine Projects, Golden Queen Mining Company, Rosamond, Kern County, California, 1994-2007. Principal Investigator, field director and report author for five projects/contracts involving a CEQA Phase I study of 640 acres total, Phase II test excavations

of nine historical (1900-1910 mining related) sites, and Phase III data recoveries (including HABS/HAER documentation) of four sites, one of which was a large historical mining ghost town with about 60 structures.

Fort Irwin Rock Art Projects, NTC Fort Irwin, Barstow, San Bernardino County, California, 1997-1999. Principal Investigator, field director and report author for three projects/contracts, involving a NHPA Class III inventory of 2000 acres at "The Whale;" rock art site documentation and assessment of three petroglyph sites; testing, rock art documentation and Section 106 evaluation at Sally's Rockshelter.

BLM Land Exchange Inventories and Assessment, Conservation Partners, Inc., Santa Barbara, Tulare, Kern and Kings counties, California, 1999-2000. Principal Investigator, field director and report author for seven projects/contracts requiring Class III inventories of 5,221 acres, and one project requiring limited testing and determinations of NRHP eligibility for four sites.

Class II Inventory, NAWS China Lake, Inyo and San Bernardino counties, California, 1982-1983. Co-principal Investigator, field director and report co-author of a sample survey of the North and South Ranges of the China Lake NWC, representing approximately 10,000 inventoried acres.

LADWP Well Pad Study, Los Angeles Department of Water and Power, Inyo County, California, 1982. Principal Investigator, field director and report author, archaeological assessments of four geothermal well pads locations in the Coso KGRA, adjacent to Sugarloaf Mountain.

EXHIBIT 513

DECLARATION

I, David Whitley, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at Ridgecrest, California.

Dated: 24 June 2010

Signed: David S. Whitley

EXHIBIT 514

David S. Whitley, Ph.D., RPA
Principal/Principal Archaeologist

Total Years of Experience: 35 years

Education:

Ph.D.	1982/Anthropology/University of California, Los Angeles
M.A.	1979/Geography/University of California, Los Angeles
B.A.	1976/Anthropology and Geography/University of California, Los Angeles

Registrations:

1979	Register of Professional Archaeologists

Professional Profile:

David S. Whitley, Ph.D., specializes in the prehistoric archaeology and ethnography of far western North America, with particular interests in sacred sites, rock art, chronometrics and cultural heritage management. He has also worked in southern Africa, the European Upper Paleolithic and Guatemala. His professional publications include 17 books/monographs and approximately 100 articles and chapters. Included among his recent books are *The Rock Art of California* (University of Utah Press, 2000), the edited volume *Handbook of Rock Art Research* (AltaMira Press, 2001), and *Introduction to Rock Art Research* (Left Coast Press, 2005), which received a *Choice* Outstanding Academic Book Award for 2006. His latest book is *Cave Paintings and the Human Spirit: The Origin of Creativity and Belief* (Prometheus Books, 2009).

Whitley has written the nominations for 470 sites that are now listed on the NRHP, and has a nomination for an 89 site NHL district that is currently under consideration. For a decade he served on the Council of Directors of the ICOMOS International Rock Art Committee. In 2001 he received the Thomas King Award from the Society for California Archaeology for Excellence in Cultural Resource Management.

Selected Project Experience:

Coso NHL Management Plan, NAWS China Lake, Inyo County, California, 2009-ongoing. Co-Principal Investigator and report co-author of a management plan for the Coso NHL district, a 57-square-mile area containing the largest concentration of petroglyph sites in North America. This has involved coordination with stakeholders, including Native American tribes; the development of management and conservation protocols; and the identification and prioritization of future preservation tasks for the only rock art NHL west of the Rockies.

Carrizo Plain Ecological Reserve Land Management Plan, Jodi McGraw Consulting, Carrizo Plain, San Luis Obispo County, California, ongoing. Principal investigator, field director and report author for an archaeological reconnaissance, overview and management plan for cultural resources on four California Department of Fish and Game units totaling 39,016 acres; and authorship of cultural sections for a Fish and Game Land Management Plan.

Draft Environmental Impact Statement, Twentynine Palms Marine MAGTF Land Expansion, TEC Inc., San Bernardino County, California, ongoing. Co-Principal Investigator and co-author for cultural resources sections of a NEPA draft EIS for a proposed 150,000-acre land expansion.

Tejon Mountain Village Project, Tejon Mountain Village LLC, Tejon Ranch, Kern and Los Angeles counties, California, 1999–2009. Principal Investigator and report author for a Phase I survey of 28,000 acres and Phase II testing of 38 prehistoric sites, for CEQA compliance.

Assessment of CA-INY-434 and -7117, Epsilon Systems Solutions, NAWS China Lake, Inyo County, California, 2008. Principal Investigator, field director and report author for condition assessments of petroglyph sites CA-INY-434 and -7117, involving site documentation and mapping; evaluation of current conditions and identification of natural and cultural impacts to the sites; and management recommendations for long-term preservation.

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LADWP Well Pad Study, Los Angeles Department of Water and Power, Inyo County, California, 1982. Principal Investigator, field director and report author, archaeological assessments of four geothermal well pads locations in the Coso KGRA, adjacent to Sugarloaf Mountain.

EXHIBIT 515

PROGRAMMATIC AGREEMENT
AMONG THE
BUREAU OF LAND MANAGEMENT-CALIFORNIA,
THE CALIFORNIA ENERGY COMMISSION,
NEXT ERA GENESIS SOLAR LLC, AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
REGARDING THE NEXT ERA GENESIS FORD DRY LAKE SOLAR
PROJECT, RIVERSIDE COUNTY, CALIFORNIA

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INTRODUCTION

The purpose of this Programmatic Agreement (Agreement) is to provide processes whereby the Bureau of Land Management (BLM) and the California Energy Commission (Energy Commission), in consultation with the California State Historic Preservation Officer (SHPO), Indian Tribes and other consulting parties, shall determine the steps the agencies shall follow to take into account effects on historic properties as required by section 106 of the National Historic Preservation Act and satisfy the requirements of the California Environmental Quality Act.

The BLM and the Energy Commission, in consultation with the consulting parties to this Agreement, will consider and incorporate within the section 106 consultation process the performance standards (desired future condition), the range of mitigation measures and commitment to mitigate, and monitoring requirements of the Energy Commission's *Staff Assessment for the Next Era Genesis Ford Dry Lake Solar Project* (Application for Certification 09-AFC-8) as adopted by the Energy Commission and the BLM in any decision to permit the Blythe Solar Power Project. The BLM and the Energy Commission will endeavor to make the historic properties treatment and management provisions of this Agreement as consistent as possible with the objectives and terms of the Supplemental Staff Assessment/Final Environmental Impact Statement within the context of the consultation process required by section 106 of the NHPA.

Government agencies, consulting parties, and the public identified in the scoping and public notification process for Staff Assessment and Environmental Impact Statement will be advised in the Staff Assessment and Final Environmental Impact Statement that historic properties associated with the undertaking would be treated consistent with the mitigation measures or performance standards identified in the Staff Assessment and adopted by the Energy Commission, and consistent with the stipulations of this Agreement. A proposed final draft of this Agreement will be circulated for public comment as an attachment to the Final Staff Assessment and Final Environmental Impact Statement. The Signatories have consulted with the Invited Signatories and Concurring Parties to this Agreement, and have taken into consideration public comments received regarding the draft Agreement in preparing this final Agreement. Additionally, the BLM has made written requests to Indian Tribes to provide comments regarding the proposed final draft Agreement and has consulted with the other Signatories and Invited Signatories to take into consideration the views and comments received from Indian Tribes in developing this Agreement.

PROGRAMMATIC AGREEMENT
AMONG THE
BUREAU OF LAND MANAGEMENT-CALIFORNIA,
THE CALIFORNIA ENERGY COMMISSION,
NEXT ERA GENESIS SOLAR LLC, AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,
REGARDING THE NEXT ERA GENESIS FORD DRY LAKE SOLAR PROJECT,
RIVERSIDE COUNTY, CALIFORNIA

WHEREAS, Next Era Genesis Solar LLC (Applicant) has applied for a right of way (ROW) grant on approximately 4,640 acres of public lands managed by the Bureau of Land Management (BLM) and has submitted a Plan of Development (POD) to construct, operate and maintain a solar energy electrical generating plant (hereinafter referred to as the Next Era Genesis Ford Dry Lake Solar Project), including construction of two single-unit parabolic trough solar fields 125-megawatts (MW) each with power plant, a 230 kilovolt (kV) transmission line and on-site switchyard, raw water storage tank, treated water storage tank, wastewater storage tank, water pipelines, paved arterial roads, unpaved perimeter access and maintenance roads, laydown and staging areas, and support facilities and infrastructure (Appendix D: Project Description; Appendix E: Project Maps and Illustrations); and

WHEREAS, the BLM has determined that issuing a right-of-way grant (ROW) to Next Era Genesis Solar LLC in accordance with the Federal Land Policy and Management Act (FLPMA) (Public Law 940-579; 43 USC 1701) is an undertaking as defined at 36 CFR 800.16(y)(Protection of Historic Properties, August 5, 2004) of the regulations implementing section 106 of the National Historic Preservation Act (16 USC 470(f))(NHPA); and

WHEREAS, the BLM is the lead Federal agency for the undertaking for the purpose of complying with section 106 of the NHPA and its implementing regulations found at 36 CFR Part 800, and the BLM shall be responsible for managing historic properties within the Area of Potential Effects (APE) for the undertaking pursuant to the NHPA; and

WHEREAS, in August 2005, the United States Congress enacted the Energy Policy Act of 2005 (Public Law 109-58). In section 211 of this Act, Congress directed that the Secretary of the Interior (the "Secretary") should, before the end of the 10-year period beginning on the date of enactment of the Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity; and

WHEREAS, by Secretarial Order No. 3285 issued March 11, 2009, the Secretary stated as policy that encouraging the production, development, and delivery of renewable energy is one of the Department of Interior's (DOI) highest priorities and that agencies and bureaus within the DOI will work collaboratively with each other, and with other Federal agencies, departments, states, local communities, and private landowners to encourage the timely and responsible development of renewable energy and associated transmission while protecting and enhancing the Nation's water, wildlife, and other natural resources; and

WHEREAS, BLM has consulted with the California State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800.14(b)(3) and following the procedures outlined at 36 CFR 800.6, and is in the process of considering alternatives for the undertaking that have the potential to adversely affect historic properties and may reach a decision regarding approval of the undertaking before the effects of the undertaking's implementation on historic properties have been fully determined, the BLM chooses to continue its assessment of the undertaking's potential adverse effect and resolve any such effect through the implementation of this Programmatic Agreement (Agreement); and

WHEREAS, the BLM, in consultation with the SHPO pursuant to 36 CFR 800.4(b)(2), has determined that a phased (tiered) process for compliance with section 106 of the National Historic Preservation Act (NHPA) may be appropriate for the undertaking; and

WHEREAS, in accordance with regulations at 36 CFR 800.14(b)(3) BLM has notified and invited the Advisory Council on Historic Preservation (ACHP) per 36 CFR 800.6(a)(1)(C) to participate in consultation to resolve the potential effects of the Undertaking on Historic Properties, and as per their letter dated March 10, 2010, the ACHP has elected not to participate in this PA; and

WHEREAS, the California Energy Commission (Energy Commission), may certify the Next Era Genesis Ford Dry Lake Solar Project located on public lands pursuant to Section 25519, subsection (c) of the Warren-Alquist Act of 1974 and for the purposes of consistency proposes to manage all historical resources in accordance with the stipulations of this Agreement; and

WHEREAS, the BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including a review of the existing literature and records, cultural resources surveys, ethnographic studies, and geo-morphological studies to identify historic properties that might be located within the Area of Potential Effect (APE); and

WHEREAS, the Applicant has retained Tetra Tech EC, Inc. (Tetra Tech) to complete all of the investigations necessary to identify and evaluate cultural resources located within the Area of Potential Effect (APE) for both direct and indirect effects. Tetra Tech has completed a review of the existing historic, archaeological and ethnographic literature and records to ascertain the presence of known and recorded cultural resources in the APE and buffered study area, has conducted an intensive field survey for 5,188 acres of land, including all of the lands identified in APE for direct effects for all project alternatives, and has completed intensive field surveys for alternatives on lands that are no longer part of the project. Tetra Tech has submitted a cultural resources report (*Class II and Class III Cultural Resources Inventories for the Proposed Genesis Solar Energy Project, Riverside County, California,* prepared by Tetra Tech, May 2010) that presents the results of identification efforts to the BLM and the Energy Commission. BLM has submitted a summary report of the cultural resources investigations to the consulting parties and Indian Tribes for review and comment; and

WHEREAS, the BLM and the Energy Commission have prepared the *Staff Assessment and Environmental Impact Statement, Genesis Solar Energy Project, Application for Certification (09-AFC-8) Riverside County (2010)* to identify the project alternatives for purposes of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), and have comparatively examined the relative effects of the alternatives on known historic properties; and

WHEREAS, the Applicant, as grantee of the proposed ROW, has participated in consultation per 36 CFR 800.2(c)(4), and shall provide all cultural resources documentation required by the BLM in support of the stipulations to this agreement and is willing to carry out the stipulations of this Agreement under the oversight of BLM, and is an Invited Signatory to this Agreement; and

WHEREAS, pursuant to section 101(d)(6)(B) of the NHPA, 36 CFR 800.2(c)(2)(ii), the American Indian Religious Freedom Act (AIRFA), Executive Order 13175, and section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA), the BLM is responsible for government-to-government consultation with Federally recognized Indian Tribes and is the lead agency for all Native American consultation and coordination; and

WHEREAS, the BLM has formally notified and invited the Agua Caliente Band of Cahuilla Indians, Augustine Band of Mission Indians, Cabazon Band of Mission Indians, Chemehuevi Indian Tribe, Cocopah Indian Tribes, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Fort Yuma Quechan Tribe, Morongo Band of Mission Indians, Ramona Band of Mission Indians, San Manuel Band of Mission Indians, Soboba Band of Luiseno Indians, Torres-Martinez Desert Cahuilla Indians and Twenty-Nine Palms Band of Mission Indians (Tribes), to consult on this undertaking and participate in this Agreement as a Concurring Party. BLM has documented its efforts to consult with the Tribes and a summary is provided in Appendix I to this Agreement; and

WHEREAS, the BLM shall continue to consult with the Tribes throughout the implementation of this Agreement regarding the adverse effects to historic properties to which they attach religious and cultural significance. BLM will carry out its responsibilities to consult with Tribes that request such consultation regardless of their status as a consulting party to this PA. Through consultation, Tribes have expressed their views and concerns about the importance and sensitivity of cultural resources within and near the project area and attach significance to the broader cultural landscape; and

WHEREAS, the California Unions for Reliable Energy, as an organization, has been invited to consult on this undertaking and this Agreement, have been afforded consulting party status pursuant to 36 CFR 800.4, and have been invited to be Concurring Parties to this Agreement;

NOW, THEREFORE, the BLM and the SHPO (hereinafter "Signatories) and the Energy Commission and the Applicant (hereinafter "Invited Signatories"), agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

The BLM shall ensure that the following measures are implemented:

I. DEFINITIONS

The definitions found at 36 CFR 800.16 and in this section apply throughout this agreement except where another definition is offered in this Agreement.

a) ***Concurring Parties***. Concurring Parties may propose amendments to this Agreement. Amendments proposed by Concurring Parties may be considered at the discretion of the Signatories.

b) ***Cultural Resource.*** A cultural resource is an object or definite location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources are prehistoric, historic, archaeological, or architectural sites, structures, buildings, places, or objects and definite locations of traditional cultural or religious importance to specified social and/or culture groups. Cultural resources include the entire spectrum of resources, from artifacts to cultural landscapes, without regard to eligibility for inclusion on the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR).

c) ***Consulting parties.*** Collectively refers to the Signatory, Invited Signatory and Concurring Parties to this Agreement.

d) ***Day.*** Singular or plural, refers to a calendar, rather than a business, day.

e) ***Historic Properties.*** Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior and per the eligibility criteria at 36 CFR § 60.4. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria. The term eligible for inclusion in the National Register includes both properties formally determined as such in accordance with regulations of the Secretary of the Interior and all other properties that meet the NRHP criteria.

f) ***Historical Resources.*** Historical resources includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California and meets the criteria for listing on the California Register as provided at California Code of Regulations Title 14, Chapter 11.5, Section 4850.

g) ***Invited Signatories.*** Invited Signatories to this Agreement are the Energy Commission and Applicant. Invited Signatories have specific responsibilities as defined in this Agreement have the same rights as the Signatory Parties to propose amendments and termination of this Agreement.

h) ***Lands Administered by the U.S. Department of Interior, Bureau of Land Management*** (BLM) means any Federal lands under the administrative authority of the BLM.

i) ***Literature Review.*** A literature review is one component of a BLM class 1 inventory, as defined in BLM Manual Guidance 8100..21(A)(1), and is a professionally prepared study that includes a compilation and analysis of all reasonably available cultural resource data and literature, and a management-focused, interpretive, narrative overview, and synthesis of the data. The overview may also define regional research questions and treatment options.

j) ***Records Search.*** A records search is one component of a BLM class 1 inventory and an important element of a literature review. A records search involves obtaining existing cultural resource data from published and unpublished documents, BLM cultural resource inventory records, institutional site files, State and national registers, interviews, and other information sources.

k) ***Signatories.*** Signatories to this Agreement are the BLM and SHPO. Signatories have the sole authority to execute, amend or terminate this Agreement.

l) ***Traditional Cultural Property.*** A traditional cultural property is defined generally as property that is important to a living group or community because of its association with cultural practices or beliefs that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. It is a place that may figure in important community traditions or in culturally important activities, such as traditional gathering areas, prayer sites, or sacred/ceremonial locations. These sites may or may not contain features, artifacts, or physical evidence, but are usually identified through consultation. A traditional cultural property may be eligible for inclusion in the National Register.

m) ***Tribes.*** The federally recognized and non-federally recognized Indian Tribes that BLM has invited to consult on this undertaking and participate and concur in this Agreement.

n) ***Undertaking.*** Issuing any ROW/permit(s) individually or collectively by the BLM allowing or facilitating construction, operation or maintenance activities related to the Project on BLM administered lands constitutes an "undertaking" as defined at 36 CFR 800.16(y) and is the undertaking addressed by this Agreement.

o) ***Windshield Survey.*** A windshield survey is a common method utilized in reconnaissance surveys to identify built-environment cultural resources, such as buildings, objects, and structures. Windshield surveys involve surveyors driving or walking streets and roads of a community and observing and recording the buildings, structures, and landscape characteristics they see.

II. AREA OF POTENTIAL EFFECTS

a) Prior to and during construction of the undertaking, the APE shall include all areas in which:

(1) Historic properties could sustain direct physical effects as a result of the undertaking and is defined to include all areas subject to the BLM's ROW decision for the 250MW solar energy facility and transmission line corridor, which includes approximately 4,640 acres of public lands. The area is located approximately 25 miles west of the city of Blythe, California, south of the Palen/McCoy Wilderness Area and north of Ford Dry Lake and Interstate 10.

(2) The APE for linear elements of the undertaking includes:

(a) The ROW for a new 230 kV transmission line is defined as an approximately 100 foot wide and 6.5 mile long corridor that extends to the Blythe Energy Project Transmission Line. A survey corridor for cultural resources for this linear element was established as a 150-foot buffer on either side of the center line (300 foot corridor) to allow for changes in the ROW to avoid cultural resources.

(b) The ROW for the transmission line will also contain a natural gas pipeline that will tie into an existing Southern California Edison natural gas pipeline south of and adjacent to Interstate 10.

(c) Project maps and illustrations are provided in Appendix E to this Agreement.

ii) Historic properties not located within the areas described in Stipulation II(a)(i) that could sustain direct or indirect non-physical effects, including visual, auditory, and atmospheric, as a result of the undertaking and is defined to include:

(1) Cultural resources identified through a review of existing literature and records search, information or records on file with the BLM or at the EIC, interviews or discussions with local professional or historical societies and local experts in history or archaeology. Specific areas of concern or cultural resources that were identified include:

(a) McCoy Spring Archaeological District.
(a) The Bradshaw Trail and numerous, wide-spread, previously recorded, prehistoric trail segments.

(2) Any cultural resource or location which has been included in the Native American Heritage Commission Sacred Lands Files, identified through a literature review or records search, or identified by an Indian Tribe, Tribal organization, or individual through consultation as having religious or cultural significance.

(3) Any cultural resource or location which has been identified by a consulting party, organization, governmental entity, or individual through consultation or the public commenting processes as having significance or being a resource of concern. Areas identified through consultation include:

(a) Desert Training Center (DTC) Archeological Sites and Landscape
(b) McCoy Spring Archaeological District

(4) Built-environment resources

(a) The APE is expanded to include a half-mile buffer from the project site and above-ground linear facilities to encompass historic properties whose historic setting could be adversely affected.

(b) Cultural resources identified through surveys where access was granted and windshield surveys where there was no allowed access within a half mile of the APE for direct effects.

(5) Cultural resources identified through a review of the existing literature, information and records search at the BLM Palm Springs/South Coast Field Office and at the EIC, for cultural resources that are located within a one mile buffer of the project area and ¼-mile from each linear project feature.

(a) Prehistoric Districts and Landscapes
(i) Prehistoric Trails Network

(b) Historic Districts and Landscapes
(i) Desert Training Center (DTC) Archaeological Sites and Landscape

(6) Cultural resources identified through archaeological or other field investigations for this undertaking that, as a result of project redesign to avoid direct effects to cultural resources, no longer occur within the APE for direct effects.

b) The APE encompasses an area sufficient to accommodate all of the proposed and alternative project components under consideration as of the date of the execution of this Agreement. If BLM determines in the future that unforeseen changes to the undertaking may cause alterations in the character or use of historic properties, if any such properties exist, in a geographic area or areas beyond the extent of the original APE above, then the BLM, in consultation with the Signatories and Invited Signatories shall modify the size of the APE using the process set forth in stipulation below.

i) Any party to this Agreement may propose that the APE established hereunder be modified. The BLM shall notify the Signatories and Invited Signatories of the proposal and consult for no more than 15 days to reach agreement on the proposal.

ii) If the Signatories agree to the proposal, then the BLM will prepare a description and a map of the modification to which the Signatories agree. The BLM will keep copies of the description and the map on file for its administrative record and distribute copies of each to the other Signatories and Invited signatories within 30 days of the day upon which agreement was reached.

iii) Upon agreement to a modification to the APE that adds a new geographic area, the BLM shall follow the processes set forth in Stipulation II to identify and evaluate

historic properties in the new APE, assess the effects of the undertaking on any historic properties in the APE, and provide for the resolution of any adverse effects to such properties, known or subsequently discovered.

iv) If the Signatories cannot agree to a proposal for the modification of the APE, then they will resolve the dispute in accordance with Stipulation X.

II. IDENTIFICATION AND EVALUATION

a) The BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including, but not limited to, a literature review, records search, cultural resources surveys, ethnographic studies, and geo-morphological studies to identify historic properties that might be located within the APE.

A cultural resources report (Tetra Tech 2010) has been submitted by the Applicant that presents the results of identification efforts to the BLM and the Energy Commission and is currently under review. The BLM and the Energy Commission will assess whether the report conforms with the field methodology and site description template required under BLM Fieldwork Authorizations 66-27-07-19, 66-27-09-05, 66-24-09-16, and 66-66-10-09, and Energy Commission Docket number 09-AFC-8.

The BLM, in consultation with the Energy Commission, may require additional field investigations to ensure the accuracy of site recordation and to provide additional information to support site evaluations and the assessment of effects. The BLM and the Energy Commission, separately or together, have the right and the discretion, under this Agreement, to request additional field studies.

The BLM has consulted and shall respond to any request to consult with Tribes, Tribal organizations or tribal individuals regarding the identification of historic properties within the APE to which they attach religious or cultural significance.

b) The BLM shall make determinations of eligibility prior to the Record of Decision, and make the agency's determinations available to the consulting parties and the public for a 30 day review and comment period.

i) The BLM will respond to any request for consultation on its determinations from a consulting party to this Agreement or a Tribe.

ii) A consulting party may provide its comments directly to the SHPO within the 30 day comment period.

(1) Where a consulting party elects to provide comments directly to SHPO, the consulting party shall provide a copy of the comments to the BLM within the 30 day comment period.

iii) Absent comment within 30 days, the BLM may submit its determinations to SHPO for final review and comment.

iv) Where a consulting party or Tribe objects to the BLM's determination for a specific cultural resource within the 30 day review period, the BLM shall consult with the objecting party and the SHPO regarding the nature of the objection and reconsider its determinations.

(1) If the objection is not resolved, the BLM shall further consult with the SHPO and follow the processes provided at 36 CFR 800.4(c)(2).
(2) The BLM may proceed with determinations for all cultural resources not subject to objection.

v) The BLM and the Energy Commission shall coordinate to the extent feasible and practicable on determinations of eligibility for the NRHP and the CRHR.

(1) Cultural resources formally determined eligible for inclusion in the NRHP are listed on the CRHR per California Code of Regulations 4851(a)(1).
(2) If BLM determines that a cultural resource is not included or eligible for inclusion on the NRHP but the Energy Commission determines a cultural resource to be eligible for inclusion on the CRHR, the BLM and the Energy Commission shall consult with the SHPO for 15 days to resolve disagreements with regard to eligibility.

(a) The SHPO shall have the final authority to resolve disagreements regarding eligibility for the CRHR.
(i) If the SHPO determines that the cultural resource is eligible for the CRHR, the SHPO shall notify the Energy Commission and BLM and may request that BLM reconsider its determination.

vi) BLM will submit its determinations of eligibility to the SHPO for final review and comment.

(1) SHPO will have 30 days in which to review and comment.
(2) Absent comments within this time frame, BLM may assume, and formally document for the record, that the SHPO has elected not to comment and concurs with BLM's determinations.
(3) If the BLM and SHPO should not agree on the determination, BLM shall follow the processes provided at 36 CFR 800.4(c)(2) and seek a determination from the Keeper of the National Register.

c) The BLM may defer the formal and final evaluation of archaeological sites whose values are limited to the potential to yield information about history or prehistory and where testing or limited excavation is recommended to determine whether the site would be eligible under Criterion D for inclusion on the NRHP.

i) BLM may treat an unevaluated archaeological site whose values are limited to the potential to yield information about history or prehistory as a historic property for the purpose of project management. If adverse effects to an archaeological site which is being treated as a historic property cannot be avoided, the BLM must either evaluate the site and make a determination of eligibility or resolve the adverse effect by implementing the prescriptions of the HPTP.

ii) Where evaluation of archaeological sites for the potential to yield information may be deferred, the Applicant shall submit an analysis of the unevaluated cultural resources that the Undertaking appears likely to affect. The analysis shall detail which cultural resources that the undertaking appears to have no potential to affect, which cultural resources the Applicant commits to avoiding through the implementation of formal avoidance measures, and which cultural resources cannot be avoided and will be treated by implementing the prescriptions of the Historic Properties Treatment Plan (HPTP) required in Section III of the Agreement.

iii) Where additional evaluation efforts are required to assess the informational values of archaeological sites, the BLM and the Energy Commission shall ensure that cultural resources located within the APE are evaluated for the NRHP and the CRHR pursuant to the guidelines provided in Appendix A of this Agreement.

d) Where additional identification and evaluation efforts are required due to changes in the project and the APE, the BLM and the Energy Commission shall ensure that cultural resources located within the APE are identified and evaluated for the NRHP and the CRHR pursuant to Appendix A of this Agreement.

e) Amendment of the identification and evaluation process as set forth hereunder will not require amendment of this Agreement if all Signatories do so agree.

III. TREATMENT OF HISTORIC PROPERTIES

a) The resolution or mitigation of effects to historic properties shall be described in one or more HPTP(s) that shall be an attachment to Appendix B of this Agreement.

i) The BLM and the Applicant, in consultation with the consulting parties, shall seek to develop a draft HPTP prior to the ROD if feasible, or to otherwise develop a framework and consensus on the general treatment measures for affected historic properties that would be finalized in the HPTP.

(1) Prior to the issuance of any Notice to Proceed by BLM to initiate the undertaking or any component of the undertaking the Applicant shall develop and submit to BLM one or more HPTPs.
(2) The HPTP will be initiated after the ROW is granted by the BLM but prior to the issuance of a Notice to Proceed for construction in those portions of the undertaking addressed by the HPTP.
(3) The BLM may authorize the phased implementation of the HPTP, or if appropriate, the development of individual cultural resources, issue oriented, or geographically focused HPTP(s).

ii) The BLM and the Energy Commission, to extent possible and consistent with the guidelines provided in Appendix B(2), shall coordinate on the development of the treatment or mitigation measures proposed in the Energy Commission's Conditions of Certifications and the treatment measures developed through the section 106 consultation process.

b) The BLM shall submit the HPTP to the consulting parties for a 30 day review period. Absent comments within this time frame, BLM may finalize the HPTP. BLM will provide the parties with written documentation indicating whether and how the draft HPTP will be modified in response to any timely comments received. If the HPTP is revised in response to comments, BLM shall submit the revised HPTP to all parties for a 15 day review period. Absent comments within this time frame, BLM will finalize the HPTP. BLM will provide the consulting parties a copy of the final HPTP.

c) Where the HPTP treats adverse effects to historic properties to which Tribes attach religious or cultural significance, the BLM shall submit the HPTP to the Tribes and seek their views comments through consultation, regardless of the status of a Tribe as a consulting party to this Agreement.

i) BLM shall submit an HPTP which treats adverse effects to which a Tribe(s) attaches religious and cultural significance to the SHPO and the ACHP. BLM shall consult with the involved Tribe(s) on the distribution of the HPTP to the other consulting parties.

d) BLM shall ensure that a HPTP, developed in accordance with Appendix B of this Agreement, is implemented and completed.

e) BLM shall ensure that a Historic Property Management Plan (HPMP), which provides for the protection and management of historic properties during the operational life and decommissioning of the solar energy power plant, is developed and implemented in accordance with Appendix C of this Agreement.

f) Amendment of the HPTP or HPMP as set forth hereunder will not require amendment of this Agreement if all Signatories do so agree. If the Signatories do not agree to the

amendment of the HPTP or HPMP, the disagreement will be resolved pursuant to the procedures in Section X of this Agreement.

IV. DISCOVERIES AND UNANTICIPATED EFFECTS

a) If the BLM determines during implementation of the HPTP that either the HPTP or the undertaking will affect a previously unidentified property that may be eligible for the NRHP, or affect a known historic property in an unanticipated manner, the BLM will address the discovery or unanticipated effect in accordance with those provisions of the HPTP that relate to the treatment of discoveries and unanticipated effects. BLM at its discretion may hereunder assume any discovered property to be eligible for inclusion in the National Register. BLM compliance with this stipulation shall satisfy the requirements of 36 CFR 800.13(a)(2).

V. TREATMENT OF HUMAN REMAINS OF NATIVE AMERICAN ORIGIN

a) The parties to this Agreement agree that Native American burials and related items discovered on BLM administered lands during implementation of the terms of the Agreement will be treated in accordance with the requirements of the NAGPRA. The BLM will consult with concerned Indian Tribes, Tribal Organizations, or individuals in accordance with the requirements of §§ 3(c) and 3(d) of the NAGPRA and implementing regulations found at 43 CFR Part 10 to address the treatment of Native American burials and related cultural items that may be discovered during implementation of this Agreement.

b) In consultation with the Tribes, the BLM shall seek to develop a written plan of action pursuant to 43 CFR 10.5(e) to manage the inadvertent discovery or intentional excavation of human remains, funerary objects, sacred objects, or objects of cultural patrimony. The plan of action shall be included in the Appendices to this Agreement.

c) The BLM shall ensure that Native American burials and related cultural items on private lands are treated in accordance with the requirements of §§ 5097.98 and 5097.991 of the California Public Resources Code, and § 7050.5(c) of the California Health and Human Safety Code.

VI. STANDARDS AND QUALIFICATIONS

a) PROFESSIONAL QUALIFICATIONS. All actions prescribed by this Agreement that involve the identification, evaluation, analysis, recordation, treatment, monitoring, and disposition of historic properties and that involve the reporting and documentation of such actions in the form of reports, forms or other records, shall be carried out by or under the direct supervision of a person or persons meeting, at a minimum, the Secretary of the Interior's Professional Qualifications Standards (PQS), as appropriate (48 FR. 44739). However, nothing in this stipulation may be interpreted to preclude any party qualified under the terms of this paragraph from using the services of properly supervised persons who do not meet the PQS.

b) DOCUMENTATION STANDARDS. Reporting on and documenting the actions cited in this Agreement shall conform to every reasonable extent with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR. 44716-44740), as well as, the BLM 8100 Manual, the California Office of Historic Preservation's Preservation Planning Bulletin Number 4(a) December 1989, Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (ARMR Guidelines) for the Preparation and Review of Archaeological Reports, and any specific county or local requirements or report formats as necessary.

c) CURATION STANDARDS. On BLM-administered land, all records and materials resulting from the actions cited in Stipulation III, IV and V of this Agreement shall be curated in accordance with 36 CFR Part 79, and the provisions of the NAGPRA, 43 CFR Part 10, as applicable. To the extent permitted under §§ 5097.98 and 5097.991 of the California Public Resources Code, the materials and records resulting from the actions cited in Stipulation III and IV of this Agreement for private lands shall be curated in accordance with 36 CFR Part 79. The BLM will seek to have the materials donated through a written donation agreement to be curated with other cultural materials. The BLM will attempt to have all collections curated at one location unless otherwise agreed to by the consulting parties

VII. REPORTING REQUIREMENTS

a) Within eighteen (18) months after the BLM, in consultation with the Energy Commission, has determined that all fieldwork required by Stipulation II and III has been completed, the BLM will ensure preparation, and concurrent distribution to the consulting parties as appropriate a written draft report that documents the results of implementing the requirements of Stipulation II or III. The consulting parties will be afforded 30 days following receipt of the draft report to submit any written comments to the BLM. Failure of these parties to respond within this time frame shall not preclude the BLM from authorizing revisions to the draft report as the BLM may deem appropriate. The BLM will provide the consulting parties with written documentation indicating whether and how the draft report will be modified in accordance with any reviewing party comments. Unless the reviewing parties object to this documentation in writing to the BLM within 14 days following receipt, the BLM may modify the draft report as the BLM may deem appropriate. All objections shall be resolved pursuant to Stipulation X. Thereafter, the BLM may issue the report in final form and distribute this document in accordance with Stipulation VII(b).

b) Unless otherwise requested, one paper copy of final reports documenting the results of implementing the requirements of Stipulation II or III, will be distributed by the BLM to the consulting parties and to the California Historical Resources Information Survey (CHRIS) Regional Information Center.

c) The BLM shall ensure that any draft document that communicates, in lay terms, the results of implementing the requirements of Stipulation II or III, to members of the interested public, is distributed for review and comment concurrently with and in the same manner as that prescribed for the draft technical report prescribed by Stipulation VII(a). If the draft document prescribed hereunder is a publication such as a report or brochure, publication shall upon completion be distributed by the BLM to the consulting parties, and to any other entity that the consulting parties may deem appropriate.

VIII. IMPLEMENTATION OF THE UNDERTAKING

a) The BLM may authorize construction activities and manage the implementation of HPTP(s) in phases corresponding to the construction phases of the undertaking.

   i) Upon approval of an HPTP(s), BLM may authorize a Notice to Proceed for construction activities.

b) The BLM may authorize construction activities, including but not limited to those listed below, to proceed in specific geographic areas of the undertaking's APE where there are no historic properties, where there will be no effect to historic properties, a monitoring and discovery plan has been approved, an HPTP has been approved and initiated, or the activity would not preclude preservation or protection of historic properties in an area for which an HPTP has not been approved. Such construction activities may include:

   (1) the demarcation, set up, and use of staging areas for the project's construction,
   (2) the conduct of geotechnical boring investigations or other geophysical and engineering activities, and
   (3) construction activities such as grading, buildings, and installations of Solar Collector Assemblies (SCAs).

c) Initiation of any construction activities on federal lands shall not occur until after the ROD and Notices to Proceed have been issued by the BLM.

IX. AMENDMENTS TO THE AGREEMENT

a) This Agreement may be amended only upon written agreement of the Signatories.

b) Any party to this Agreement may at any time propose amendments.

   i) Upon receipt of a request to amend this Agreement, the BLM will immediately notify the other consulting parties and initiate a 30 day period to consult on the proposed amendment, whereupon all parties shall consult to consider such amendments.

   ii) If agreement to the amendment cannot be reached within the 30 day period, resolution of the issue may proceed by following the dispute resolution process in Stipulation X.

iii) This Agreement may be amended when such an amendment is agreed to in writing by all Signatories.

c) Any party to this Agreement may at any time propose modifications to the Appendices.

i) Each Appendix to the Agreement may be individually modified without requiring amendment of the Agreement, unless the Signatories through such consultation decide otherwise.

ii) Upon receipt of a request to modify an Appendix, BLM will immediately notify the Signatories and determine the appropriate Invited Signatories and Concurring parties to consult on the proposed modifications and initiate a 30 day consultation period, whereupon all parties shall consult to consider such modification.

iii) If agreement on the modification cannot be reached within the 30 day period, resolution of the issue may proceed by following the dispute resolution process in Stipulation X(c).

iv) Modifications to an Appendix shall take effect on the date that they are executed by the Signatories.

d) Amendments to this Agreement shall take effect on the dates that they are fully executed by the Signatories.

e) If the Agreement is not amended through the above process, any consulting party to this Agreement may terminate its participation in the Agreement in accordance with Stipulation XI.

X. DISPUTE RESOLUTION

a) Should the Signatories or Invited Signatories object at any time to the manner in which the terms of this Agreement are implemented, the BLM will immediately notify the other Signatories and Invited Signatories and initiate a 30 day period in which to resolve the objection.

b) If the objection can be resolved within the consultation period, the BLM may authorize the disputed action to proceed in accordance with the terms of such resolution.

c) If at the end of the 30 day consultation period, the objection cannot be resolved through such consultation, the BLM will forward all documentation relevant to the objection to the ACHP per 36 CFR 800.2(b)(2). Any comments provided by the ACHP within 30 days after its receipt of all relevant documentation will be taken into account by the BLM in reaching a final decision regarding the objection. The BLM will notify the Signatories, Invited Signatories, and Concurring Parties in writing of its final decision within 14 days after it is rendered.

d) The BLM's responsibility to carry out all other actions under this Agreement that are not the subject of the objection will remain unchanged.

e) At any time during implementation of the terms of this Agreement, should an objection pertaining to the Agreement be raised by a Concurring party or a member of the interested public, the BLM shall immediately notify the Signatories, Invited Signatories, and other Concurring parties, consult with SHPO about the objection, and take the objection into account. The other consulting parties may comment on the objection to the BLM. The BLM shall consult with the objecting party(ies) for no more than 30 days. Within 14 days following closure of consultation, the BLM will render a decision regarding the objection and notify all parties of its decision in writing. In reaching its final decision, the BLM will take into account all comments from the parties regarding the objection. The BLM shall have the authority to make the final decision resolving the objection. Any dispute pertaining to the NRHP eligibility of historic properties or cultural resources covered by this agreement will be addressed by the BLM per 36 CFR 800.4(c)(2).

XI. TERMINATION

a) The Signatories have the sole authority to terminate this Agreement. The Invited Signatories may propose termination and may terminate their participation in this Agreement. If this Agreement is not amended as provided for in Stipulation IX, or if a Signatory or Invited Signatory proposes termination of this Agreement for other reasons, the party proposing termination shall notify the other Signatories and Invited Signatories in writing, explain the reasons for proposing termination, and consult for no more than 60 days to resolve the objection.

b) If a Concurring party seeks termination of this Agreement, they may terminate their participation and shall notify the Signatories and Invited Signatories in writing, explain the reasons for proposing termination or terminating their participation, and consult for no more than 60 days to resolve the objection.

c) Should consultation result in an agreement to resolve the objection, the Signatories shall proceed in accordance with that agreement.

d) Should such consultations fail, the Signatory or Invited Signatory proposing termination may terminate its participation in this Agreement by notifying the other parties in writing.

e) Should the entire Agreement be terminated, then the BLM shall either consult in accordance with 36 CFR 800.14(b) to develop a new agreement or request the comments of the ACHP pursuant to 36 CFR 800.4-800.6.

XII. WITHDRAWAL OR ADDITION OF PARTIES FROM/TO THE AGREEMENT

a) The BLM will respond to any written request for consulting party status pursuant to 36 CFR 800.2 and 36 CFR 800.3(f).

   i) Should a Concurring Party determine that its participation in the undertaking and this Agreement is no longer warranted, the party may withdraw from participation by informing the BLM of its intention to withdraw as soon as is practicable. The BLM shall inform the other consulting parties to this Agreement of the withdrawal.

   ii) Should conditions of the undertaking change such that other state, federal, or tribal entities not already party to this agreement request to participate, the BLM will notify the other consulting parties and invite the requesting party to participate in the Agreement. The Agreement shall be amended following the procedures in Stipulation IX.

XIII. DURATION OF THIS AGREEMENT

a) This Agreement will expire if the undertaking has not been initiated and the BLM right-of-way grant expires or is withdrawn, or the stipulations of this Agreement have not been initiated within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, the BLM shall either (a) execute a memorandum of agreement pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. Prior to such time, the BLM and the COE may consult with the other consulting parties to reconsider the terms of the Agreement and amend it in accordance with Stipulation IX. The BLM shall notify the Signatories as to the course of action they will pursue within 30 days.

b) This Agreement expires 25 years from its effective date unless extended by written agreement of the Signatories. The Signatories and Invited Signatories shall consult at year 10 to review this Agreement. Additionally, the Signatories and Invited Signatories shall consult not less than one year prior to the expiration date to reconsider the terms of this Agreement and, if acceptable, direct the Signatories extend the term of this Agreement. Reconsideration may include continuation of the Agreement as originally executed or amended, or termination. Extensions are treated as amendments to the Agreement under Stipulation IX.

c) Unless the Agreement is terminated pursuant to Stipulation XI, another agreement executed for the undertaking supersedes it, or the undertaking itself has been terminated, this Agreement will remain in full force and effect until BLM, in consultation with the other Signatories, determines that implementation of all aspects of the undertaking has been completed and that all terms of this Agreement and any subsequent tiered agreements have been fulfilled in a satisfactory manner. Upon a determination by BLM that implementation of all aspects of the undertaking have been completed and that all terms of this Agreement and any subsequent tiered agreements have been fulfilled in a

satisfactory manner, BLM will notify the consulting parties of this PA in writing of the agency's determination. This Agreement will terminate and have no further force or effect on the day that BLM so notifies the Signatories to this Agreement.

XIV. EFFECTIVE DATE

a) This Agreement and any amendments shall take effect on the date that it has been fully executed by the Signatories. The Agreement and any amendments thereto shall be executed in the following order: (1) Applicant, (2) Energy Commission, (3) BLM, and (4) SHPO.

Execution and implementation of this Agreement is evidence that the BLM has taken into account the effect of this undertaking on Historic properties, afforded the ACHP a reasonable opportunity to comment, and that the BLM has satisfied their responsibilities under section 106 of the NHPA. The Signatories and Invited Signatories to this PA represent that they have the authority to sign for and bind the entities on behalf of whom they sign

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857 **SIGNATORY PARTIES**
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U.S. BUREAU OF LAND MANAGEMENT

BY: _____ DATE: _____
James Wesley Abbot
State Director

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CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

BY: _____ DATE: _____
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

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INVITED SIGNATORY PARTIES

CALIFORNIA ENERGY COMMISSION

BY: _____ DATE: _____

NEXT ERA GENESIS L.L.C.

BY: _____ DATE: _____

CONCURRING PARTIES:

(This is a potential list only)
AGUA CALIENTE BAND OF CAHUILLA INDIANS
AUGUSTINE BAND OF MISSION INDIANS
CABAZON BAND OF MISSION INDIANS
CHEMEHUEVI INDIAN TRIBE
COCOPAH INDIAN TRIBE
COLORADO RIVER INDIAN TRIBES
FORT MOJAVE INDIAN TRIBE
FORT YUMA QUECHAN TRIBE
MORONGO BAND OF MISSION INDIANS
RAMONA BAND OF MISSION INDIANS
SAN MANUEL BAND OF MISSION INDIANS
SOBOBA BAND OF LUISEÑO INDIANS
TORRES-MARTINEZ DESERT CAHUILLA INDIANS
TWENTY-NINE PALMS BAND OF MISSION INDIANS
CALIFORNIA UNIONS FOR RELIABLE ENERGY

APPENDIX A: IDENTIFICATION AND EVALUATION

I. IDENTIFICATION

a) The BLM will ensure that all cultural resources identified during cultural resources survey are recorded on new or updated California Department of Parks and Recreation Form DPR 523 (Series 1/95), using the "Instructions for Recording Historical Resources" (Office of Historic Preservation, March 1995).

   i) Previously unrecorded cultural resources which have religious or cultural significance to Tribes identified during cultural resources investigations and/or through consultations with Tribes may be recorded on the California DPR Form 523, unless a Tribe, Tribal Organization, or an individual from a Tribe objects. If such objection arises, the properties may be recorded on a form and in a manner that is in accordance with the recommendations of the Tribe, Tribal Organization, or of the individual. If the traditional cultural property is also a historical or archaeological site, those components of site will be recorded on the appropriate DPR form and filed with CHRIS.

b) The cultural resources contractor will obtain permanent site numbers from California Historical Resources Information System (CHRIS) regional information center.

c) The BLM, in consultation with the Energy Commission, and the SHPO, shall review all site records for accuracy, adequacy of information, and completeness and determine whether they are sufficient to support agency determinations and findings. Final approved site records shall be submitted to the CHRIS. Permanent site numbers shall then be used in all final reports and other documents prepared pursuant to the requirements of this Agreement.

d) The BLM, in consultation with the Energy Commission, will ensure that cultural resources survey reports are responsive to Energy Commission Data Requests.

II. EVALUATION

a) The BLM shall authorize field investigations for the purposes of evaluation of the potential site types identified in the APE listed below (but not limited to) for the purpose of evaluating the information potential and significance of the cultural resources in the APE.

   Prehistoric Archaeological Resources
   Prehistoric Trails Network Landscape
   Chipped Stone Deposits
   Sparse Lithic Scatters
   Chipped and Ground Stone Deposits

Ceramic Deposits
Archaeological Deposits that Include FAR Concentrations
Trail Segments

Historical Archaeological Resources
Desert Training Center (DTC) Archaeological Sites and Landscape
Potential Early Twentieth Century Sand and Gravel Mining Landscape
Pebble and Cobble Concentrations
Land Surveying Monuments
Historic Refuse Deposits

Unique Archaeological Resources

b) BLM shall consult with Indian Tribes and seek the views and comments of Tribal Organizations and individual tribal members regarding any unevaluated archaeological site to which they may attach religious or cultural significance in order to ascertain the status of these places relative to NRHP and CRHR eligibility criteria.

APPENDIX B: HISTORIC PROPERTIES TREATMENT PLAN(S)

I. HISTORIC PROPERTIES TREATMENT PLAN(S

a) Any HPTP tiered from the Agreement shall include but is not limited to:

i) A list of the historic properties subject to the HPTP, determined or treated as eligible for project management purposes, in the undertaking's APE that the construction of the Project will unconditionally avoid,

ii) The measures that the Applicant will take to avoid, minimize, or mitigate the adverse effects on historic properties,

iii) Provide a plan for monitoring during construction, which would include the treatment of inadvertent discoveries and the participation of tribal cultural specialists. The following shall be considered during development of these plans:

(a) qualifications archaeological monitors
(b) participation of tribal cultural specialists in monitoring
(c) areas in the APE requiring monitoring
(d) authority of monitors to halt work
(e) protective measures for historic properties
(f) communication protocols
(g) safety and resource training
(h) procedures upon discovery
(i) evaluation of the inadvertent discoveries
(j) implementation of standard treatment measures
(k) field protocol upon discovery of human remains

iv) The proposed disposition of recovered materials and records shall be curated in accordance with Stipulation VI(c).

v) The procedures for treatment and disposition of any human remains, funerary objects, sacred objects, and objects of cultural patrimony in accordance with NAGPRA and the California Health and Safety Code 7050.5 as appropriate.

vi) A research design which addresses significant themes and questions for the types of historic properties to receive treatment.

vii) A schedule for completing treatment measures, including analysis, reporting and disposition of materials and records, as well as a schedule for completing the draft and final data recovery report(s).

viii) A description of alternative treatments for adverse effects that are not data recovery and that may include (but is not limited to):

(1) Placement of construction within portions of historic properties that do not contribute to the qualities that make the resource eligible
(2) Deeding cemetery areas into open-space in perpetuity and providing the necessary long-term protection measures
(3) Public interpretation including the preparation of a public version of the cultural resources studies and/or education materials for local schools
(4) Access by tribes to traditional areas in property after the project has been constructed
(5) Support by Applicant to cultural centers in the preparation of interpretive displays
(6) Consideration of other off-site mitigation

b) Any treatment plan tiered from this Agreement or the HPTP shall reflect the ACHP archaeological guidance at http://www.achp.gov/archguide/, the BLM 8100 Manual, and the Secretary of the Interior's Standards for the Treatment of Historic Properties.

II. COORDINATION WITH ENERGY COMMISSION MEASURES UNDER CEQA

a) Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq., requires state and local public agencies to identify the environmental impacts of proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment. Pursuant to section 15126.4(a)(1), feasible measures which could minimize adverse impacts must be described in the environmental assessment.

i) Section 15221(b) provides that because NEPA does not require separate discussion of mitigation measures, these points of analysis will need to be added, supplemented, or identified before the EIS can be used as an EIR.

ii) Section 15126.4(a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time, but that measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way.

III. PERFORMANCE STANDARDS FOR SECTION 106 AND CEQA MITIGATION

a) Cultural mitigation measures and performance standards considered within the section 106 consultation and CEQA process include, but are not limited to:

i) Avoidance

(1) For cultural resources, the preferred method of mitigation is avoidance of all cultural resources wherever possible. Mitigation measures are normally developed to reduce impacts to significant cultural resources.

ii) Archaeological Data Recovery

(1) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken.

(2) Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource.

iii) Built-Environment Resources

(1) Documenting built-environment resources in accordance with the standards and guidelines provided by the Historic American Building Survey (HABS), Historic American Engineering Record (HAER), Historic American Landscape Survey (HALS).

(2) Relocating or moving historic buildings, objects or structures out of the APE.

iv) Properties of Sacred or Cultural Significance to Indian Tribes

(1) Cremation/Burial Sites

(a) Avoidance of cremation or burial sites is the preferred management alternative.

(b) Where avoidance of direct physical effects is not achievable, treatment shall follow the provisions of the NAGRPA Plan of Action as provided in Appendix L.

(2) Trails

(a) Avoidance of direct physical effects to trails is the preferred management alternative.

(b) Where avoidance of direct physical effects is not achievable, treatment shall follow the provisions of the HPTP. A study of trails may be carried out to determine the nature and extent of the trail beyond the APE and may be considered within the context of a HALS study.

(3) Geological landforms or other places of sacred or cultural significance.

(a) BLM shall continue to seek information from the Tribe(s) or Tribal Organizations to determine the character and use of places of sacred or cultural significance.

(i) Maintenance of existing access to places of sacred and cultural significance is the preferred management alternative.

(b) Engineering solutions to eliminate or minimize direct or indirect non-physical effects will be identified, including but not limited to, orienting the Solar Collector Arrays (SCAs) to minimize glare, or erecting screens to eliminate glare.

v) Discoveries

(1) Following the discovery of significant resources, the Applicant shall ensure that the designated cultural resources specialist prepares a research design and a scope of work for any necessary data recovery or additional mitigation. The Applicant shall submit the proposed research design and scope of work to the BLM and/or Energy Commission's Compliance Project Manager (CPM) for review and approval.

(2) The proposed research design and scope of work shall include (but not be limited to): a discussion of the methods to be used to recover additional information and any needed analysis to be conducted on recovered materials; a discussion of the research questions that the materials may address or answer by the data recovered from the project, and; discussion of possible results and findings.

vi) Monitoring

(1) Prior to the start of vegetation clearance or earth disturbing activities or project site preparation, the Applicant shall provide the designated cultural resources monitors and the BLM and/or Energy Commission's CPM with maps and/or drawings showing the footprint of the power plant and all linear facilities. Maps provided will include USGS 7.5-minute topographic quadrangle maps. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the Applicant shall provide them. If the footprint of the power plant or linear facilities changes, the Applicant shall provide maps and drawings reflecting these changes, to the cultural resources specialist within five days. Maps shall show the location of all areas where surface disturbance may be associated with project-related access roads, and any other project components.

(2) The designated cultural resource specialist shall be available at all times to respond within 24 hours after pre-construction or construction activities have been halted due to the discovery of a cultural resource(s). The specialist, or representative of the Applicant shall have the authority to halt or redirect construction activities if previously undiscovered cultural resource materials are encountered during vegetation clearance or earth disturbing activities or project

site preparation or construction. If such resources are discovered, the designated cultural resource specialist shall be notified and the Applicant or Applicant's representative shall halt construction in the immediate area in order to protect the discovery from further damage; project construction may continue elsewhere on the project.

vii) Qualifications

(1) Prior to the start of construction-related vegetation clearance, or earth-disturbing activities or project site preparation; or the movement or parking of heavy equipment onto or over the project surface, the Applicant shall provide the BLM and/or the Energy Commission CPM with the name and statement of qualifications for its designated cultural resource specialist and alternate cultural resource specialist, if an alternate is proposed, who will be responsible for implementation of all BLM cultural resources conditions and Energy Commission cultural resources conditions of certification. The statement of qualifications for the designated cultural resource specialist and alternate shall include all information needed to demonstrate that the specialist meets at least the minimum qualifications specified by *The Secretary of the Interior's Standards and Guidelines for Preservation Planning: Professional Qualification Standards,* National Park Service, Heritage Preservation Services.

(2) Training

(a) Prior to the start of vegetation clearance or earth disturbing activities or project site preparation, the designated cultural resource specialist shall prepare an employee training program. The Applicant shall submit the cultural resources training program to the BLM, Energy Commission, and SHPO for review and written approval. If a video is used as part of the training program, the owner shall also submit the script for review and written approval.

(b) Prior to the start of vegetation clearance or earth disturbing activities or project site preparation, and throughout the project construction period as needed for all new employees, the Applicant shall ensure that the designated cultural resource trainer(s) provide(s) approved cultural resources training to all project managers, construction supervisors, or anyone coming on the construction site as an employee, contractor, subcontractor, or in any other capacity to complete work for the Applicant. The Applicant shall ensure that the designated trainer provides the workers with the approved a set of procedures for reporting any sensitive resources that may be discovered during project-related ground disturbance. In addition, the Applicant shall communicate the work curtailment procedures that the workers are to follow if previously undiscovered cultural resources are encountered during construction.

Historic Property Treatment Plans

1. Prehistoric Archaeological Sites
    a. Avoidance
    b. Minimize
        i. Strategic placement of transmission towers in areas of a site that would not adversely affect the information values
    c. Data recovery for historic properties eligible under Criterion D only
        i. Research Design
2. Historic Period Historic Properties
    a. Avoidance
    b. Minimize
    c. Data recovery for historic properties eligible under Criterion D only
        i. Research Design
            1. Desert Training Center (DTC) Archaeological Sites and Landscape
    d. Historic built-environment Historic Properties with associative values

APPENDIX C: HISTORIC PROPERTIES MANAGEMENT PLAN

I. HISTORIC PROPERTIES MANAGEMENT PLAN

a) A Historic Properties Management Plan (HPMP) will be developed to further manage or prescribe additional treatment to historic properties within the APE during the future operation, maintenance and decommissioning of the Next Era Genesis Ford Dry Lake Solar Project and consider effects to historic properties in relation to those actions.

b) The BLM shall submit the HPMP to the consulting parties to the Agreement for a 60 day review period. Absent comments within this time frame, the BLM may finalize the HPMP. The BLM will provide the parties with written documentation indicating whether and how the draft HPMP will be modified in response to any timely comments received. If the HPMP is revised in response to comments, the BLM shall submit the revised HPMP to all parties for a 30 day review period. Absent comments within this time frame, the BLM will finalize the HPMP. The BLM will provide the parties a copy of the final HPMP.

APPENDIX D: PROJECT DESCRIPTION

The Next Era Genesis Ford Dry Lake Solar Project is a proposed 250-megawatt (MW) solar energy power plant. More specifically, this would entail the construction of two 125MW solar collector fields, six 8-acre evaporation ponds, a 10-acre bioremediation land treatment unit, a 230-kV on-site switchyard, a new 6.5 mile, 230-kV transmission line, a natural gas pipeline, access roads, a septic system, an on-site leach field, and two power blocks. Each proposed power block would include: solar steam generator heat exchangers; a steam turbine generator and condensers; two wet-cooling towers; two natural-gas fired auxiliary boilers; surge volume tanks; fire suppression pumps and pump house; diesel generators; and water storage tanks. Foundation excavation for the above project components would reach between 2 and 30 feet below the present ground surface. The project proposal also includes an administrative building, maintenance complex with warehouse, three water storage tanks, evaporation ponds, and other related facilities. The proposed project would be built on approximately 1,800 acres of land within a 4,640 acre ROW administered by the BLM in Riverside County, California, approximately 25 miles west of the city of Blythe.

The proposed Next Era Genesis Ford Dry Lake Solar Project includes the following components:

a) A solar thermal power plant facility located approximately 25 miles west of Blythe, California in Riverside County.

b) The proposed project overall site layout and generalized land uses include a 250 MW facility with solar generation facilities, on-site substation, administration, operations and maintenance facilities, surface water control facilities, and evaporation ponds.

c) The proposed project would require two separate units (125 MW each) consisting of a total of 1,760 Solar Collector Assemblies (SCAs) arrayed in rows, or piping loops, with four assemblies in each loop.

    (1) Each SCA would consist of individually mounted mirror modules approximately 40 feet long, totaling 492 feet in length creating an approximate mirror area of 8,795 square feet.

    (2) Each mirror will have an aperture of 18.9 feet and focal length of 5.6 feet.

    (3) Each SCA is oriented north-south to rotate east-west to track the sun as it moves across the sky during the day, collecting heat by means of linear troughs of parabolic reflectors.

d) The linear facilities would originate within the 250 MW solar plant site and, for the most part, would share the same 100-foot ROW, although each would terminate in a different location. Approximately 2 miles of the linear route would be within the 1,800-acre main plant site. After leaving the plant, the transmission line would be approximately 6.5 miles

long, the natural gas pipeline would be 6 miles long, and the main access road would be 6.5 miles long.

(1) The natural gas pipeline would service an auxiliary boiler for the solar plant site, 8-inch diameter, carrying 60 million BTUs annually from the existing Southern California Edison natural gas pipeline just north of Interstate 10. The trench for the pipeline would be approximately 48-inches wide and 4-10 feet in depth; maximum depth of up to 8 feet wide on the surface and up to 3 feet wide at the bottom of the trench.

e) Buildings - The Project will include a common administration building and warehouse between the two 125MW power plants. A control building will be located in each power block. The design and construction of the administration building and warehouse will be consistent with normal building standards. Other plant site "buildings" will include the water treatment building, as well as a number of pre-engineered enclosures for mechanical and electrical equipment. Building columns are supported on reinforced concrete mat foundations or individual spread footings and the structures rest on reinforced concrete slabs. The total square footage of the various Project buildings and pre-engineered enclosures (*e.g.,* control rooms, administration building, warehouse, electrical equipment enclosures, fire pumps, and diesel generators) is approximately 39,000 square feet.

f) Roads - All vehicular traffic approaching the site will use Interstate 10. Only a small portion of the overall plant site will be paved, primarily the site access road and portions of each power block. The site access road will be 24 feet wide and paved with 3,000 tons of asphalt concrete material. Auxiliary roads will also be 24 feet wide but utilize compacted native materials or gravel surface. If required, new spur roads in the Transmission Line corridor would be approximately 14 feet wide and average 70 feet in length to access pole pad sites.

g) Water Treatment - Existing ground water wells would supply project water using approximately 1,644 acre feet of ground water per year for operations. The raw water, circulating water, process water, and mirror washing water all require on-site treatment and this treatment varies according to the quality required for each of these uses. The power plant's design consists of a pre-treatment system upstream of the cooling tower, and a post-treatment system downstream of the cooling tower. Water is cycled in the cooling tower until the concentration of chemical constituents rises to levels where it becomes unusable and it is blown down as a waste stream. The number of cycles undertaken are called cycles of concentration (COC). The number of COCs in the cooling tower is limited by the incoming water chemistry and the behavior of chemistry constituents as the concentration increases. Without any pre-treatment of the raw water ("makeup water") from groundwater on site, the calcium concentration would limit the process to about five COCs due to the potential to form calcium carbonate ($CaCO3$) scale, and silica would limit the process to 10 COCs due to the formation of silica ($SiO2$) and magnesium silicate scale. Because of the limitation of these constituents in the

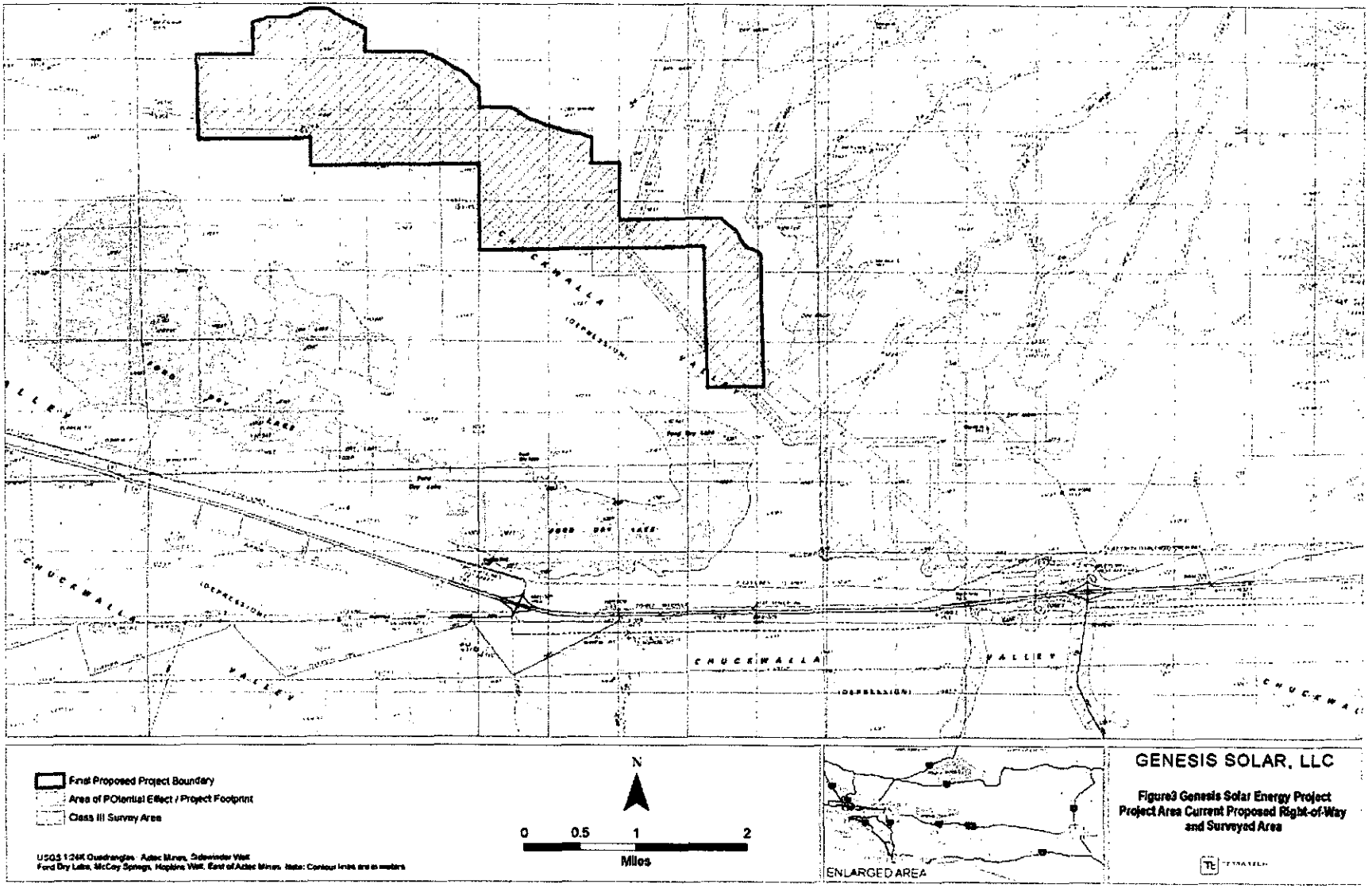
process, pre-treatment of the makeup water is desirable to reduce the quantity of makeup water required. The pre-treatment design for the Project takes into account the relatively high concentrations of chloride and sodium present in the makeup water to the site. As aforementioned, there are several tanks on site which will contain the raw water, treated water, and wastewater, which will have the following capacity: Raw Water/Fire Water Storage Tank: 500,000 gallons; Treated Water Storage Tank: 1,250,000 gallons; Wastewater Storage Tank: 250,000 gallons. Tanks were sized to provide sufficient water to support operation of the plant during peak operating conditions, as well as provide a 12-hour storage capacity to enable continued operation when a failure interrupts water or wastewater treatment capabilities. The tanks also allow the plant to levelize water supply requirements on a 24-hour basis and eliminate midday demand peaks. The Raw Water/Fire Water Storage Tank provides water for plant operation and fire protection.

h) Evaporation Ponds - It is expected that each 125MW power plant will have three double-lined evaporation ponds. The average pond depth is 8 feet and each pond will have a nominal surface area of eight acres, resulting in a total of 24 acres of evaporation ponds for each unit; or a total of 48 acres of ponds for both 125MW units.

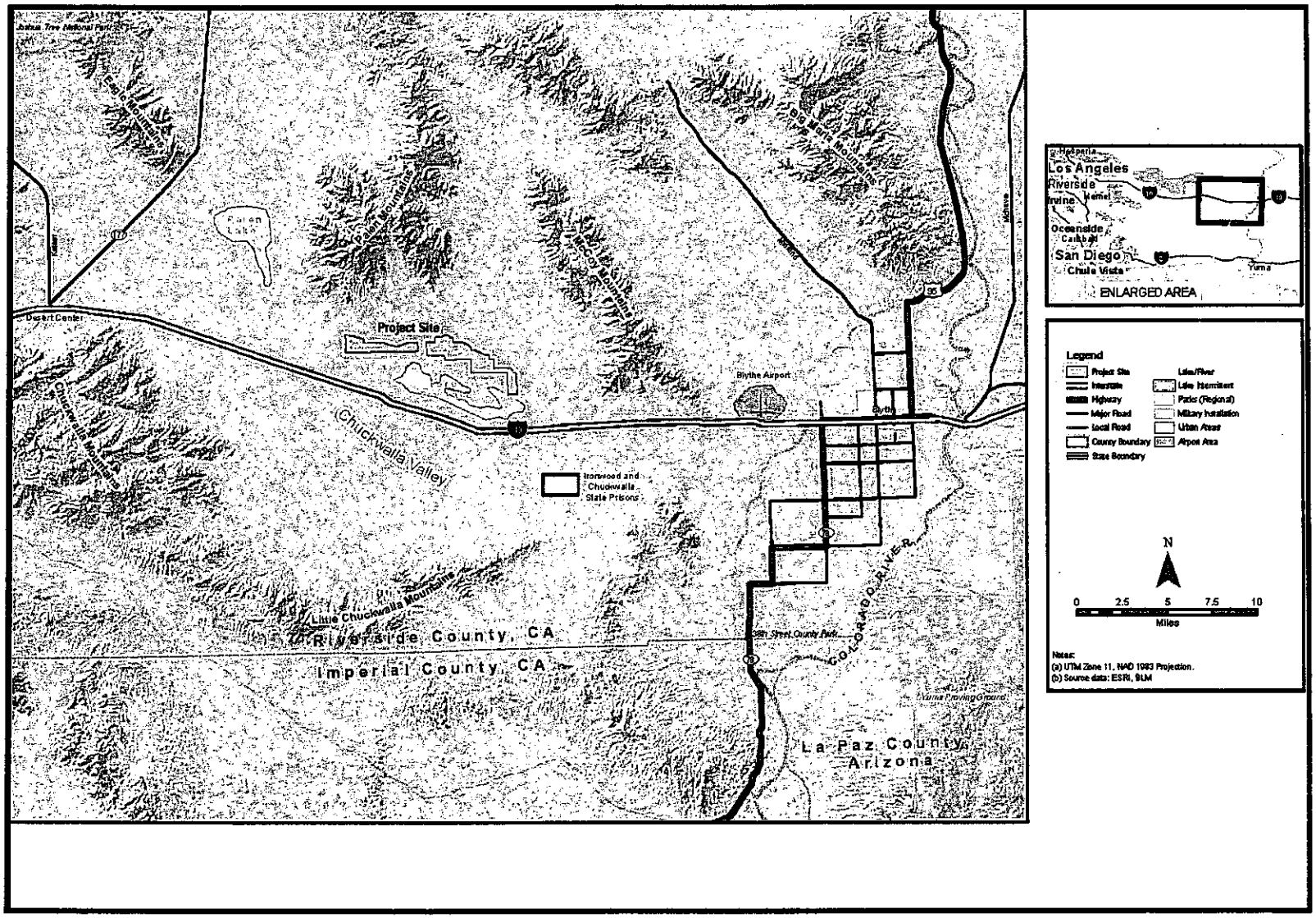
APPENDIX E: PROJECT MAPS AND ILLUSTRATIONS

1. Map of Proposed Project Area and Cultural Resources Survey
2. Project Overview Location Map
3. Photograph of Parabolic Solar Collector Arrays (SCAs)

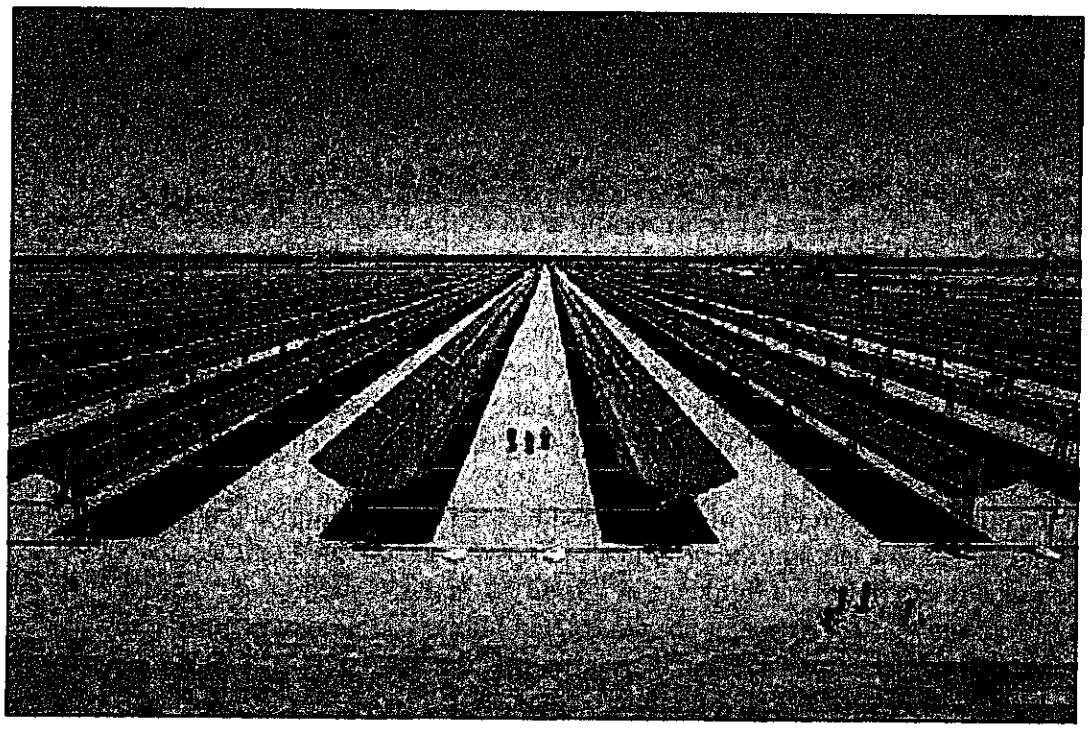
1. Proposed Project Area and Cultural Resources Survey Map



2. Project Overview Location Map



3. Photograph of Parabolic Solar Collector Arrays (SCAs)



Parabolic trough solar thermal technology

APPENDIX F: SUMMARY OF CULTURAL RESOURCES INVESTIGATIONS

The BLM, in coordination with the Energy Commission, has authorized the Applicant to conduct specific identification efforts for this undertaking including a review of the existing literature and records, cultural resources surveys, ethnographic studies, and geomorphological studies to identify historic properties that might be located within the APE.

The Applicant has retained Tetra Tech to complete all of the investigations necessary to identify and evaluate cultural resources located within the Area of Potential Effect (APE) for both direct and indirect effects. Tetra Tech is authorized to conduct cultural resources investigations on lands managed by the BLM under Cultural Resources Use Permits No. CA-06-24 and CA-09-40 issued by the BLM California State Office. Tetra Tech is authorized to conduct specific field investigations for the Next Era Genesis Ford Dry Lake Solar Project under BLM Fieldwork Authorizations 66-27-07-19, 66-27-09-05, 66-24-09-16, and 66-66-10-09.

Tetra Tech has completed a review of the existing historic, archaeological and ethnographic literature and records to ascertain the presence of known and recorded cultural resources in the APE, has conducted an intensive field survey for all of the lands identified in APE for direct effects for all project alternatives, and has completed intensive field surveys for alternatives on lands that are no longer part of the project. Approximately 5,188 acres of pedestrian survey to identify cultural resources has been completed.

A draft cultural resources report (*Class II and Class III Cultural Resources Inventories for the Proposed Genesis Solar Energy Project, Riverside County, California*, prepared by Tetra Tech, May 2010) has been submitted by the Applicant that presents the results of identification efforts to the BLM and the Energy Commission. The BLM and the Energy Commission are currently reviewing all documentation to determine whether the report conforms with the field methodology and site description template required by BLM and the Energy Commission and is adequate to support to determinations and findings the agency's will render pursuant to section 106 of the NHPA.

Tetra Tech conducted a records search at the Eastern Information Center (EIC) in Riverside, California. The EIC searched all relevant previously recorded cultural resources site records and previous investigations completed within the project area and a 1-mile search radius around it. Information reviewed included location maps for all previously recorded trinomial and primary prehistoric and historical archaeological sites and isolates; site record forms and updates for all cultural resources previously identified; previous investigation boundaries; and National Archaeological Database citations for associated reports, historical maps, and historical addresses. The literature and records search identified 30 records related to cultural resources investigations conducted within 1 to approximately 3 miles of the Project area. Several of these records were for prior projects which overlap the boundaries of the Next Era Genesis Ford Dry Lake Solar Project APE. The record search also identified approximately 50 previously recorded cultural resources within the APE and extended survey areas (Appendix F: Summary of Cultural Resources Investigations).

Tetra Tech took a multi-phased approach in conducting field inventories to identify new cultural resources for the Project. A Class II inventory was conducted from November 2007 to January 2008 on a sample of a 9,480-acre Project area to identify areas of cultural resource sensitivity. The random sample survey was conducted to assist in the identification, screening, and/or elimination of sensitive cultural resource issues, sites, and/or areas. The information gained allowed Genesis Solar LLC to propose placement of solar facilities in a smaller Area of Potential Effect (APE) and avoid culturally sensitive areas. A Class III inventory of the revised 3,016-acre right-of-way (ROW) was conducted in April 2009. An approximately 4-mile-long transmission line ROW was added to the Project after the completion of the Class III inventory, and an inventory of that was conducted in June 2009.

The Class II investigation conducted from November 27, 2007, through January 10, 2008 (with one week Christmas vacation) was a 20 percent random sample survey of approximately 9,480 acres for the Ford Dry Lake Solar Resource Area with resultant coverage of 1,654 acres of federal land. The work was conducted under Tetra Tech's BLM Cultural Use Permit (CA-66-24) and BLM Fieldwork Authorization 66-27-07-19.

A total of 53 archaeological sites were discovered in the course of the Class II inventory: 46 are prehistoric, 5 are historic (exclusively refuse deposits), and 2 are dual-component (having both prehistoric and historic elements). In addition, 9 historic and 34 prehistoric isolates were recorded.

The Class III investigation in 2009 was an intensive survey of 100 percent of the 3,014-acre ROW (minus 520 acres for the Class II previously surveyed sample blocks). The work was conducted under Tetra Tech's BLM Cultural Use Permit (CA-66-24) and BLM Fieldwork Authorization 66-27-09-05.

The 2,494-acre Class III 2009 survey of the eastern portion of the ROW was conducted from March 30 to April 10, 2009, and resulted in the identification of 35 isolates and 21 archaeological sites. Of the 21 sites identified, 5 are historic, 15 are prehistoric, and 1 is dual component (historic/prehistoric). The isolates include 22 prehistoric and 13 historic finds.

An additional Class III survey (449.5 acres) was conducted from June 24 to 27, 2009, for the proposed interconnection transmission line ROW. The work was conducted under Tetra Tech's BLM Cultural Use Permit (CA-66-24) and BLM Fieldwork Authorization 66-24-09-16

The 2009 transmission line survey resulted in the identification of three isolates (two historic, one prehistoric) and seven archaeological sites. Of the seven sites identified, three are historic, three are prehistoric, and one is dual component (historic/prehistoric).

The historical resources inventory of the historic architecture APE was conducted by an architectural historian in July 2009. Two historical resources were identified and recorded by this inventory: the Blythe-Eagle Mountain Transmission Line and Wiley's Well Road.

Another Class III survey (590.8 acres) was conducted from January 25 to February 2, 2010, for additional alternatives for the proposed interconnection transmission line ROW. The work was

conducted under Tetra Tech's BLM Cultural Use Permit (CA-09-40) and BLM Fieldwork Authorization 66-66-10-09.

The 2010 transmission line survey resulted in the identification of 24 isolates (four historic, 20 prehistoric) and 20 archaeological sites. Of the 20 sites identified, 12 are historic, seven are prehistoric, and one is dual component (historic/prehistoric). In addition, two previously recorded sites, CA-RIV-663 and CA-RIV-9203H, were updated.

A total of 5,188.3 acres were surveyed as a result of the Class II and Class III field inventories. The combined results of the Class II, Class III, and Built Environment survey resulted in the recording of 103 historic properties and 105 isolated finds. Of the 103 historic properties, 71 are prehistoric, 27 are historic, and 5 are dual-component. Of the 105 isolated finds, 78 are prehistoric and 27 are historic.

Of the total sites recorded for the Project, 25 sites are located within the proposed solar facility project footprint APE and 27 sites are located within the proposed transmission line footprint APE.

The BLM will make a determination of whether the construction of the Project will have an adverse effect on significant historic properties sites listed on, or eligible for, nomination to the National Register of Historic Places.

A complete list of cultural resources that are located within the APE for direct effects is provided in Appendix H. A tabular summary of the results of cultural resources investigations follows:

Table 1: Archaeological resources within the APE for direct physical effects

Project Component	Prehistoric	Historic	Multi-Component	Indeterminate	Isolated Finds	Total
250 MW Area	20	5	1	0	0	26
Transmission Line Corridor	3	3	1	0	0	7
Total	23	8	2	0	0	33

In addition, Tetra Tech completed an intensive historic architecture survey to account for the properties that appeared to be older than 45 years within the APE including a 0.5 mile buffer. Only two historic-period properties were identified, which included segments of the Blythe-Eagle Mountain 161-kV transmission line constructed during the 1950s and Wiley's Well Road, constructed of paved asphalt but originally part of the Bradshaw Trail alignment (established in 1862). Neither resource is within the APE for direct physical effects and will not be affected by the proposed action.

Table 2: Historic built-environment resources within 0.5 mile buffer of the APE.

Project Component	Historic Built Environment	Total
250 MW Area	0	0
Transmission Line Corridor	2	2
Total	2	2

Review of the data collected at the 103 archaeological sites recorded in the three inventories has resulted in the recommendation that four of these sites, CA-RIV-663 (P33-000663), CA-RIV-9255 (P33-18009), CA-RIV-9072 (P33-17456) and CA-RIV-9224H (P33-17793), are potentially eligible for the National Register of Historic Places (NRHP) under Criterion D. Prehistoric sites that might be eligible under Criterion D must be datable and exhibit both stratigraphic integrity and have sufficient quantity of archaeological material to allow statistically significant research. For historic sites to be eligible under Criterion D, they must retain their integrity and have the potential to provide information beyond that which is available in written documentation or oral histories.

CA-RIV-663 (P33-000663) is a very large (ca. acres) scatter of prehistoric artifacts and features located on the eastern shore of Ford Dry Lake. Should this site contain areas of buried deposits, it could contribute significant information on the prehistoric occupation and utilization of the area. This property is located outside the APE for direct physical impacts.

CA-RIV-9255 (P33-18009) is a scatter of prehistoric artifacts and features located on the eastern shore of Ford Dry Lake. Should this site contain areas of buried deposits, it could contribute significant information on the prehistoric occupation and utilization of the area. This property is located outside the APE for direct physical impacts.

CA-RIV-9072 (P33-17456) is a very large (ca. 300 acres) scatter of prehistoric artifacts and features located on the north shore of Ford Dry Lake. Should this site contain areas of buried deposits, it could contribute significant information on the prehistoric occupation and utilization of the area. This property is located within the APE for direct physical impacts.

CA-RIV-9224H (P33-17793) is dual component site. The prehistoric component is a scatter of prehistoric artifacts and deflated features. The historic component consists of a refuse scatter that may be associated with military use of the area. This historic component, though possibly associated with WW II training activities, is of such an ephemeral nature that it does not appear to be eligible for the NRHP under any of the criteria. This property is located within the APE for direct physical impacts.

All of the remaining archaeological sites recorded by this Project appear to be of an ephemeral nature and/or have been disturbed by sheet erosion or deflation. None appear to have enough integrity to be eligible for the NRHP under any of the criteria. None of the recorded isolates are eligible for the NRHP.

The geoarchaeological investigations conducted for this Project indicate that there is a high potential for buried cultural resources in portions of the Project APE associated with former shorelines of Ford Dry Lake. These investigations have also shown that in other portions of the APE, there are exposed Pleistocene land surfaces that are too old to have potential for buried deposits. Based upon these findings, a construction monitoring program focused on the areas with a high potential for buried resources is recommended along with a protocol for unanticipated discovery.

The two historic resources recorded by the architectural resources inventory, the Blythe-Eagle Mountain Transmission Line and Wiley's Well Road, will not be affected by this Project even though they are within the historic architecture APE.

The BLM has formally invited 14 Tribes to consult at the government-to-government level throughout the review of this project, and has on-going discussions about this project with Tribal cultural staff (Appendix I: Documentation of Tribal Consultation). Consultation with Indian Tribes, and discussions with Tribal organizations and individuals, has revealed concern about the importance and sensitivity of cultural resources within and near the project area and that they attach significance to the broader cultural landscape. The Fort Yuma Quechan Tribe specifically indicated a concern for both indirect as well as direct effects from the project on places that hold significant value to the Tribe. The Cabazon Band of Mission Indians and the Chemehuevi Indian Tribe expressed general concerns about the potential destruction of cultural resources and traditional cultural properties.

APPENDIX G: AGENCY FINDINGS AND DETERMINATIONS

The BLM has not rendered formal determinations of eligibility or findings of effect for the cultural resources that may be affected by this undertaking. It is the BLM's intent to render preliminary determinations of eligibility on all resources prior to the Record of Decision and prior to the release of the final EIS if feasible, and provide opportunity for consulting parties and the public to comment on the agency's determinations, prior to submitting final determinations to the State Historic Preservation Officer (SHPO) for review and comment. Determinations that the BLM may render are based on cultural resources documentation and recommendations that are currently under review and have not necessarily been accepted or approved by the agency. For a limited number of cultural resources, primarily archaeological sites limited to their potential to yield signification information in prehistory or history, the BLM may treat those sites as eligible for the NRHP for project management purposes and either direct that additional testing be conducted for purposes of evaluation or that adverse effects to the property be resolved pursuant to the prescriptions of the HPTP.

A description of preliminary recommendations on the eligibility of cultural resources is provided in Appendix H: Cultural Resources Identified within the APE.

Effects to historic properties and the treatment of effects within the APE are generally summarized as follows. Specific treatments to resolve effects that are developed by the consulting parties to this Agreement would be stipulated in the Historic Property Treatment Plans that tier from this Agreement.

- Within the APE for direct physical effects for the 250 MW solar energy plant as proposed, there would be an adverse effect on all historic properties for which the significant values are informational and eligibility for the NRHP is limited to Criterion D considerations. Though opportunities to avoid significant values may exist through fencing and project modification, or because of the specific nature of the installation of the Solar Collector Arrays (SCAs), the industrial nature of the project and the intensity of the development would make long term management and protection of resources within the boundaries of the solar energy plant impractical and difficult to implement. The recommended treatment measures would likely involve recovery of the informational values through archaeological excavation and study. Additional mitigation measures, such as educational materials or public interpretation, would also be considered in the HPTP for these historic properties.

    - Avoidance of direct physical effects is the preferred treatment measure for historic properties to which Indian Tribes attach sacred or religious significance.

  For historic properties located in the APE for direct physical effects in linear corridors, such as the water pipeline, the transmission line, and the main access road, the preferred treatment measure is avoidance through project redesign. Transmission tower locations may be adjusted to avoid direct effects. If the property cannot be avoided, the BLM

would minimize or mitigate the effects through implementation of the HPTP for significant values of the resource.

APPENDIX H: CULTURAL RESOURCES IDENTIFIED WITHIN THE APE

Table 3: Archaeological resources indentified within the APE for direct physical effects.

Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
CA-RIV-9047	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class II Survey)
CA-RIV-9048	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class II Survey)
CA-RIV-9051	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class II Survey)
CA-RIV-9072	Lithic and Ceramic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class II Survey)
CA-RIV-9084	Temporary Camp	Prehistoric	Low to Moderate	APE (Identification in Class II Survey)
CA-RIV-9203H	Refuse Scatter	Historic	Very Low	APE (Identification in Class III Survey)
CA-RIV-9204H	Refuse Scatter	Historic	Very Low	APE (Identification in Class III Survey)
CA-RIV-9205/H	Refuse Scatter/Lithic Scatter	Prehistoric/Historic	Low to Moderate	APE (Identification in Class III Survey)

Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
CA-RIV-9206	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9207	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9208	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9209	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9210	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9211H	Refuse Scatter	Historic	Very Low	APE (Identification in Class III Survey)
CA-RIV-9212	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9213H	Refuse Scatter	Historic	Very Low	APE (Identification in Class III Survey)
CA-RIV-9214H	Refuse Scatter	Historic	Very Low	APE (Identification in Class III Survey)
CA-RIV-9215	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)

Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
CA-RIV-9216	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9217	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9218	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9219	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9220	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9221	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9222	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9223	Lithic Scatter	Prehistoric	Low to Moderate	APE (Identification in Class III Survey)
CA-RIV-9224/H	Lithic and ceramic Scatter/Refuse Scatter	Prehistoric/Historic	Low to Moderate	Transmission Line Corridor
CA-RIV-9225H	Refuse Scatter	Historic	Very Low	Transmission Line Corridor

Site No.	Site Type	Cultural Context	Potential for Buried Deposits Based on Geomorphologic Information	Project Area Location
CA-RIV-9226	Lithic and ceramic Scatter	Prehistoric	Low to Moderate	Transmission Line Corridor
CA-RIV-9227	Lithic and ceramic Scatter	Prehistoric	Low to Moderate	Transmission Line Corridor
CA-RIV-9228H	Refuse Scatter	Historic	Very Low	Transmission Line Corridor
CA-RIV-9229	Lithic Scatter	Prehistoric	Low to Moderate	Transmission Line Corridor
CA-RIV-9230H	Refuse Scatter	Historic	Very Low	Transmission Line Corridor

1526 # APPENDIX I: DOCUMENTATION OF TRIBAL CONSULTATION
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1528 **Table 3: Major Tribal Consultation Events.**

Date	Tribe	Contact Name	Communicated via	Comments/Actions
11/26/2007	Agua Caliente Band of Cahuilla Indians	Chmn. Milanovich	USPS	Initial project consultation
12/3/2007	Morongo Band of Mission Indians	Ms. Britt Wilson	USPS	Tribe is interested and requests to be kept informed of ongoing processes
12/18/2007	Fort Yuma Quechan Tribe	Ms. Bridget Nash	USPS	Request for cultural resources report when complete
1/29/2008	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	USPS	Agua Caliente letter - selecting to not participate
6/18/2008	Fort Yuma Quechan Tribe	Ms. Bridget Nash	USPS	Request for cultural resource report
6/24/2008	Fort Yuma Quechan Tribe	Ms. Bridget Nash	TELEPHONE	Project coordination; inquiry as to availability of cultural resource report
5/21/2009	Fort Yuma Quechan Tribe	Ms. Bridget Nash	USPS	Letter stating that the BLM is providing 3 cultural resource reports
6/1/2009	Morongo Band of Mission Indians	Mr. Michael Contrareas	USPS	Letter stating that the BLM is providing 3 cultural resource reports
11/23/2009	Fort Mojave Indian Tribe	Chmn. Timothy Williams	USPS certified	NOI Published in Federal Register
11/23/2009	Cocopah Indian Tribe	Ms. Sherry Cordova	USPS certified	NOI Published in Federal Register
11/23/2009	Chemehuevi Indian Tribe	Mr. Charles Wood	USPS certified	NOI Published in Federal Register
11/23/2009	Cabazon Band of Mission Indians	Mr. John James	USPS certified	NOI Published in Federal Register
11/23/2009	Augustine Band of Mission Indians	Ms. Maryann Green	USPS certified	NOI Published in Federal Register
11/23/2009	Agua Caliente Band of Cahuilla Indians	Mr. Richard Milanovich	USPS certified	NOI Published in Federal Register
11/23/2009	San Manuel Band of Mission Indians	Mr. James Ramos	USPS certified	NOI Published in Federal Register

Date	Tribe	Contact Name	Communicated via	Comments/Actions
11/23/2009	Morongo Band of Mission Indians	Mr. Robert Martin	USPS certified	NOI Published in Federal Register
11/23/2009	Fort Yuma Quechan Tribe	Mr. Michael Jackson	USPS certified	NOI Published in Federal Register
11/23/2009	Colorado River Indian Tribes	Mr. Eldred Enas	USPS certified	NOI Published in Federal Register
11/23/2009	Twenty-Nine Palms Band of Mission Indians	Mr. Mike Darrell	USPS certified	NOI Published in Federal Register
11/23/2009	Torres-Martinez Desert Cahuilla Indians	Ms. Mary Resvaloso	USPS certified	NOI Published in Federal Register
2/16/2010	Fort Yuma Quechan Tribe	Chmn. Michael Jackson	USPS	Letter expressing timeline concerns and the willingness to participate
3/5/2010	Soboba Band of Luiseno Indians	Mr. Joe Ontiveros	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Twenty-Nine Palms Band of Mission Indians	Chmn. Mike Darrell	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Agua Caliente Band of Cahuilla Indians	Mr. Richard Milanovich	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Augustine Band of Mission Indians	Chair Maryann Green	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Cabazon Band of Mission Indians	Chmn. John James	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Chemehuevi Indian Tribe	Chmn. Charles Wood	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Colorado River Indian Tribes	Chmn. Eldred Enas	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Fort Mojave Indian Tribe	Chmn. Timothy Williams	USPS certified	Invite to participate in PA/Sec 106 Consultation

Date	Tribe	Contact Name	Communicated via	Comments/Actions
3/5/2010	Fort Yuma Quechan Tribe	Pres. Michael Jackson	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Morongo Band of Mission Indians	Chmn. Robert Martin	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Ramona Band of Mission Indians	Chmn. Manuel Hamilton	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	San Manuel Band of Mission Indians	Chmn. James Ramos	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Soboba Band of Luiseno Indians	Act. Chair Rosemary Morillo	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/5/2010	Torres-Martinez Desert Cahuilla Indians	Chair Mary Resvaloso	USPS certified	Invite to participate in PA/Sec 106 Consultation
3/24/2010	San Manuel Band of Mission Indians	Mr. James Ramos	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
3/24/2010	Twenty-Nine Palms Band of Mission Indians	Mr. Darrell Mike	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
3/24/2010	Agua Caliente Band of Cahuilla Indians	Mr. Sean Milanovich	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
3/24/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	TELEPHONE	Preparing a response letter to the PA consultation letter from BLM
3/24/2010	Augustine Band of Mission Indians	Mr. David Saldivar	TELEPHONE	Will inquire with Tribe and return call next week
3/25/2010	Cabazon Band of Mission Indians	Ms. Judy Stapp	TELEPHONE	Do not plan on participating at this time
3/25/2010	Cocopah Indian Tribe	Ms. Sherry Cordova	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
3/25/2010	San Manuel Band of Mission Indians	Ms. Ann Brierty	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
3/25/2010	Twenty-Nine Palms Band of Mission Indians	Mr. Anthony Madrigal Jr.	TELEPHONE	They plan on participating in the PA development; email confirmation to follow

Date	Tribe	Contact Name	Communicated via	Comments/Actions
3/26/2010	San Manuel Band of Mission Indians	Ms. Ann Brierty	EMAIL	Will participate
3/29/2010	Twenty-Nine Palms Band of Mission Indians	Mr. Anthony Madrigal Jr.	EMAIL	Will Participate
4/6/2010	Soboba Band of Luiseno Indians	Mr. Joe Ontiveros	TELEPHONE & EMAIL	Will participate in PA & discussed details for the April 23rd mtg; follow up email
4/6/2010	Twenty-Nine Palms Band of Mission Indians	Chmn. Mike Darrell	EMAIL	PA kick-off meeting details
4/6/2010	Agua Caliente Band of Cahuilla Indians	Mr. Richard Milanovich	EMAIL	PA kick-off meeting details
4/6/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	EMAIL	PA kick-off meeting details
4/6/2010	Augustine Band of Mission Indians	Chair Maryann Green	EMAIL	PA kick-off meeting details
4/6/2010	Cabazon Band of Mission Indians	Chmn John James	EMAIL	PA kick-off meeting details
4/6/2010	Chemehuevi Indian Tribe	Chmn. Charles Wood	EMAIL	PA kick-off meeting details
4/6/2010	Colorado River Indian Tribes	Chmn. Eldred Enas	EMAIL	PA kick-off meeting details
4/6/2010	Fort Mojave Indian Tribe	Chmn. Timothy Williams	EMAIL	PA kick-off meeting details
4/6/2010	Fort Yuma Quechan Tribe	Pres. Michael Jackson	EMAIL	PA kick-off meeting details
4/6/2010	Morongo Band of Mission Indians	Chmn. Robert Martin	EMAIL	PA kick-off meeting details
4/6/2010	Ramona Band of Mission Indians	Chmn. Manuel Hamilton	EMAIL	PA kick-off meeting details

Date	Tribe	Contact Name	Communicated via	Comments/Actions
4/6/2010	San Manuel Band of Mission Indians	Chmn. James Ramos	EMAIL	PA kick-off meeting details
4/6/2010	Soboba Band of Luiseno Indians	Act. Chair Rosemary Morillo	EMAIL	PA kick-off meeting details
4/6/2010	Torres-Martinez Desert Cahuilla Indians	Chair Mary Resvaloso	EMAIL	PA kick-off meeting details
4/9/2010	Soboba Band of Luiseno Indians	Mr. Joe Ontiveros	USPS certified	PA kick-off meeting details
4/9/2010	Twenty-Nine Palms Band of Mission Indians	Chmn. Mike Darrell	USPS certified	PA kick-off meeting details
4/9/2010	Agua Caliente Band of Cahuilla Indians	Mr. Richard Milanovich	USPS certified	PA kick-off meeting details
4/9/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	USPS certified	PA kick-off meeting details
4/9/2010	Augustine Band of Mission Indians	Chair Maryann Green	USPS certified	PA kick-off meeting details
4/9/2010	Cabazon Band of Mission Indians	Chmn. John James	USPS certified	PA kick-off meeting details
4/9/2010	Chemehuevi Indian Tribe	Chmn. Charles Wood	USPS certified	PA kick-off meeting details
4/9/2010	Colorado River Indian Tribes	Chmn. Eldred Enas	USPS certified	PA kick-off meeting details
4/9/2010	Fort Mojave Indian Tribe	Chmn. Timothy Williams	USPS certified	PA kick-off meeting details
4/9/2010	Fort Yuma Quechan Tribe	Pres. Michael Jackson	USPS certified	PA kick-off meeting details
4/9/2010	Morongo Band of Mission Indians	Chmn. Robert Martin	USPS certified	PA kick-off meeting details

Date	Tribe	Contact Name	Communicated via	Comments/Actions
4/9/2010	Ramona Band of Mission Indians	Chmn. Manuel Hamilton	USPS certified	PA kick-off meeting details
4/9/2010	San Manuel Band of Mission Indians	Chmn. James Ramos	USPS certified	PA kick-off meeting details
4/9/2010	Soboba Band of Luiseno Indians	Act. Chair Rosemary Morillo	USPS certified	PA kick-off meeting details
4/9/2010	Torrea-Martinez Desert Cahuilla Indians	Chair Mary Resvaloso	USPS certified	PA kick-off meeting details
4/20/2010	San Manuel Band of Mission Indians	Ms. Ann Brierty	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
4/20/2010	Twenty-Nine Palms Band of Mission Indians	Mr. Anthony Madrigal Jr.	TELEPHONE	Will attend PA Kick-off Meeting
4/20/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	TELEPHONE	Will attend PA Kick-off Meeting
4/20/2010	Augustine Band of Mission Indians	Mr. David Saldivar	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
4/20/2010	Cabazon Band of Mission Indians	Ms. Judy Stapp	TELEPHONE	No answer/left msg re: PA Kick-off Meeting
4/20/2010	Cabazon Band of Mission Indians	Ms. Judy Stapp	TELEPHONE	Returned msg; will not attend PA Kick-off Meeting
4/21/2010	San Manuel Band of Mission Indians	Ms. Ann Brierty	TELEPHONE	Will not be able to attend PA Kick-off Meeting, but requests follow-up info.
4/21/2010	Augustine Band of Mission Indians	Mr. David Saldivar	TELEPHONE	Will not be attending PA Kick-off Meeting
4/21/2010	Chemehuevi Indian Tribe	Mr. Charles Wood (Office of)	TELEPHONE	Will not be attending PA Kick-off Meeting
4/22/2010	San Manuel Band of Mission Indians	Mr. Anthony Madrigal	EMAIL	Plans to attend PA Kick-off Meeting
4/23/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	IN PERSON	PA Kick-off Meeting

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Date	Tribe	Contact Name	Communicated via	Comments/Actions
4/23/2010	Twenty-Nine Palms Band of Mission Indians	Mr. Anthony Madrigal Jr.	IN PERSON	PA Kick-off Meeting
4/23/2010	Soboba Band of Luiseno Indians	Mr. Joe Ontiveros	IN PERSON	PA Kick-off Meeting
4/23/2010	San Manuel Band of Mission Indians	Ms. Ann Brierty	IN PERSON	PA Kick-off Meeting
5/17/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	EMAIL	Send cultural resource reports via FTP
5/24/2010	Agua Caliente Band of Cahuilla Indians	Ms. Patricia Garcia-Tuck, THPO	TELEPHONE & EMAIL	Send cultural resource reports via FTP

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1533 **Table 5. "CULTURAL RESOURCES Table 3: Dates of Inquiries Made to Native American Groups and their Replies" (Genesis**
1534 **Staff Assessment and Draft EIS, March 2010; pp.C3-57 and C3-58)**

Native American Group	Contact Person	Dates of Contact with BLM
Agua Caliente Band of Cahuilla Indians	Richard Milanovitch, Chairman Richard Begay and Patty Tuck, Tribal Historic Preservation Officers	11/26/07 NAHC letter from BLM 01/29/08 Reply from Ms. Tuck 05/20/09 Meeting with BLM 06/05/09 Meeting with BLM 11/23/09 NOI letter from BLM
Ak-Chin Indian Community	Terry Enos, Chairman	11/23/09 Copy of NOI letter
Anza Cahuilla	Contact person unknown	05/20/09 Meeting with BLM 11/05/09 Meeting with BLM
Augustine Band of Cahuilla Mission Indians	Mary Ann Green, Chairperson	11/26/07 NAHC letter from BLM 11/23/09 Copy of NOI letter
Cabazon Band of Mission Indians	John A. James, Chairperson Judy Sapp, Cultural Resources Coordinator	11/26/07 NAHC letter from BLM 12/21/07 Reply from Ms. Sapp 05/20/09 Meeting with BLM 11/05/09 Meeting with BLM 11/23/09 Copy of NOI letter
Cahuilla Band of Indians	Anthony Madrigal, Jr., Chairperson	11/26/07 NAHC letter from BLM 11/23/09 Copy of NOI letter
Chemehuevi Reservation	Charles Wood, Chairperson	11/26/07 NAHC letter from BLM 11/23/09 Copy of NOI letter 12/09/09 Reply
Cocopah Tribal Council	Sherry Cordova, Chairwoman	11/23/09 Copy of NOI letter
Colorado River Indian Reservation	Daniel Eddy, Jr., Chairman Michael Tsosie, Cultural Contact	11/26/07 NAHC letter from BLM 11/23/09 Copy of NOI letter
Fort McDowell Yavapai Nation	Raphael Bear, President	11/23/09 Copy of NOI letter
Fort Mojave Indian Tribe	Timothy Williams, Chairperson Linda Otero, Director, AhaMakav Cultural Soc.	11/23/09 Copy of NOI letter
Gila River Indian Community Council	Richard Narcia, Governor	11/23/09 Copy of NOI letter
Havasupai Tribe	Rex Tilousi, Chairman	11/23/09 Copy of NOI letter
Hualapai Indian Tribe	Charles Vaughn, Chairman	11/23/09 Copy of NOI letter
Kaibab-Paiute Tribe	Carmen Bradley, Chairwoman	11/23/09 Copy of NOI letter
Los Coyotes Band of Indians	Katherine Staubel, Spokesperson	11/23/09 Copy of NOI letter
Morongo Band of Mission Indians	Richard Martin, Chairperson Brit W. Wilson, Cultural Resources	11/26/07 NAHC letter from BLM 05/20/09 Meeting with BLM 11/05/09 Meeting with BLM 11/23/09 Copy of NOI letter
Pechanga Band of Luiseno Indians	Contact person unknown	05/20/09 Meeting with BLM 11/05/09 Meeting with BLM

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Quechan Indian Tribe	Michael Jackson, Sr. President Bridget Nash, Cultural Resources	12/18/07 Contact from Ms. Nash 06/23/08 Contact from Ms. Nash 04/29/09 Contact from Ms. Nash 05/21/09 Reports from BLM 05/29/09 Reports from BLM 06/09/09 Contact from Ms. Nash 09/03/09 Letter from Mr. Jackson 11/23/09 Copy of NOI letter 02/16/10 Letter from Mr. Jackson
Ramona Band of Mission Indians	Manuel Hamilton, Chairperson Joseph Hamilton, Vice Chairperson John Gomez, Environmental Coordinator	11/26/07 NAHC letter from BLM 05/21/09 Meeting with BLM 11/05/09 Meeting with BLM 11/23/09 Copy of NOI letter
Salt River Pima-Maricopa Indian Community Council	Joni Ramos, President	11/23/09 Copy of NOI letter
San Manuel Band of Mission Indians	Ann Brierty, Environmental Department	11/26/07 NAHC letter from BLM 05/20/09 Meeting with BLM 11/05/09 Meeting with BLM 11/23/09 Copy of NOI letter
Santa Rosa Band of Mission Indians	John Marcus, Chairman Terry Hughes, Tribal Administrator	11/23/09 Copy of NOI letter
Soboba Band of Mission Indians	Robert Salgado, Chairperson Bennae Calac, Cultural Resources Coordinator	11/23/09 Copy of NOI letter
The Hopi Tribe	Wayne Taylor Jr., Chairman	11/23/09 Copy of NOI letter
Tohono O'oodham Nation	Vivian Saunders, Chairwoman	11/23/09 Copy of NOI letter
Torres-Martinez Desert Cahuilla Indians	Raymond Torres, Tribal Administrator William J. Contreras, Cultural Resources Coordinator	11/26/07 NAHC letter from BLM 05/20/09 Meeting with BLM 11/05/09 Meeting with BLM 11/23/09 Copy of NOI letter
Twenty-nine Palms Band of Mission Indians	Mike Darrell, Chairperson	11/26/07 NAHC letter from BLM 05/20/09 Meeting with BLM 11/05/09 Meeting with BLM 11/23/09 Copy of NOI letter
Yavapai-Apache Nation	Jamie Fuller, Chairman	11/23/09 Copy of NOI letter
Yavapai-Prescott Indian Tribe	Ernie Jones, Sr., President	11/23/09 Copy of NOI letter

1542 **Table 6: "CULTURAL RESOURCES Table 4: Details of Communication between BLM and Native American Groups" (Genesis**
1543 **Staff Assessment and Draft EIS, March 2010; pp.C3-60 and C3-61).**

Date	Group	Communication Details
12/18/07	Quechan Tribe	Bridget Nash replied: Expressed concerns for the potential impacts affiliated with the Tribe. Requests a copy of the cultural report once it is completed.
12/21/07	Cabazon Band of Mission Indians	Judy Sapp replied: If there are substantial impacts, the Tribe will request an in-person meeting with Morongo Tribal Historian and BLM staff. She requested additional cultural resource information and for the BLM to provide a report when it becomes available.
01/29/08	Agua Caliente Band of Cahuilla Indians	Patty Tuck replied: The project is beyond both the Reservation lands and traditional use areas of the Tribe. Suggests contacting the Augustine Band of Cahuilla Indians, the Cabazon Band of Mission Indians, the Twentynine Palms Band of Mission Indians, and the Torres-Martinez Desert Cahuilla Indians.
06/23/08	Quechan Tribe	Bridget Nash requests archaeological reports.
04/29/09	Quechan Tribe	A telephone and e-mail conversation between Bridget Nash (Quechan Tribe) and Wanda Raschkow (BLM); Ms. Nash sends requested reports and Ms. Raschkow sends e-mail regarding project status.
05/20/09	Multiple Tribes	A meeting was held to discuss various solar energy projects and transmission lines in the Chuckwalla and Coachella Valleys. Attendees included BLM staff C. Dalu, R. Queen, and J. Kalish and representatives from the Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Cabazon Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, Pechanga Band of Luiseno Indians, Anza Cahuilla, Ramona Band of Mission Indians, Twentynine Palms Band of Mission Indians, and San Manuel Band of Mission Indians.
05/21/09	Quechan Tribe	A letter was posted to Ms. Nash (Quechan Tribe) from BLM Palm Springs Field Office providing requested reports. C. Dalu sent Tetra Tech's archaeology reports.
05/29/09	Quechan Tribe	A package was posted to Ms. Nash (Quechan Tribe) from BLM Palm Springs Field Office providing requested reports.

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06/05/09	Agua Caliente Band of Cahuilla Indians	Meeting with BLM and representatives of the Agua Caliente Band of Cahuilla Indians to discuss various solar projects.
06/09/09	Quechan Tribe	A telephone conversation between Bridget Nash (Quechan Tribe) and Wanda Raschkow (BLM); Ms. Raschkow reports status of project. Ms. Nash requests report. Ms. Raschkow indicates that a data sharing agreement will be necessary before providing archaeological reports and other sensitive data.
11/05/09	Multiple Tribes	Meeting with BLM to discuss various solar projects. Attendees included BLM staff and representatives from the Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Cabazon Band of Mission Indians, Torres-Martinez Desert Cahuilla Indians, Pechanga Band of Luiseno Indians, Anza Cahuilla, Ramona Band of Mission Indians, Twentynine Palms Band of Mission Indians, and San Manuel Band of Mission Indians. Tribes request a monthly report regarding all projects. The Agua Caliente Band of Cahuilla Indians requests a site visit.
09/03/09	Quechan Tribe	BLM receives a letter from President Mike Jackson, Sr. commenting on the Programmatic Environmental Impact Statement regarding solar development being developed for the six southwestern states. Concerns expressed over cultural resources and traditional cultural properties.
12/09/09	Chemehuevi Reservation	A telephone conversation between C. Dalu and a representative of the Chemehuevi Reservation expressing concern about the effect of Genesis, Palen, and Blythe solar projects on cultural resources and traditional cultural properties.
12/23/09	La Cuna de Aztlan Sacred Sites Protection Circle	This is a group composed of members from multiple tribes dedicated to the protection of sacred sites in traditional territories in the Colorado and Mojave Deserts. Their comments were included in a formal letter from the CAlifornians for Renewable Energy (CARE) in response to the BLM/CEC request for comments on the GSEP NOI. Concerned about damage to cultural resources such as trails and springs, in particular McCoy Spring.
02/16/10	Quechan Tribe	BLM receives a letter from President Mike Jackson, Sr. commenting on the regulatory approval schedule for the solar "fast-track" projects including Genesis. Concerns expressed about the ability of BLM to consult appropriately with the Tribe in the time frame envisioned. Also suggests that a Section 106 PA is inappropriate for these projects.

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APPENDIX J: MONITORING AND DISCOVERY PLAN

(DRAFT FOR CONSULTATION)
MONITORING AND DISCOVERY PLAN

NEXT ERA GENESIS FORD DRY LAKE SOLAR PROJECT RIVERSIDE COUNTY, CALIFORNIA

MODIFIED FROM THE

IMPERIAL VALLEY SOLAR PROJECT

IMPERIAL COUNTY, CALIFORNIA

Submitted to:

Bureau of Land Management

1661 South 4th Street

El Centro, CA 92243

Prepared by:

LSA Associates, Inc.

703 Palomar Airport Road Suite 260

Carlsbad, California 92011

(760) 931-5471

LSA Project No. SSQ0802

LSA

May 26, 2010

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APPENDIX

A SPECIFIC FIELD AND LABORATORY METHODS.....A-1

INTRODUCTION

Next Era Genesis Solar LLC is proposing to construct the Next Era Genesis Ford Dry Lake Solar Project in Riverside County on lands under the jurisdiction of the Bureau of Land Management (BLM), and cultural resources have been documented in the project's area of potential effects (APE). Efforts are being made to design the project to avoid all known cultural resources eligible for listing in the National Register of Historic Places (NRHP). The following will be discussed in this Monitoring/Discovery Plan:

- The measures necessary to avoid potential impacts to recorded cultural resources, including Environmentally Sensitive Areas (ESAs)
- Professional standards
- Monitoring plan
- Discovery plan
- Avoidance/protection procedures
- Cultural resources training
- Curation

The entire surface of the APE of the proposed project has been surveyed. Multiple prehistoric and historic resources have been identified.

Project Description

The Next Era Genesis Ford Dry Lake Solar Project would construct a proposed 250-megawatt (MW) solar energy plant on approximately 1,800 acres of public lands in California administered by BLM California Desert District and the Palm Springs/South Coast Field Office. Next Era Genesis Ford Dry Lake Solar Project would utilize existing roads and construct new roads in the project area.

Regulatory Context

The proposed project requires authorization and issuance of a right-of-way grant by the BLM. The proposed project is a federal undertaking. Therefore, compliance with 36 CFR Part 800, regulations implementing the National Historic Preservation Act (as amended), is required. As the project may have an adverse effect on historic properties (resources eligible for or listed in the NRHP), the BLM has prepared a Programmatic Agreement (PA) stipulating treatment measures that will be implemented prior to construction. The preparation of a Monitoring and Discovery Plan are stipulated in the PA.

PROFESSIONAL QUALIFICATIONS

The BLM shall ensure that all work is under the supervision of personnel meeting the *Secretary of the Interior's Standards and Guidelines* (as amended and annotated), *Professional Qualifications Standards*. The requirements are those used by the National Park Service, and have been previously published in the Code of Federal Regulations (36 CFR Part 61). The qualifications define minimum education and experience required to perform identification, evaluation, registration, and treatment activities. BLM shall obtain résumés of prospective consultants and verify credentials of supervisory personnel and staff as necessary.

Archaeology

The minimum professional qualifications for supervisory personnel in archaeology shall be a graduate degree in archaeology, anthropology, or closely related field plus the following:

- At least one year of full-time professional experience or equivalent specialized training in archaeological research, administration or management
- At least four months of supervised field and analytic experience in general North American archaeology
- Demonstrated ability to carry research to completion

In addition to these minimum qualifications, a professional in prehistoric archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the prehistoric period. A professional in historic archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the historic period.

DEFINITION OF RESOURCE TYPES

Below are examples of archaeological sites that might be encountered during construction or additional surveys.

Artifact Scatter

This type of site contains a light surface scatter of artifacts such as cores, bifaces, ground stone or milling tools, pottery, and debitage. Artifact scatters may represent short-term resting areas along trails or special-purpose sites. Ecofacts, such as bone and shell, are not present at sites of this type.

Prehistoric Habitation Site

This type of resource is characterized by a variety of ecofacts and artifacts and may contain bedrock milling features, suggesting that many different activities occurred, and perhaps people in the past were living at this location. Occupation may have been for a short period of time, seasonally over hundreds of

years, or may represent a village site occupied throughout most of the year. When occupied for short periods of time, habitation sites are referred to as "short-term habitation sites" or "temporary camps." When occupied by large numbers of individuals over a long period of time, habitation sites are referred to as "long-term habitation sites" or "villages." In addition to well-defined, often deep, cultural deposits (midden), indications of habitation sites are the presence of fire hearths and burned bone, indicating that food was being prepared and cooking occurred.

Isolate

An isolate is defined as the presence of fewer than three artifacts. An isolate does not constitute a site.

Lithic Scatter

A lithic or flake scatter contains a scatter of only flaked stone tools such as cores, stone debitage, or bifaces that may have been created from one or more distinct lithic reduction episodes. If no subsurface distribution is evident, a lithic scatter is often referred to as a "sparse lithic scatter."

Quarry

A quarry is a location where the primary activity consisted of procuring material for stone tools. Quarry sites may be extensive and involve the mining of lithic material, or the site may be an area where cobbles from outcrops were tested for suitability. Quarry sites do not usually contain ceramics, bedrock milling, or faunal material. Occasionally, areas exhibiting limited testing of locally available lithic material are referred to as lithic scatters, when they are more appropriately limited quarry areas.

Archaeosediments

Archaeosediments are sediments created by intentional or unintentional human activity (Waters 1992:33). Other terms employed are anthropogenic and anthropic soils. Archaeosediments include middens, which are a combination of chemically-altered natural sediments, accumulated organic and inorganic refuse, and sediment brought onto the site on the soles of feet and clothing (Waters 1992:33). A shell midden is the accumulation of ecofactual remains of marine shellfish collected and processed for subsistence purposes. Midden deposits can be viewed as refuse deposits that are often associated with habitation sites. In other words, people often produce trash where they camp and live. Since these deposits contain subsistence data, midden studies are important. The researcher must decide whether midden deposits are the result of food processing in preparation for transport, foraging dinner camps, or habitation-related activity.

Native American Heritage Value

It is possible that sites, features, or objects from sites may possess sacred or ceremonial value to local Native Americans. Research into each site and its constituent cultural remains will provide a basis for analysis of its potential heritage value. Interested tribes will be consulted regarding resources located within the project area (APE).

Historic

Historic sites date to after the presence of written records in an area and are greater than 45 years old. Historical archaeology sites may exhibit glass, metal, and ceramic artifacts, to name just a few. The following types of historical archaeological sites might be expected (this list is not necessarily complete or comprehensive):

- Refuse scatters: often are represented by surface scatters or piles of metal cans, bottles, etc.
- Desert Training Center related activities
- Water conveyance systems
- Railroad camps: they exhibit evidence for the preparation of meals, often obtained from metal cans.

2.0 AVOIDANCE AND PRESERVATION

Avoidance of all cultural resources is preferred and is the goal of the BLM. If cultural resources are discovered during construction and they are eligible for listing in the NRHP, implementation of a data recovery program may be necessary. If avoidance and minimization alternatives are not feasible, then data recovery through archaeological excavation may be warranted. Archaeological sites are most often determined eligible for the NRHP under Criterion 4, "potential for important information." The important information can often be characterized by the physical data, the artifacts, and features in the ground. Archaeological excavations may recover this information. This form of mitigation is called data recovery and includes scientific analyses and the preparation of a technical report. The purpose of conducting a mitigative excavation is to recover, analyze, and document in written form the important information contained within an archaeological site. The report must meet professional standards discussed later in this plan.

As stated above, avoidance of cultural resources during construction is preferred. Whenever practicable, an archaeological site that is determined eligible for listing in the NRHP should be left in place and preserved from damage. Avoidance and minimization alternatives should be also considered as the first option for sites not evaluated. Avoidance measures may include limiting the size of the undertaking to reduce the effect, modification of the undertaking through redesign, and monitoring of ground-disturbance activities to record significant archaeological remains if they are encountered.

2.1 Environmentally Sensitive Areas (ESAs)

Newly discovered and previously known prehistoric and historic archaeological sites located within project's APE shall be designated as Environmentally Sensitive Areas (ESAs). Construction personnel shall be instructed how to avoid ESAs.

All construction personnel shall be trained regarding the recognition of possible buried cultural remains, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. BLM shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials.

2.2 Plan of ESA Establishment and Designation

1. The Archaeologist shall flag and/or fence the cultural resource.

2. The lead construction engineer (resident engineer [RE]) and all supervisory personnel shall be informed by the BLM archaeologist and/or its representative of the presence and location of all ESAs within the project area and the need to maintain integrity of the ESAs.
3. The BLM archaeologist and /or its representative shall convey the archaeological sensitivity of the resource to the construction personnel.
4. Construction personnel shall be informed that ESAs are strictly off-limits to construction, and entrance is not allowed at any time. ESAs shall not be described as archaeological sites. The exact location of cultural resources is confidential.
5. For prehistoric resources, the BLM archaeologist shall consult with interested Native American tribes regarding the sensitivity of the area and any new discoveries. BLM shall make a reasonable and good faith effort to address concerns. The BLM shall consider the role of Native Americans regarding supporting the monitoring of significant Native American resources within and adjacent to project impact areas.
6. Archaeological monitors shall ensure that no ground-disturbing activities take place within the boundaries of any ESA.
7. Archaeological monitors shall immediately report all violations to BLM.
8. BLM and the archaeological monitors shall observe and maintain avoidance of the ESAs. Results of this effort shall be presented in the monitoring report for the project.

If a resource cannot be avoided, then the resource would be evaluated for eligibility for listing in the NRHP.

Training

BLM shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures to treat unexpected discoveries. A Next Era Genesis Ford Dry Lake Solar Project training document has been prepared and shall be provided to construction personnel in support of the on-site training described below. The training document provides prehistoric, historic and regulatory contexts, the roles of BLM and the archaeological monitors, the responsibilities and authority of the monitors, an outline of discovery protocols, and examples of artifacts. The cultural resources training shall include the following:

1. Summary of the archaeological and cultural sensitivity of the area.
2. Regulatory context and BLM protocols.
3. Project roles and responsibilities for the BLM archaeologist and the archaeological monitors.
4. Authority of archaeological monitors to halt work.
5. Basic artifact recognition.
6. The understanding that if construction personnel observe cultural material or what appears to be a cultural resource, the BLM archaeologist and/or representative shall be contacted immediately. Construction personnel shall have the requisite contact information.
7. The explicit understanding that cultural resources and human remains are not to be disturbed.
8. The procedures to follow if cultural material and human burials are observed:
    - Work halts immediately.

- The location is secured and made off-limits to ground disturbing activities.
- The construction foreman and BLM archaeologist are called immediately.
- Work does not re-commence until authorized by the BLM archaeologist.

3.0 MONITORING PLAN

3.1 Monitoring

An archaeological monitor will be present during construction. Additionally, monitoring of ground-disturbing activities within 50 feet of a known cultural resources is required. Monitors are to ensure that ESAs are properly (and adequately) marked and protected. A Native American monitor is required at all sensitive prehistoric resource locations. Safety is paramount, and all monitors shall undergo safety briefings and shall abide by all Occupational Safety & Health Administration (OSHA) and project safety requirements. Monitors have the authority to halt work. BLM shall maintain a record of the safety briefings and require that all monitors participate. The following list outlines the qualifications and responsibilities of the archaeological monitors.

1. The qualifications of monitors shall be confirmed by the BLM. The consultant shall provide résumés and references. The monitors must be familiar with the types of historic and prehistoric resources within the study area.
2. Monitors shall maintain a daily work log. The log shall include:
    a. Date and time of work
    b. Area of work
    c. Type of work and equipment present
    d. Construction activities performed
    e. Monitoring activities performed (e.g., protection of ESA)
    f. Cultural resources present
    g. Name of Native American monitor (if present)
3. Color digital photographs shall be taken, as appropriate, to document monitoring activities. All ESAs, at a minimum, shall be photographically documented prior to, during, and after construction in their vicinity. If previously unknown or inadequately documented cultural resources are encountered during monitoring, BLM and the monitors shall follow the procedures presented in the section titled *Discovery Treatment Plan*.
4. Monitors shall provide daily verbal updates to the BLM archaeologist. Written memo updates shall be provided weekly. The weekly memos shall identify the monitors present, dates worked, and their locations for that week. The memo shall present the results of monitoring for that week. Once monitoring has been completed, a monitoring report shall be drafted for review and approval by the BLM archaeologist. The monitoring report shall present the following:
    a. All monitoring activities
    b. Location of monitoring

c. Dates of monitoring

d. Personnel participating and their qualifications

e. Resources (ESAs) satisfactorily protected

f. Damaged resources, including the effects and the significance

g. Discovered resources and their significance (if any)

h. Management and treatment measures implemented

The report will be reviewed and approved by the BLM archaeologist and will be prepared per *ARMR* (OHP 1989) format guidelines.

5. Monitors shall ensure that all ESAs are avoided and protected. This includes verification that the current conditions of known significant resources do not change as part of this project. If protected sites exhibit physical changes, the protection measures are inadequate and need to be immediately changed and improved under direction from the BLM archaeologist. Earthmoving within 50 feet of a significant resource may be halted.

6. If individual artifacts are exposed during monitoring, they will be mapped in situ, collected, analyzed in the consultant's laboratory, cataloged, and curated. A curation agreement will be established with a curation facility that meets federal standards).

7. If a feature (cluster of in situ artifacts, intact hearth, foundation, etc.) is exposed during monitoring, construction activities will be diverted briefly until the project archaeologist has had the opportunity to assess the find and make appropriate recommendations. Consultant recommendations shall be provided to the BLM and in accordance with the *Discovery Treatment Plan* provided later in this document. Avoidance is preferred and, if a resource cannot be avoided, then first it must be evaluated. If the resource is significant, then avoidance must be reconsidered. If the significant resource cannot be avoided, then treatment measures (including possibly data recovery) must be implemented prior to recommencing construction. The details of this process are also discussed in the *Discovery Treatment Plan* provided later in this document. During the field implementation of archaeological studies, earthmoving within 50 feet may be halted.

After mitigation of site impacts has been completed, and if additional cultural material is exposed by grading in the same site, additional hand-excavation will not be required unless the additional material represents a new kind of data not recovered during previous data recovery at that site. Such new data would consist of artifact classes and features not recovered during previous mitigation. Features may include hearths, refuse pits, and burials. Even if no additional hand-excavation is required, the newly exposed material will be mapped and collected.

8. If human remains are encountered, a course of action following the requirements set forth in 43 CFR 10 and the BLM Native American Graves Protection and Repatriation Act (NAGPRA) Protocols. This would include stopping work in the exclusion area for a period of no more than 30 days while the consultation requirements of NAGPRA are completed. Work on the undertaking can proceed outside of the exclusion area. Should these BLM NAGPRA protocols not be followed, a violation of

NAGPRA and the Archaeological Resources Protection Act (ARPA) may take place. ARPA allows the government to assess civil fines and to proceed with criminal prosecution depending on the nature of the violation.

4.0 DISCOVERY PLAN

4.1 Plan of Treatment of Discoveries

This Discovery Plan addresses the actions to be taken should discoveries occur during project implementation. Potential discoveries in the Imperial Valley Solar project area are divided into two categories, each requiring distinct management procedures: treatment of previously unknown artifacts, features, site components, or sites; and treatment of human remains discoveries. The procedures to be followed, should such discoveries be made during the treatment program or during project implementation, are reviewed below.

If human remains are encountered, the course of action will follow the requirements set forth in 43 CFR 10 and the BLM Native American Graves Protection and Repatriation Act (NAGPRA) Protocols. This would include stopping work in the exclusion area for a period of no more than 30 days while the consultation requirements of NAGPRA are completed. Work on the undertaking can proceed outside of the exclusion area. Should these BLM NAGPRA protocols not be followed, a violation of NAGPRA and the Archaeological Resources Protection Act (ARPA) may take place. ARPA allows the government to assess civil fines and to proceed with criminal prosecution depending on the nature of the violation.

Whereas the protocols below apply to all discoveries, specific management and treatment measures may vary according to the resource type discovered, the discovery location within the project area, and anticipated project effects. Specific field and laboratory methods are presented in Appendix A.

Management of Previously Unknown Sites, Site Components, or Features

Previously unknown artifacts, features, site components, or even sites may be encountered during archaeological monitoring. The spatial distribution of features and their functional types are important aspects of the research design, both in terms of intrasite structure and spatial organization and in the distribution of features associated with the ridgeline cultural landscape. Some potential for buried remains occurs within depositional environments present within the APE.

Recovery and documentation of cultural materials will, at minimum, include mapping the discovery location and may also include one or more of the following: photographs; illustrations of artifacts, features, or soil profiles; surface artifact collection; and test or data recovery excavations. The procedures outlined below will be adhered to should there be archaeological discoveries during construction monitoring for the project. A discussion of the disposition and curation of recovered artifacts is presented later in this in the section titled *Data Management and Curation*.

Guidelines for the treatment of new discoveries within the project area are as follows:

- The archaeological monitor shall have the authority to halt work in discovery vicinities and redirect heavy equipment away from the discovery site.
- All ground-disturbing activities that would adversely impact a newly discovered cultural resource will be halted. The horizontal and vertical limits of the resource within the impact area shall be determined. The resource shall be protected by physical barriers and the presence of monitors to ensure that further disturbance to the resource is avoided and to minimize impacts.
- The BLM shall apply the criteria for listing in the NRHP including the following:
  - (A) It is associated with events that have made a significant contribution to the broad patterns of history and cultural heritage;
  - (B) It is associated with the lives of persons important in our past;
  - (C) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and/or
  - (D) It has yielded, or may be likely to yield, information important in prehistory or history.
- If the cultural resource is determined by the BLM to be a historic property (eligible for the NRHP), consultation will take place to determine the appropriate treatment measures.
- BLM shall consult with Native American groups or other interested parties regarding the treatment of the find.
- As needed, a data recovery plan shall be developed by the consultant under direction and in coordination with the BLM and to recover the significant values contained by newly discovered resources. Recovered data shall be processed, analyzed, and reported concurrent with other sites addressed during the treatment program. Please refer to the specific field and laboratory methods in Appendix A.
- If individual non-diagnostic artifacts are exposed during monitoring or construction, they shall be mapped in situ. If diagnostic artifacts are exposed, they shall be mapped, collected, analyzed in our laboratory, catalogued, and curated.
- If a feature (e.g., cluster of in situ artifacts, intact hearth, or foundation) is exposed during monitoring, construction activities shall be diverted until the find can be assessed and appropriate recommendations made. If excavation is required, it shall be accomplished expediently. Features will be exposed and recovered using standard excavation techniques, with care taken to maintain the provenance of the feature as a distinct unit. The feature shall be photographed and mapped in place prior to recovery. Samples shall be recovered for special analyses (e.g., radiocarbon, macrobotanical, palynological, or faunal) as appropriate to the character of the feature. Artifacts collected will be analyzed in the consultant's laboratory, cataloged, and temporarily curated.
- A determination shall be made as to whether a new discovery is part of an existing site or a previously unknown cultural resource. Based on that determination, existing DPR forms shall be updated to include the discovery. The potential significance of newly discovered sites or site components shall be evaluated relative to the research design.

- If a new site or significant component of a previously recorded site is discovered, construction activities will be halted in the area until an assessment of the find can be made. If it is determined that the site has the potential to yield important data that can address research questions, a sample of the site area will be hand-excavated using the standard archaeological procedures described in the Appendix A. BLM will be informed by the consultant as to the estimated time necessary for NRHP eligibility. The assessment will include mapping the locations and elevations of new discoveries. To the extent possible, boundary definition, assessment of content and integrity, and assessment of eligibility shall be accomplished with STP excavations. At minimum, such mitigation of site impacts will include recording, excavation, and reporting of major features or artifact concentrations uncovered and recovery/curation of a sample of uncovered artifacts where practicable.
- Construction activities in the discovery area shall not resume until the site treatment is completed. The consultant shall prepare a very brief report of the findings, eligibility evaluation, and propose avoidance measures and provisions to minimize impacts specific to that discovery that shall be submitted to BLM for review and concurrence. If further disturbance cannot be minimized, then it's the cultural resources contractor would provide justification and recommendations for data recovery to the BLM. If the BLM determines that disturbance is justified, then recommendations for data recovery would be reviewed by the BLM for adequacy and to evaluate the cost of treatment versus the cost of project redesign. Interested Native American community members would be consulted if the resource is contains a Native American context. Only after BLM review and approval of a site specific data recovery plan, would such excavation be performed. Data recovery would collect a representative sample of the deposits that would be destroyed.
- The discovery of human remains during project implementation requires special procedures, as discussed below.
- If additional cultural material is exposed by construction after mitigation of site impacts has been performed per the Discovery Treatment Plan, additional hand-excavation will not be required unless the material represents a new type of data. Such new data would consist of artifact classes and features not recovered in previous excavations. However, even if no additional excavation is required, the newly exposed material shall be mapped and collected.
- Discoveries and their treatment relative to the research shall be reported in the final monitoring report for the project. A separate report of findings and interpretation relative to a research design will be prepared if data recovery excavations are employed for mitigative site treatment.

MANAGEMENT AND TREATMENT OF HUMAN REMAINS

Human remains may be discovered in situ during the field excavation program, which includes the test unit excavations. Additionally, human remains may be discovered during the laboratory processing and analysis phases of the treatment program, since recovered cultural residues will be washed through the wet screening station and cultural constituents are not often visible to the excavators or screeners. Archaeological monitoring both within and outside site areas is also planned, during which isolated or disarticulated human remains may be uncovered. One of the objectives of archaeological monitoring is to identify such remains while they are still in place so they and their context can be managed in a manner that is sensitive to the Native American community or other ancestors and addresses existing regulations.

If human remains are encountered, course of action will follow the requirements set forth in 43 CFR 10 and the BLM Native American Graves Protection and Repatriation Act (NAGPRA) Protocols. This would include stopping work in the exclusion area for a period of no more than 30 days while the consultation requirements of NAGPRA are completed. Work on the undertaking can proceed outside of the exclusion area. Should these BLM NAGPRA protocols not be followed, a violation of NAGPRA and the Archaeological Resources Protection Act (ARPA) may take place. ARPA allows the government to assess civil fines and to proceed with criminal prosecution depending on the nature of the violation.

While it is hoped that human remains will not be encountered during the treatment program, the possibility exists that such a discovery can occur, and procedures are included herein to address such an event. When skeletal remains that may be human are encountered, the following steps will be taken:

- For field situations, archaeological investigations or project construction activities in the discovery area will cease, and the archaeological monitor or field archaeologist will notify the Principal Investigator and BLM.
- Human remains will be treated with respect and dignity, with care taken to limit disturbance and maintain the association of the remains with any accompanying funerary items and their physical setting. Archaeological investigations or project development work will not resume in the discovery area until the appropriate recovery and management actions have been completed.
- The specific location of the discovery will be withheld from public disclosure, as will the location of any reburial site.
- No excavation of human remains will be put on public display in any manner, nor photographed, except for the purpose of scientific documentation. No photographs of human remains will be distributed to the public or published.

For laboratory situations, where small bone or fragments may be identified as sensitive, similar notification and management procedures will be followed, and strict provenance controls will be maintained. The initial step is expert identification. The next steps include consultation with tribes, and preparation of a written plan for management of the remains.

5.0 DATA MANAGEMENT and CURATION

5.1 TECHNICAL REPORT PREPARATION AND DISSEMINATION

Reports regarding training, monitoring, consultation, evaluation, and data recovery (if necessary), will be responsive to contemporary professional standards. This will include the *Secretary of Interior's Standards for Archaeological Documentation* (OHP 1989).

A comprehensive technical report may be required that will present the results of monitoring, evaluation, and treatment programs completed in relation to the Imperial Valley Solar Project. The production and dissemination of the technical report is the final step in treatment. The consultant is responsible for technical report preparation, with BLM oversight and final document approval. The technical report and ancillary studies will also be responsive to contemporary professional standards and to the *ARMR* (OHP1989). Precise locational data may be provided in a separate appendix if it appears that its release could jeopardize archaeological sites.

The draft report(s) will contain cultural background, the results of Native American consultation, a description of the physical environment, a research design, methods and results sections, and a discussion of meaning (interpretation). Results of lab and specialized analyses will be given as well as a discussion of spatial and temporal distributions, as appropriate to the individual report. At a minimum, final technical report(s) resulting from actions pursuant to this treatment plan will be provided by BLM to the South Coastal Information Center.

5.2 CURATION IN PERPETUITY

Following completion of laboratory and analytical procedures, project collections will be prepared for permanent curation according to Smithsonian Institution guidelines and the requirements of the permanent curatorial facility. Materials to be curated include archaeological specimens and samples, site catalogs, field notes, field and analysis forms, feature and burial records, maps, plans, profile drawings, photo logs, photographic negatives, consultants' reports or special studies, and two copies of the final technical report. These materials will be curated at a facility that meets federal standards as promulgated at 36 CFR Part 79, *Curation of Federally Owned and Administered Archaeological Collections*.

Appendix A

Specific Field and Laboratory Methods

Standard archaeological field, laboratory, and analysis methods that are consistent with current scientific and regional procedures will be used for the Imperial Valley Solar Project. This appendix addresses newly discovered sites that cannot be avoided by project construction. Upon unanticipated discovery of intact cultural deposits, including features, the BLM will evaluate the resource for listing in the NRHP.

Strategies will include controlled excavations, which consist primarily of Shovel Test Pits (STPs) and 1 × 1 m Test Excavation Units (TEUs) and/or larger block exposures that are hand-excavated with strict provenance controls using shovels, trowels, picks, and other tools. Supervised mechanical excavations may also be used where appropriate as well as remote sensing surveys.

Archaeological resources are normally determined eligible under Criterion D, potential for important information. The resource must clearly demonstrate the potential and must exhibit the requisite physical integrity. The presence of diagnostic (datable) material and/or artifacts allowing the opportunity to date the site is imperative. Resources in disturbed contexts with no opportunity to be dated are often ineligible for the NRHP. If a resource is eligible and cannot be avoided by construction, BLM may decide to conduct data recovery and excavate a representative sample of the site employing the excavation strategies below.

FIELD METHODS

Surface Scrapes

Surface scrapes are employed in areas of dense vegetation and simply involve scraping the ground with a shovel in large units to expose the surface for examination.

Shovel Test Pits

STPs are preliminary tests for the presence of subsurface cultural deposits. It is expected that they will be used to delineate the boundaries of previously unknown sites, site components, or large, diffuse features, should they be discovered during archaeological fieldwork or monitoring. STPs normally measure approximately 35–40 centimeters in diameter and are excavated in incremental 20-centimeter levels. The number and distribution of STPs depend upon the size and geomorphic setting of each site. Each STP is excavated to 1 meter or to bedrock, whichever is encountered first, with the ground surface serving as reference for depth measurements. Excavated fill is reduced through ⅛-inch mesh hardware cloth, and recovered artifacts are collected and bagged by level, with reference numbers assigned and typical labeling information provided. Stockpiled dirt is returned to the STP upon completion; shovel test forms are completed for each unit. Due to the small volume of STP excavations, caution must be exercised in

interpreting results. While positive findings clearly indicate the presence of subsurface remains, negative results cannot be assumed to indicate the absence of a subsurface component.

Auger Excavation

Auger excavations are used to define soil stratigraphy, to locate bedrock, or to test for the presence of cultural remains at greater depth, including potentially buried deposits. With extension handles, this procedure can accurately locate and trace soil strata at depths of several meters. Augers can be placed in the bottom of STPs or other excavation units to further test for depth of deposit when additional excavation is otherwise impossible. However, the small volume of most auger borings limits the usefulness of this procedure for mapping the absence of subsurface cultural deposits with certainty. On each site, auger tests are sequentially numbered, and recovered materials are bagged, labeled, transported, and processed in the same manner as other excavated materials. Reference log numbers are assigned to each provenance unit, and an auger form is completed. Auger test locations are plotted on the site plan views, and auger holes are covered upon completion with the dirt available from the initial screening reduction.

Test Excavation Units

Manually excavated TEUs afford larger subsurface exposures than STPs and are used to recover representative samples of subsurface artifacts with controlled depth information. In general, TEUs measure 1 square meter (1 × 1 m) to 4 square meters (2 × 2 m); however, dimensions may vary according to circumstances, and adjacent units may be excavated in various configurations to develop block exposures. For example, site depth is a determinant for defining unit size. Unit depths greater than 1.5 meters require the opening of an adjacent unit for health and safety issues as well as for facility of excavation and recording. Also, additional exploration and exposure of a feature that extends beyond the boundaries of a TEU may be necessary. Excavation proceeds by 10-centimeter arbitrary levels unless natural or cultural strata are present; then, levels are subdivided to maintain these distinctions. Contour levels are maintained by measuring depth from the existing surface. An excavation level record is completed for each level. As appropriate, other records are completed, including plan views, profiles of test units, and descriptions of features. In addition, test units are selectively photographed during excavation to show artifact and/or stratigraphic associations, profiles, features, or other data.

Test units will be numbered by a sequential designation. The highest corner of each test pit is designated the unit's datum for elevation control. This corner will be marked with a pin flag labeled with the test unit's number. Depths of units are determined by empirical site stratigraphy. In alluvial or aeolian deposits, units can range up to several meters below the surface of the site. Whenever possible, units will be excavated to bedrock, to two consecutive culturally sterile levels (20 cm), or to sediments that are clearly not of a culturally relevant age.

Hand-excavation of test units will normally be accomplished using shovels, trowels, rock bars, and picks, depending on the composition of the sediments and the nature of the cultural deposits. In feature contexts, trowels, brushes, and other small implements may be appropriate. Special methods are used in the excavation of features, including sample collections suitable for special study. Charcoal (for radiocarbon assay) is collected when present. Depending upon excavation context and research design issues, other samples that may be collected include bulk sediment for humate analysis and/or chemical analysis, pollen and/or phytolith, and flotation. Excavated soils are typically screened through ⅛-inch mesh to reduce sediment volume and bagged and tagged as previously described.

Water Screening

Water screening is a technique for screening excavated sediments if it is determined that dry screening is not productive for observing and recovering cultural material. This may be the case, for example, if the site soils contain a high clay content, are very wet, or are otherwise resistant to dry-screening reduction. It will be determined on a site-by-site basis whether water screening is necessary.

If water screening is employed, ⅛-inch mesh screen will still be used. The screen residues are first reduced as much as possible by dry screening and then placed in buckets and appropriately labeled with provenance information and a unique reference number. This reference number (bucket/bag log number, special sample number) is used to track cultural residues through the wet-screening station, where residues are washed, bagged, and organized for transfer to the archaeological laboratory. The use of the reference number system provides quality assurance of provenance controls. A log is kept so that each sample is accounted for and can be tracked.

Trenching

Where trenching is conducted, an archaeologist and/or geoarchaeologist will direct backhoe operation. The duties of this person include selecting trench locations and their dimensions, monitoring the backhoe while in operation, and examining profiles. Depths of trenches are determined by the site context. For safety, trenches deeper than 1.5 meters should be double width or shored. This is an OSHA requirement. Trench walls are photographed and profiled, and stratigraphic units are described. To facilitate accurate sketching, elevation-control stakes are placed at 20-meter intervals along the excavated portions of the trench. Trench profiles will be cleaned and examined at least every 5 meters. The depth of stratigraphic boundaries is measured from the surface, with strata boundaries extrapolated between mapping points. Standard sedimentary and soil variables are recorded for each stratum, utilizing the terminology of the "Description of Horizons" supplement of *Agricultural Handbook 18* (U.S. Department of Agriculture 1951). Such recorded variables include (1) description of contacts; (2) soil color; (3) textures; (4) boulder and gravel content; (5) large clast angularity (gravel size and larger); (6) large clast lithology; (7) soil structure, consistency, and plasticity; (8) root content and form; (9) sedimentary structure; (10) disturbance; and (11) organic content. Standard data on soils and sediments are recorded on the Soil Worksheet. As warranted, diagnostic artifacts and special samples may be collected from trench profiles. These collections will be point provenanced and assigned individual numbers.

Back dirt from the trenches will be sample screened at no less than 5-meter intervals through ⅛-inch mesh. Water screening will be conducted, if necessary. All features encountered will be exposed by hand. Features will be recorded and mapped on feature forms and photographically documented.

Each trench is marked with a wooden stake labeled with the trench designation. A master list of trenches with their locations, dimensions, and general observations is maintained, and trench locations are included on the site map. Backfilling of trenches is done by backhoe after manual excavations on a site are complete. The wooden stakes marking trench locations should be left in place for mapping.

Feature Excavation

Features will be exposed in plan view. If necessary, additional excavation units will be opened as a block. All feature components will be mapped and photographed. If appropriate, the feature will be bisected and profiled. Soil samples will be collected to allow the studies discussed below.

Geomorphology

The use of geomorphology in archaeological excavations has increased substantially over the last decade. A trained geomorphologist/geoarchaeologist will determine and discuss landform context and site formation processes, including the issue of disturbance, and will profile select trenches and excavation units. The geomorphologist will also help determine where trenches should be placed to obtain the best cross-section of the site stratigraphy.

Remote Sensing

There are several types of remote sensing techniques that are useful to locate buried features and other anomalies on archaeological sites. These techniques are noninvasive and, when used in combination with hand-excavation, can greatly increase the efficiency of the latter by indicating areas worthy of investigation.

Ground Penetrating Radar (GPR). GPR is a geophysical method that has been developed over the past 30 years for shallow, high-resolution, subsurface investigations of the earth. GPR uses high-frequency pulsed electromagnetic waves to acquire subsurface information. Energy is propagated downward into the ground and is reflected back to the surface from boundaries at which there are electrical property contrasts. GPR is a method that is commonly used for environmental, engineering, archeological, and other shallow investigations (Vendl 2003).

Resistivity Surveys. Another method, soil-resistivity survey, uses an electrical current introduced into the soil to locate anomalies. The ease or difficulty with which this current flows within the soil is then

measured, and resistant areas are mapped (Grenda et al. 1998). Results are useful using this technique when the resistivity contrasts between the archaeological record and the surrounding soil matrix.

Magnetic-Field Gradient Survey. Magnetic-field gradient survey consists of mapping deviations from the uniformity of the earth's magnetic field (Grenda et al. 1998). This technique is based upon the magnetic field gradient being consistently zero, with deviations from this uniformity indicating archaeological features. Magnetic-field gradient surveys are particularly useful in detecting remnant magnetization that originates from heating the iron oxides found in most soils in features such as hearths, fire pits, and ceramic concentrations.

Mapping Methods

Point Provenance Method. The point provenance method is employed to map the locations of diagnostic artifacts, tools, and other items or significant features prior to collection or excavation, or to collect the surface of low-density sites. Collected materials are assigned sequential reference numbers by site, and the location of each is documented relative to the primary site datum. The reference number is used in preparation of the site map and in presentation of tabled data and artifact illustrations provided in the technical report.

Electronic Distance Measurer Method. The electronic distance measurer (EDM) method is typically used during testing and data-recovery programs where provenance accuracy is critical for meaningful interpretation of cultural resources. The EDM method provides precise locational data in three dimensions. Because each mapping shot records the vertical azimuth as well as distance and bearing, site topography can also be easily documented. To make maximum use of the precision afforded by this mapping technique, data are linked to AutoCAD and geographic information system (GIS) software data and downloaded or entered into an electronic mapping program for output. When the mapping data are plotted, the result is a precise scaled map.

An electronic total station is used for the EDM method, and a single primary mapping station is located in a central area of each property. Sub-data are established as needed, especially on large sites or those with diverse topography. Stations are established with a well-embedded nine-inch nail, and demarked with black-and-pink striped surveyor's flagging. Station labeling includes the station number, site number (permanent designation if available, field number if not), research organization, and date. At large properties, secondary mapping data can be established, keyed to the primary datum, and properly labeled to facilitate recordation of cultural, topographic, and other data.

A data receiver is used with the total station, and preprogramming the upload data receiver eliminates the need for extensive paper data records. Even with use of a data receiver, detailed mapping notes are

maintained, and electronic data are backed up and/or downloaded on a daily basis. When the data receiver is not used or functions improperly, the horizontal azimuth, vertical azimuth, horizontal distance, UTM coordinates (if data are tied into system), and brief description (e.g., metate, biface, contour, projectile point) of each mapping shot are recorded on forms designed for this purpose.

The EDM will be used to map the locations of diagnostic artifacts, tools, features, artifact or rock clusters, site loci, disturbances to the resource's contextual integrity, important natural features, and other data appropriate to the resource or research design. During the evaluation program in the project area, the EDM method will be used to document the locations and relative elevations of trenches, controlled demolition blocks, excavation units, collection units (point provenance or grid collections), cultural and natural features, paleosurfaces, and other data as appropriate.

More than one prism can be utilized in conjunction with the EDM. For mapping large properties or landscape features, the use of two or more prisms may be preferred to maximize productive use of the EDM by limiting delays between shots. Radio communication will be maintained when the EDM mapping method is employed due to the extensive distances between the mapping station and the shot locations, which can be up to 1.6 kilometers.

Photographs and Illustrations

Photographic documentation will include color digital photographs taken throughout all phases of site treatment. Photographs can include site overviews to show the site's physiographic and environmental setting, hand and mechanical excavations in action, and features and unit wall profiles. Black-and-white 35 mm photographs will also be used to document features and wall profiles when appropriate. Photographs will be recorded on standard photographic logs identifying the frame, day, month, year, time, subject, and direction of view. Illustrative photographs will be included in the draft technical report.

Sketches or illustrations of unique features and artifacts are also beneficial in depicting details that are sometimes not evident in photographs. These techniques will be utilized as determined necessary and also included in the draft technical report.

LABORATORY METHODS

Collected artifacts will be inventoried and organized during and following fieldwork and prior to sorting and detailed attribute recording. The Reference Number Log (bucket/bag log) that is completed in the field is submitted to the laboratory with the bagged and labeled residues. The Reference Number Log is the primary inventory document and serves as the list against which artifacts and forms are crosschecked when transferred to the laboratory. Checking assures that (1) collections and data forms are present; (2)

the provenance designations (e.g., site, test unit, depth) on each collection bag match those on the data forms and in the Reference Number Log; and (3) other required data sheets (e.g., feature records or special sample forms) are present, accurate, and complete. Data sheets with incomplete or unclear information and those that contradict other data sheets for the same property are returned to the crew chief for correction.

Cleaning

Prior to cataloging and analysis tasks, most artifacts and specimens will be cleaned and stabilized, either at the wet-screening station or in the laboratory. Specimens that will *not* be cleaned include (1) wood or fiber; (2) fragile/friable bone, antler, or shell; (3) selected ground stone (for possible pollen wash or immunological analysis); (4) selected lithic tools (for blood residue analysis); and (5) possible baked clay or ceramic items.

For other artifacts, adhering dirt will be removed by washing or dry brushing. Flaked stone, ground stone, and shell are typically cleaned using water. Depending upon its condition, bone may be either dry brushed or quickly immersed in water, gently brushed, and then quickly rinsed. To prevent accidental contamination between provenances, artifacts from a single provenance will be cleaned and/or stabilized at the same time, and washing should proceed one unit at a time. Once dry, individual artifacts from each provenance will be placed in clean polyethylene bags along with identification tags produced on archivally stable cardstock. Radiocarbon samples will be placed in either aluminum foil pouches or in glass vials, which will then be placed in clean polyethylene bags. Flotation, pollen, sediment, and other bulk samples will be left in double polyethylene bags until they are processed.

Sorting and Cataloging

Sorting and cataloging methods follow the requirements of the curation standards for a facility that will meet minimum federal requirements, as published at 36 CFR Part 79. The cataloging structure has been modeled on the University of California, Santa Barbara system without the code.

Recovered data are separated hierarchically into class, material, treatment, and item. Class separates artifacts and other data into such major categories as stone, ceramic, bone, shell, glass, metal, and others. The second order (material) deals only with items that are classed as stone. These are further sorted by toolstone (e.g., chalcedony, obsidian, volcanic, quartzite, or granite). Treatment indicates how the artifacts were modified and includes descriptions such as flaked, burned, cut, pecked, ground, polished, and others. The final ordering variable (item) places the artifact into a category such as debitage, biface, mano, or awl.

This information is recorded on the catalog form with the following additional data: count, weight, locus, unit coordinates, depth/level, item coordinates (if appropriate), unit size, type of collection, date collected,

and the initials of the collection team. Special samples and ecological data (ecofacts) are recorded on the same catalog form, with the same information required for artifacts. Where appropriate, feature number, sampling stratum designation, soil stratum (stratigraphic) designation, and screening mesh size are also included for each catalog entry.

After the information has been recorded, an artifact is given a two-part catalog number, with each part separated by a dash. The first part of the catalog number is the site accession number; the second part is the artifact number, assigned consecutively in the order of entry. This catalog number will be inked directly onto artifacts, except for debitage and bone detritus. After assigning catalog numbers, the artifacts will be given identification tags (produced on archivally stable paper) and placed in clean polyethylene bags. Each tag will show the catalog number along with other pertinent information, such as site number and selected provenance information. Bagged artifacts are stored in six-inch square boxes, which are incorporated into the temporary boxing system. The catalog will be entered into the computerized data-management system for ease in sorting and manipulating data within and between sites.

Temporary Curation Methods

Processed artifacts will be physically organized and stored in a temporary boxing system until they can be analyzed and transferred to the designated curation facility. The temporary boxing system is set up by site, class, catalog number, and project number. After cataloging, the artifacts are placed in appropriately sized boxes. These boxes will be labeled with the box number, the catalog number of the first and last artifacts included in the box, and the item type (e.g., debitage, ground stone, bone, soil samples). Smaller boxes or plastic film canisters may be used for small or unusual artifacts that need further protection. The boxed artifacts are then placed in a 12 × 15 × 10 inch banker's box. The contents of the box are recorded on the box log, and the box receives a unique box identification number beginning with T (e.g., T-1, T-2) to denote the temporary boxing system. This system allows quick and organized access to specific items from a given site and provenance. Individual artifacts or assemblages can be retrieved using the site number, catalog, and the box log.

For a discussion of long-term curation and artifact disposition, refer to the sections titled *Data Management and Curation*.

Artifact and Ecofact Analyses Methods

Following initial processing and interim curation, artifact and sample analyses will proceed. The recovered chipped and ground stone assemblages, bone and shell artifacts, shell and faunal assemblages, and other items will be subject to a variety of morphological, functional, technological, and typological analyses as appropriate to the data class and research goals. Brief overviews of standard analysis methods are provided in the following sections.

Chipped Stone. The analysis of chipped stone items is directed toward developing classes (and types) of artifacts that are based on morphological, functional, and technological attributes.

Bifaces. Finished bifacial tools include such formal items as points, knives, and drills. The trajectory of biface reduction yields progressively smaller flakes and an objective piece that becomes thinner and takes on a planned form. The objective piece can include the original cobble/core or any detached flake modified using the bifacial strategy. At any point in the production sequence, an incomplete or broken biface can be used as a tool. Bifaces are classified according to the stage of manufacture represented. Biface reduction/production is recognized as a continuum, and the stages reflect arbitrary divisions within this continuum. Biface reduction can be performed on flakes, cobbles, or split cobbles and can result in cores, tools, and rejected items.

The following data will be recorded for analyzed bifaces: manufacturing stage; lithic material; color, condition, and portion present; overall shape; base shape; transverse cross-section; longitudinal cross-section; and maximum dimensions (length, width, and thickness). The stages of biface manufacture include the following:

- *Stage 1: Edging.* Deep and wide cortical removals originate from natural lateral surfaces. Twenty percent or more of the cortex is retained. The cross-section is irregular or blocky. The width-to-thickness ratio is greater than 3:1.
- *Stage 2: Primary Thinning.* Primary thinning includes second-row and some third-row flaking, loss of natural surface platform angles, prepared platforms, straightened edges , and the most prominent masses and ridges removed. Minimal cortex is retained by the end of Stage 2. The biface begins to form an ovate shape, but the cross-section is rectangular, trapezoidal, or very thick lenticular. The width-to-thickness ratio is less than 3:1.
- *Stage 3: Secondary Thinning.* Overlapping flake scars form opposing lateral margins, no cortex remains, and the biface assumes the desired shape. The cross-section is becoming more lenticular, and the width-to-thickness ratio is about 4:1. Often, change to soft hammer percussion techniques takes place during this stage.
- *Stage 4: Shaping to Preform Tool.* Shaping results in regular flake removals and uniform lateral edges. The cross-section is very lenticular, and optimal width-to-thickness ratios are reached (between 4:1 and 5:1). Optionally, a change to pressure flaking may be made for tool shaping.
- *Stage 5: Finishing.* The preform is finished by notching or fluting, basal grinding, or minor retouch and shaping, if necessary, accomplished through pressure flaking. Stage 5 bifaces can be further subdivided into morphological types.
- *Stage 6: Tool Maintenance and Resharpening.* Continued use of the tool results in dulled edges. Resharpening by pressure flaking reduces the size of the tool and produces a characteristic S-shaped edge cross-section.

Projectile Points. Projectile points are finished bifaces and are a morphologic variation of this chipped stone category. Points exhibit a wide range of styles that are chronologically and culturally diagnostic and are, therefore, treated in greater detail. Typological analysis of projectile points provides diagnostic artifact characteristics to the items and increases their importance for chronological, settlement, subsistence, and technological research.

Projectile points are well-shaped (although not always symmetrical) thin bifaces with uniform cross-sections, regular and non-sinuous edges, little to no cortex, and minute edge alteration and retouch. They often have a deliberately prepared haft element oriented near the center of one end. From the distal to proximal ends, attributes of points include the tip, blade, and stem, but reflect considerable morphological variability in tip form, blade edges, shoulder/barb configurations, notch location and orientation, stem shape, tang morphology, and base configuration.

The attribute stage of analysis recognizes three subclasses: "dart" points/shafted knives, "arrow" points, and indeterminate points. Points are further classified into named types (where possible). The attributes recorded for projectile points include lithic material, color, condition and portion present, blade edge form, blade shape, base shape, shoulder form, stem form, presence of serration, presence of basal notching, presence of side notching, cross-section, actual maximum dimensions (length, width, and thickness), reconstructed dimensions (length, width), length at longitudinal axis, actual width, position of maximum width, maximum blade width, basal width, maximum stem width, position of maximum stem width, shoulder height, proximal shoulder angle, distal shoulder angle, notch opening, side notch width, basal notch width, side notch depth, and basal notch depth.

Cores. This class of artifacts refers to bulky objective pieces used in the preparation of chipped stone tools. Most of these items are pieces representing a wide range of lithic reduction strategies, with the main goal oriented toward testing the quality of material or producing large serviceable flakes suitable for use or for modification into formal tools. Cores can be minimally described by core type, maximum dimensions (length, width, and thickness), lithic material, total observable flake removals, and percentage of cortex.

Cores can be separated into the following categories:

- Test blocks largely reflect the morphology of the original cobble and have a high percentage of cortex. They are characterized by a minimum amount of flaking (usually fewer than five flake scars), which was used to assess the texture and knapping quality of the stone and to determine

whether vugs or impurities are present. Test blocks tend to represent rejected materials (i.e., those excluded from tool production trajectories).

- Split cobble/pebbles are the result of splitting cobbles or pebbles into half sections for further reduction. A minimum number of flake scars may be present. The specimens are not shaped and have thick, irregular cross-sections approaching plano-convex. Cortex covers over 50 percent of the dorsal surface. Some secondary flaking may occur around the perimeter of the split edge, but the modification has not substantially changed the morphology of the split sections. The edges may or may not be sinuous.
- Biface cores are virtually indistinguishable from Stage 1 and 2 bifaces, described previously.
- Unidirectional cores primarily have a single striking platform from which a series of flakes has been detached. The flake removal can reflect direct percussion or bipolar technique, but the vast majority of flakes should originate from the single platform.
- Bipolar cores resemble single platform cores, but differ in the existence of a second platform on the opposite end of the core. The orientation of flake removal is from both ends of the core along a single axis.
- Bidirectional cores are similar to bipolar cores, but differ in the location of the second striking platform. In bidirectional cores, the platforms are not in opposable locations.
- Multidirectional (also labeled amorphous or unpatterned cores) have multiple platforms and flake scar orientation that may either coincide with the ridges on the original cobble or lens geometry or utilize appropriate edge angles from previous flake scar removals. The flake scar removal patterning may appear haphazard and random.

Unifaces. Unifaces are shaped tools or incidentally shaped flakes or blades that have been retouched or display continuous modification along one or more edges of one face. Flakes with modification along different edges on alternate faces are also regarded as unifaces. Edge modification can occur on the dorsal or ventral surfaces. During analysis, unifaces will be typed according to existing morphological categories (e.g., keeled scraper, beaked scraper, or concave scraper). In addition, the following observations may be recorded for each specimen: material, color, shape, cross-section, longitudinal cross-section, condition, location of worked edge(s), maximum dimensions (length, width, and thickness), edge angle, and spine plane angle. Unifaces can be subdivided into the following subclasses:

- Formally shaped unifaces are tools with extensive retouching that has substantially modified the morphology of the tool. The retouching consists of a continuous series of flake scars knapped from the edge and extend from at least one-quarter to the entire face of the tool. The tool morphology may or may not be symmetrical, but the modification is relatively extensive and clearly patterned.
- Informally shaped unifaces are tools with incidental edge modification or retouching not substantially modifying the outline morphology of the flake. These items are regarded as expedient tools selected for their natural morphology or edge characteristics and are believed to have been used for a limited number of tasks. The shape of the original flake is largely evident.

Edge modification is restricted to a series of five or more continuous flake scars along the edge. Discontinuous nicks randomly occurring along the edge are not regarded as modified flake tools.

Debitage. This category of artifacts refers to unmodified, discarded knapping residues resulting from the production and maintenance of chipped stone tools. Represented are a wide range of remains, including complete and broken flakes; shatter, chunks, and angular debris; and heat spalls and potlids from errors in heat treatment. The attributes recorded for debitage include lithic material, manufacturing stage, completeness, presence and percentage of cortex, evidence of heat treatment, and size. Debitage generally can be defined within the following six categories:

- Core flakes have definable dorsal–ventral surfaces and predominantly unfaceted platforms with steep platform–dorsal edge angles. The dorsal surface flake scar patterns may have unidirectional or multidirectional orientations. Flake cross-sections may be thick, angular, and irregular. Cortex commonly occurs on platforms and/or dorsal faces of these specimens.
- Biface flakes have definable dorsal-ventral surfaces and predominantly faceted platforms, acute platform-dorsal edge angles, and dorsal surface flake scar patterns with mostly multidirectional orientations. Flake cross-sections tend to be thin and concave-convex. Cortex does not occur on platforms and is rarely present on dorsal faces of these specimens. Biface reduction may have resulted in cores or tools.
- Unidentified flakes are flakes or flake fragments that possess insufficient characteristics to be classified as either core or biface flakes. They have definable dorsal and ventral orientations, but platforms are generally absent. This subclass is a general "catch-all" category for non-diagnostic flakes.
- Blades are a special form of long, relatively thin flakes characterized by unidirectional flake scar patterns on the dorsal face and a length to width ratio in excess of 2:1.
- Shatter, chunk, and angular debris are irregular pieces of knapping debris that do not possess sufficient morphological attributes to permit classification into a specific flake category. Most are angular and blocky without discernible platforms or dorsal/ventral surface orientations.
- Heat spalls and potlid flakes are derived from thermal damage and are morphologically distinct from knapping debitage. Heat spalls are often characterized by crazed exterior surfaces and sometimes thermally discolored lithic materials. Typically, the dorsal surface of heat spalled debris displays cortex or compression rings from previous flake removals. Potlids are plano-convex spalls, where the planar surface is the dorsal side and the convex surface is the ventral. Potlids and heat spalls are formed from different expansion/contraction of stone materials under extreme thermal conditions; they characteristically lack the compression rings of force. This type of debris is usually derived from failed attempts at heat treatment or accidental exposure to fire.

Because debitage is generally the most frequent artifact class on prehistoric sites, and because minimal additional key conclusions can be obtained using size data on numerous individual specimens, size sorting of debitage can be accomplished. Debitage analysis is also useful for determining whether heat treatment was a phase in tool-production strategies. Characteristic heat

treatment attributes or damage such as differential luster and crazed surfaces will be recorded during debitage analysis.

Ground Stone. Ground stone is defined as lithic material whose shape is modified by repeated friction of stone against stone, as opposed to chipping. Ground stone is recorded using simple morphological and technological attributes based on size and shape. For ground stone specimens, lithic material, portion, shape, cross-section, number of ground surfaces, and maximum measurements (length, width, thickness, and weight) are recorded. In addition, evidence of formal shaping, rejuvenation, secondary use, and the presence and distribution of peck marks, polish, and striations can be recorded.

Common ground stone artifacts include the following:

- Milling stones or metates are large, tabular pieces of stone that exhibit flat to concave ground surfaces on one or both faces. They served as the surface against which materials were ground. They are separated into slab, block, and amorphous forms based on thickness and cross-section. Those that have rectangular cross-sections and are 6 centimeters or less in thickness are termed slab milling stones. Those with rectangular cross-sections but are greater than 6 centimeters in thickness are termed block metates. Milling stones with irregular, long cross-sections, without consideration of their thickness measurements, are termed amorphous. Surfaces may be classified as Type A (planar) or Type B (concave).
- Handstones or manos are handheld grinding stones used to mill food grains or other items against a metate. Typically, they are slabs or cobbles of a size to fit in one or two hands and exhibit a flattened, ground surface on one or more of their faces. Type 1 manos include amorphous to subrectangular handstones with no indication of intentionally shaping. Type 2 manos are those that have been shaped into a regularized form. This type is further subdivided on the basis of size into one-handed and two-handed varieties, with two-handed manos defined as those greater than 15 centimeters along their longest axis.
- Mortars are deeply concave stones in which material was ground and/or pounded. They may be either bowl or bedrock forms.
- Pestles are handheld grinding stones used to press against and into a mortar. They are typically long, cylindrical, and rounded at one or both ends.
- Discoidals/cogstones are thick circular items that served an unknown function, but are associated with the Milling Stone tradition in California archaeological contexts.
- Abrading stones show parallel striations oriented longitudinally (rather than transversely) on one or more faces. Battering may also be present.
- Pendants/gorgets are extensively ground on both surfaces and may have evidence of a biconically drilled hole.

- Unidentified ground stone are fragments that are too small to distinguish morphology or function. These have one or more ground/faceted surfaces, but the remaining portion is too small to infer artifact type.

Hammerstones. Typically, these artifacts are unmodified cobbles, initially reduced cores, or broken cores that exhibit battering on one or more edges. Three subclasses may be defined, two indicating the state of reduction of the artifact and the third indicating the degree of wear. The first subclass includes cobbles that lack signs of modification except for obvious battering at one or more points on the cobble surface. The second subclass is cores that show battering on one or more previously flaked edges. The third subclass is pecking stones: pebbles or cobbles with lighter and more localized wear, often on a pointed projection of the cobble. For these specimens, lithic material, portion, shape, cross-section, number of modified surfaces, and maximum measurements (length, width, thickness, and weight) can be recorded.

Faunal Analyses

A minimum number of individuals indexed will be developed for the vertebrate sample. The purpose of vertebrate faunal analysis is twofold: (1) to identify the variety of fauna present in the local environment over a long period of time, and (2) to identify the species of animals and birds that were included in the human diet, and their ratios diachronically. Both aspects–environmental change and subsistence base–are integral to understanding prehistoric adaptations.

Special Studies

Special studies to be completed for the treatment program, as data facilitate, include the following:

- *Radiometric Analysis.* Selected charcoal and shell samples and other remains containing carbon (e.g., organics and bone) from key contexts will be submitted for radiocarbon assay. Approximately 10 samples will be submitted to establish the chronology of paleolandscapes for the paleoenvironmental reconstruction historic context, and another 10 will be submitted to date the chronology of sites and site components should sufficient data be recovered during the treatment program.
- *Obsidian Sourcing Analyses and Hydration.* Obsidian sourcing analysis is used for providing an idea of the regional exchange system within which prehistoric site occupants operated. Obsidian hydration analysis by source is useful for assigning relative chronological ages to the sites and associated materials.
- *Flotation, Pedological, and Chemical Analyses of Sediments.* Flotation analysis of cultural features, including subsequent macrobotanical identification, as necessary, is an important aspect of the evaluation program. Data can be used to address subsistence, site function, seasonality of occupation, internal site structure, and settlement type. Pedological and chemical analyses are useful for geomorphic studies, paleoenvironmental reconstructions, and postformation processes.
- *Ceramic Analyses.* Ceramic thin sectioning (sourcing).
- *Other Analyses and Assays.* Other types of artifact analyses and sample assays may be performed if sufficient data are recovered during the treatment program. These include but are not limited to (1) blood residue (immunological) analysis of selected lithic tools; (2) microscopic use–wear analysis of

the edges of selected lithic tools; and (3) stable carbon isotope assay of bone samples from various taxa.

APPENDIX K: NAGPRA PLAN OF ACTION (DRAFT)

(DRAFT FOR CONSULTATION)
NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT
PLAN OF ACTION

A WRITTEN PLAN OF ACTION FOR THE TREATMENT OF INTENTIONALLY EXCAVATED OR INADVERTENTLY DISCOVERED HUMAN REMAINS, FUNERARY OBJECTS, SACRED OBJECTS, OR OBJECTS OF CULTURAL PATRIMONY FOR THE NEXT ERA GENESIS FORD DRY LAKE SOLAR PROJECT IN CALIFORNIA DESERT DISTRICT OF THE BUREAU OF LAND MANAGEMENT CALIFORNIA

Draft Date: June 14, 2010

Introduction

This Plan of Action (POA) describes the procedures for the treatment and disposition of Native American human skeletal remains, funerary objects, sacred objects and objects of cultural patrimony (hereinafter, cultural items) for inadvertent discoveries during construction and of the Next Era Genesis Ford Dry Lake Solar Project located in California Desert District (CDD) of the Bureau of Land Management (BLM), California. This POA complies with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA), *25 U.S.C. 3001 et seq.*, its implementing regulations as set forth in *43 CFR Part 10 (specifically §10.5[e])*, and the Archaeological Resources Protection Act (ARPA), *16 U.S.C. 470aa-mm.*, with its implementing regulations (*43 CFR Part 7*).

Planned Action

The Next Era Genesis Ford Dry Lake Solar Project will construct a proposed 250-megawatt (MW) solar energy plant on approximately 1,800 acres of public lands in California administered by BLM CDD and the Palm Springs/South Coast Field Office. The Next Era Genesis Ford Dry Lake Solar Project would utilize existing roads and construct new roads in the project area.

Consultations

Based on previous consultation, the Agua Caliente Band of Cahuilla Indians, Augustine Band of Mission Indians, Cabazon Band of Mission Indians, Chemehuevi Indian Tribe, Cocopah Indian Tribe, Colorado River Indian Tribes, Fort Mojave Indian Tribe, Fort Yuma Quechan Tribe, Morongo Band of Mission Indians, Ramona Band of Mission Indians, San Manuel Band of Mission Indians, Soboba Band of Luiseno Indians, Torres-Martinez Desert Cahuilla Indians, Twenty-Nine Palms Band of Mission Indians (Tribes) have been contacted for the Next Era Genesis Ford Dry Lake Solar Project and have indicated the project is within ancestral territory.

Should remains subject to NAGPRA be discovered during the course of construction, the BLM will continue to consult with the interested tribes. These groups have been consulted with and have received a copy of this plan.

BLM's duty to consult with tribes does not include any obligation, implied or expressed, to fund or pay tribes or tribal members for their participation to consult or confer with BLM.

1) Objects to be considered as cultural items:

For the purpose of this plan, the objects considered as cultural items are defined in 43 CFR10.2 (d) and include:

1. *Human remains* means the physical remains of a human body of a person of Native American ancestry. The term does not include remains or portions of remains that may reasonably be determined to have been freely given or naturally shed by the individual from whose body they were obtained, such as hair made into ropes or nets or individual teeth. For the purposes of determining cultural affiliation, human remains incorporated into a funerary object, sacred object, or object of cultural patrimony, as defined below, must be considered as part of that item (43 CFR 10.2(d)(1)).

2. *Funerary objects* means items that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed intentionally at the time of death or later with or near individual human remains. Funerary objects must be identified by a preponderance of the evidence as having been removed from a specific burial site of an individual affiliated with a particular Indian tribe or Native Hawaiian organization or as being related to specific individuals or families or to known human remains. The term burial site means any natural or prepared physical location, whether originally below, on, or above the surface of the earth, into which, as part of the death rite or ceremony of a culture, individual human remains were deposited, and includes rock cairns or pyres which do not fall within the ordinary definition of gravesite. For purposes of completing the summary requirements in §10.8 and the inventory requirements of §10.9 (43 CFR 10.2(d)(2)):

    (i) Associated funerary objects means those funerary objects for which the human remains with which they were placed intentionally are also in the possession or control of a museum or Federal agency. Associated funerary objects also means those funerary objects that were made exclusively for burial purposes or to contain human remains.

    (ii) Unassociated funerary objects means those funerary objects for which the human remains with which they were placed intentionally are not in the possession or control of a museum or Federal agency. Objects that were displayed with individual human remains as part of a death rite or ceremony of a culture and subsequently returned or distributed according to traditional custom to living descendants or other individuals are not considered unassociated funerary objects.

Typical funerary objects in prehistoric burials found in northern Nevada include, but are not limited to, arrowheads, basketry, olivella shell beads, abalone pendants, objects of deer antler or antelope horn, and incised bone objects.

3. *Sacred objects* means items that are specific ceremonial objects needed by traditional Native American religious leaders for the practice of traditional Native American religions by their present-day adherents. While many items, from ancient pottery sherds to arrowheads, might be imbued with sacredness in the eyes of an individual, these regulations are specifically limited to objects that were devoted to a traditional Native American religious ceremony or ritual and which have religious significance or function in the continued observance or renewal of such ceremony. The term traditional religious leader means a person who is recognized by members of an Indian tribe or Native Hawaiian organization as (43 CFR 10.2(d)(3)):

   (i) Being responsible for performing cultural duties relating to the ceremonial or religious traditions of that Indian tribe or Native Hawaiian organization, or

   (ii) Exercising a leadership role in an Indian tribe or Native Hawaiian organization based on the tribe or organization's cultural, ceremonial, or religious practices.

4. *Objects of cultural patrimony* means items having ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than property owned by an individual tribal or organization member. Similar to sacred objects, objects of cultural patrimony are rarely found within archaeological sites. These objects are of such central importance that they may not be alienated, appropriated, or conveyed by an individual tribal or organization member. Such objects must have been considered inalienable by the culturally affiliated Indian tribe or Native Hawaiian organization at the time the object was separated from the group. (43 CFR 10.2(d)(4)).

2) Specific information to determine custody:

In the event of the removal of NAGPRA material on federal lands the following specific information will be used to determine custody:

1. Information provided by a lineal descendant(s) that can trace his or her direct relationship, without interruption, between themselves and the deceased by means of the traditional kinship system of the appropriate Indian tribe (43 CFR 10.2(b)) and (43 CFR 10.14(b)).

2. Information provided by a Native American tribe, people or culture that is indigenous to the United States and that can establish cultural affiliation by means of a relationship of shared group identity which can reasonably be traced historically or prehistorically between members of a present day Indian tribe and an identifiable earlier group (25 USC 3001(9); 43 CFR 10.2(e) and 43 CFR 10.14(c)).

3. The federal agency official will determine cultural affiliation between a present-day individual or Indian tribe by a preponderance of evidence based on geographical, kinship, biological, archaeological, anthropological, linguistic, folkloric, oral traditional, historical, or other relevant information or expert opinion (25 USC 3005(7)(a)(4); 43 CFR 10.2(e); and 43 CFR 10.14(e)).

4. Priority order of custody of the cultural materials will be consistent with 43 CFR 10.6 (a) as follows:

    a. For human remains and associated funerary objects, in the lineal descendant of the deceased individual as determined pursuant to Sec. 10.14 (b);

    b. In cases where a lineal descendant cannot be ascertained or no claim is made, and with respect to unassociated funerary objects, sacred objects, and objects of cultural patrimony:

        i. In the Indian tribe on whose tribal land the cultural items were excavated;

        ii. In the Indian tribe that has the closest cultural affiliation with the cultural items as determined pursuant to Sec. 10.14 (c); or

        iii. In circumstances in which the cultural affiliation of the cultural items cannot be ascertained, the BLM is unable to prove a right of possession as defined at 43 CFR 10.10(a)(2), and the materials were excavated or removed from Federal land that is recognized by a final judgment of the Indian Claims Commission or the United States Court of Claims as the aboriginal land of an Indian tribe:

            1. In the Indian tribe aboriginally occupying the Federal land on which the cultural items were excavated, or

            2. If it can be shown by a preponderance of the evidence that a different Indian tribe has a stronger cultural relationship with the cultural items, in the Indian tribe that has the strongest demonstrated relationship with the objects.

The BLM intends to repatriate human remains and associated funerary objects when cultural affiliation can be determined.

3) Planned treatment, care, and handling of human remains:

All discovered remains shall be treated with respect and dignity. The BLM will provide the tribes an opportunity to examine remains prior to removal and to conduct traditional religious activities, if this is feasible without delay that would endanger the remains. While the BLM will provide the opportunity to view the remains prior to removal, the tribe(s) are responsible for their travel expenses to and from the location of the discovery.

The Next Era Genesis Ford Dry Lake Solar Project will avoid any unnecessary disturbance, physical modification or breakage of remains; or the transport, inventory or storage of human skeletal remains in locations separate from their associated funerary objects. Treatment will proceed according to the following provisions:

1. Representatives of the tribes shall have the opportunity to be present during the exposure and removal of remains whenever possible. If agreed upon by the BLM and the tribes, and if feasible, specific tribes may be designated to take the lead in initially responding to discoveries.

2. Remains will be excavated in accordance with the stipulations of the treatment plan approved under the terms of the project's Programmatic Agreement (PA) for compliance with Section 106 of the National Historic Preservation Act.

3. No destructive analyses of remains shall be permitted without the written permission from the BLM, and only after BLM has consulted with tribes regarding the planned treatment, care and handling of any recovered human remains, funerary objects, sacred objects, or objects of cultural patrimony.

4. Drawings of remains and the locations of associated funerary objects must be made, and may be published with BLM approval unless the claimants determine funerary objects are of a sensitive nature.

5. No pollen or flotation samples may be removed from burial pit fill dirt without the written permission of the BLM, and only after BLM has consulted with tribes regarding such removal.

6. Transportation of cultural items will be minimized under all circumstances and will be carefully packed to avoid disturbance or damage. Human remains may be packed separately from their associated funerary objects, but the containers will be kept together at all times.

7. Representatives of the tribes shall be afforded the opportunity to view all artifact collections and records resulting from the archaeological investigation in order to identify funerary objects, objects of cultural patrimony, or sacred objects. If such objects are identified, the BLM will be notified by the tribes and consultation will be initiated regarding their consistency with NAGPRA criteria for identification of these classes of objects and their treatment and disposition.

8. Next Era Genesis Ford Dry Lake Solar is responsible for ensuring the security of cultural items from vandalism or other disturbance through employment of security personnel, fencing, and other appropriate measures as needed. If human remains are endangered by exposure or other factors, Next Era Genesis Ford Dry Lake Solar's approved cultural resources/archaeological contractor may be authorized by the BLM to proceed with removal of the cultural items to their laboratory facility in order to protect the cultural items. Written notice of this action must be provided to the claimants and agencies within three (3) days of removal.

9. Next Era Genesis Ford Dry Lake Solar will not resume construction in the buffer area surrounding the discovery until it has received written authorization to proceed based on procedures established in the treatment plans as invoked by the PA. In addition, no news releases, including but not limited to photographs, videotapes, written articles, or other means of information, shall be released by any party unless approved by the BLM and tribes.

4) Planned archaeological recording of the human remains and cultural materials:

All cultural items, as defined in this Plan, will be appropriately recorded and described using current standards and following current archaeological practices and methods. The archaeological documentation of human remains will be limited to visually evident characteristics that indicate such things as age, gender, obvious pathologies, and any obvious visual traits that may help to indicate cultural affiliation. Funerary objects will be recorded at a descriptive non-invasive level including measurements, type, and morphology. If human remains and/or cultural items are removed from the site, a catalogue of these items will be maintained.

5) Analysis planned for the human remains and cultural materials:

Initially, only non-destructive analyses will be carried out on the human remains. These can include anthropometric analyses (measurements/weight) on human remains, mapping, drawing, measuring, weighing, and photo documentation. After consultation with tribes, other tests may be determined appropriate by the BLM.

Likewise, only non-destructive analyses will be carried out initially on the associated funerary objects, unassociated funerary objects, sacred items and objects of cultural patrimony. These can include measuring and weighing, drawing, mapping, photographing, x-raying, and x-ray fluorescence analysis. After consultation with the tribes, other tests may be authorized by the BLM.

6) Steps to be followed to contact Indian tribe officials at the time of intentional excavation:

In the event of a discovery, Next Era Genesis Ford Dry Lake Solar's approved cultural resources contractor/permittee will notify the BLM and the appropriate land managing agency within 24 hours and may be authorized to undertake limited additional excavation and examination to assess whether the materials are within the protected classes of remains covered by the PA.

A. A verbal description of what has been found and the context in which NAGPRA items are located;
B. The location of the NAGPRA items;
C. A preliminary assessment of the type of NAGPRA items;
D. An assessment of the complexity of the burial(s), human remains, and/or other NAGPRA items, and the likelihood of disturbance if left in place;
E. Any other pertinent information.

The BLM shall notify the tribes promptly after the initial discovery of items protected under NAGPRA and provide written confirmation by certified mail, or alternatively Express Mail, of the discovery within three working days (see Attachment A and B). This information to be provided to the Tribes will include:

A. A verbal and written description of what has been found and the context in which NAGPRA items are located;
B. The location of the NAGPRA items;
C. A preliminary assessment of the type of NAGPRA items;
D. An assessment of the complexity of the burial(s), human remains, and/or other NAGPRA items, and the likelihood of disturbance if left in place;
E. A request that the tribe(s) respond within 24 hours if the tribe(s) wish to view the remains or objects in place;
F. Any other pertinent information.

The BLM will additionally afford the tribes the opportunity to conduct field visits, viewings of the items in question, and conduct appropriate and reasonable ceremonies or rituals related to the items in question. The tribes are responsible for any costs to and from the discovery site.

7) Kind of traditional treatment to be afforded the human remains:

Tribes will be afforded the opportunity to examine the remains prior to and during removal unless the remains are in direct danger of further disturbance or destruction. Tribal representatives will be afforded the opportunity to perform traditional treatments as needed to the remains.

8) Nature of reports to be prepared:

A comprehensive report on the results of the archaeological investigation, including the recovery of cultural items, will be prepared and distributed in accordance with the terms of the aforementioned PA, developed in accordance with Section 106 of the National Historic Preservation Act.

9) Planned disposition of human remains pursuant to 43 CFR 10.6:

In the event that discovered NAGPRA items must be removed, then the BLM will determine, pursuant to 43 CFR 10.6, which Native American tribe will receive custody of the items. The BLM intends to repatriate human remains and associated funerary objects when cultural affiliation can be determined. The BLM shall provide notification of intent to transfer possession and subsequently return the items to the appropriate tribe within the limitations of 43 CFR 10.15.

Upon determination of a lineal descendant(s) or culturally affiliated tribe that, under federal regulations appear to be entitled to custody of the human remains, the agency official will transfer custody of the deceased to that lineal descendant or culturally affiliated tribe in accordance with 43 CFR 10.6(c).

Prior to any such disposition, the agency official will publish a general notice of the proposed disposition in three (3) separate newspapers of general circulation in the areas where interested tribes now reside. The notices will be published at least two (2) times at least a week a part, and the transfer will not take place until at least thirty (30) days after publication of the second notice to allow time for any additional claimants to come forward.

If additional claimants do come forward and the agency official cannot clearly determine which claimant is entitled to custody, the agency official will not transfer custody of the deceased until such time as the proper recipient is determined pursuant to regulations found at 43 CFR 10.

In the event the remains are of Native American descent, but are not claimed by any tribe within the geographical area, they will not leave the custody of the federal agency. Should custody of remains be transferred to claimant tribes under 10.6, the tribes may request reburial on BLM land. Reburial of NAGPRA items on lands administered by the BLM is subject to the provisions found in Instructional Memorandum No. 2007-002. The reburial locations will be determined through consultation with the tribes and any locational information will be kept confidential to the extent allowed by law.

10) The Role of Tribal Monitors During Survey and Excavation:

Individuals who are approved tribal monitors on the project may notify the Principal Investigator(s) of items they feel are funerary objects, sacred and/or objects of cultural patrimony. The Principal Investigator will notify the BLM within 24 hours that monitors have identified funerary objects, sacred, and/or objects of cultural patrimony. The report should include a description of the find(s), photograph(s) or drawing(s) were applicable, artifact(s) numbers or identification were applicable, and a description of the tribal monitor's opinion(s).

12) BLM personnel and Tribal representatives involved in this NAGPRA effort

As a result of tribal consultation, the following individuals have been identified that will be involved in this NAGPRA effort:

Agua Caliente Band of Cahuilla Indians, Augustine Band of Mission Indians, Cabazon Band of Mission Indians, Chemehuevi Indian Tribe, Cocopah Indian Tribe, Colorado River Indian

Tribes, Fort Mojave Indian Tribe, Fort Yuma Quechan Tribe, Morongo Band of Mission Indians, Ramona Band of Mission Indians, San Manuel Band of Mission Indians, Soboba Band of Luiseno Indians, Torres-Martinez Desert Cahuilla Indians, Twenty-Nine Palms Band of Mission Indians.

The names and addresses of the tribal members are in Attachment B.

Federal Officials

Jim Abbott, California State Director, (acting) Bureau of Land Management Date

Teri Raml, California Desert District Manager, Bureau of Land Management Date

Invited Signatories

_____
Date

_____
Date

_____
Date

_____
Date

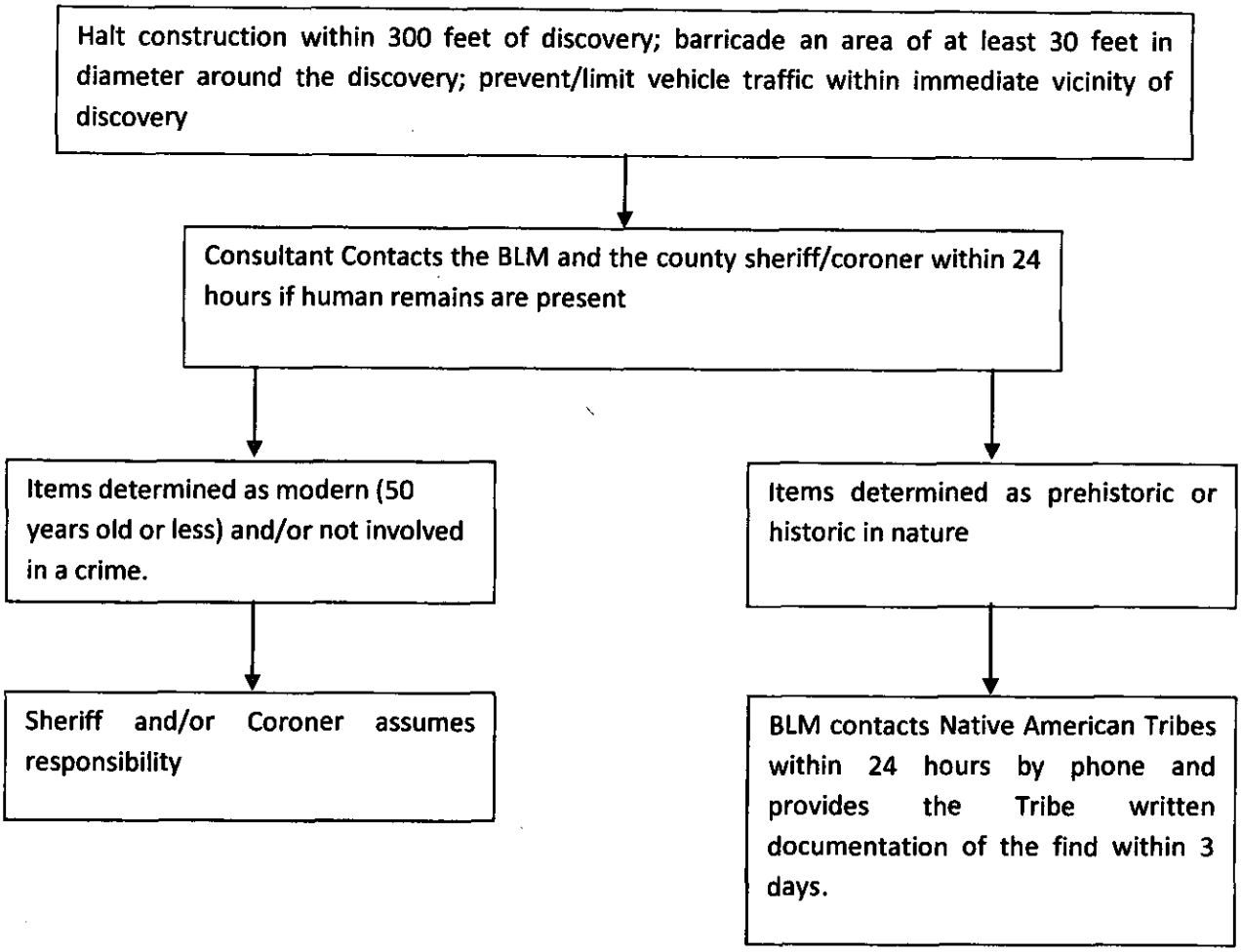
_____
Date

_____
Date

_____
Date

Attachment A

Upon The Discovery of Human Remains, Funerary Objects, Sacred Objects, Object of Cultural Patrimony



Attachment B

List of Native American Tribal Contacts

Contact	Tribe
Ms. Ann Brierty	San Manuel Band of Mission Indians
Mr. Michael Contrareas	Morongo Band of Mission Indians
Ms. Sherry Cordova	Cocopah Indian Tribe
Mr. Mike Darrell, Chairman	Twenty-Nine Palms Band of Mission Indians
Mr. Eldred Enas, Chairman	Colorado River Indian Tribes
Ms. Patricia Garcia-Tuck, THPO	Agua Caliente Band of Cahuilla Indians
Ms. Maryann Green, Chair	Augustine Band of Mission Indians
Mr. Manuel Hamilton, Chairman	Ramona Band of Mission Indians
Mr. Michael Jackson, Chairman	Fort Yuma Quechan Tribe
Mr. John James, Chairman	Cabazon Band of Mission Indians
Mr. Anthony Madrigal	San Manuel Band of Mission Indians
Mr. Anthony Madrigal Jr.	Twenty-Nine Palms Band of Mission Indians
Mr. Robert Martin, Chairman	Morongo Band of Mission Indians
Mr. Richard Milanovich, Chairman	Agua Caliente Band of Cahuilla Indians
Mr. Sean Milanovich	Agua Caliente Band of Cahuilla Indians
Mr. Scott Cozart, Chairman	Soboba Band of Luiseno Indians
Ms. Bridget Nash	Fort Yuma Quechan Tribe
Mr. Joe Ontiveros	Soboba Band of Luiseno Indians
Mr. James Ramos, Chairman	San Manuel Band of Mission Indians
Ms. Mary Resvaloso, Chair	Torres-Martinez Desert Cahuilla Indians
Mr. David Saldivar	Augustine Band of Mission Indians
Ms. Judy Stapp	Cabazon Band of Mission Indians
Mr. Timothy Williams, Chairman	Fort Mojave Indian Tribe
Mr. Charles Wood, Chairman	Chemehuevi Indian Tribe

EXHIBIT 516

COMMITTEE CONFERENCE

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	
Application for Certification for the Calico Solar (SES Solar One) Project, Genesis Solar Energy Project, Imperial Valley (SES Solar Two) Project, Solar Millennium Blythe Project, Solar Millennium Palen Project, and Solar Millennium Ridgecrest Project.	)	Docket Nos. 08-AFC-13, 09-AFC-8, 08-AFC-5, 09-AFC-6, 09-AFC-7, 09-AFC-9, and 10-CRD-1
	)	
Consolidated Hearing on Issues Concerning US Bureau of Land Management Cultural Resources Data	)	

CALIFORNIA ENERGY COMMISSION

HEARING ROOM A

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

WEDNESDAY, JUNE 9, 2010

2:30 p.m.

Reported by:
Peter Petty, CER**D-493
Contract No. 170-09-002

COMMITTEE MEMBERS PRESENT

Karen Douglas, Chair and Presiding Member

Robert B. Weisenmiller, Commissioner and Associate Member

HEARING OFFICER, ADVISORS PRESENT

Paul Kramer, Hearing Officer

Galen Lemei, Advisor to Chair and Presiding Member Douglas

Eileen Allen, Advisor to Commissioner and Associate Member Weisenmiller

STAFF AND CONSULTANTS PRESENT

Richard Ratliff, Staff Counsel

Terry O'Brien, Deputy Division Chief, Siting

Jennifer Jennings, Public Advisor

WITNESS

Beth Bagwell, Aspen Environmental Group

APPLICANT

Scott Galati, Galati & Blek LLP
Solar Millennium Projects

Ella Foley Gannon, Bingham McCutchen, LLP
Tessera Solar Projects

ALSO PRESENT FOR APPLICANTS

Angela Leiba, URS Corp

Rebecca Apple, AECOM

Meg Russell, NEXTera Energy

Alice Harron, Solar Millenium

Tricia Bernhardt, Tetra Tech for NEXTera

INTERVENOR CURE

Rachel E. Koss, Attorney
Adams Broadwell Joseph and Cardozo

Loulena A. Miles, Attorney
Adams Broadwell Joseph and Cardozo (Via Telephone)

WITNESS

Dr. David Whitley

INTERVENOR CARE

Michael Boyd, President

WITNESS

Alfredo Acosta Figueroa, Center for Biological Diversity

Lisa Belenky

GOVERNMENT

BLM

Vicky Campbell

Dr. Charlotte Hunter, State Historic Preservation Office (SHPO)

WITNESS

Milford Wayne Donaldson

ALSO PRESENT

Mavis Scanlon, California Energy Markets

Candace Ehringer, Environmental Science Associates

Betty Kim, Public

Don Decker, Public

Iara West, Public

Penelope LePome, Public

I N D E X

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1 P R O C E E D I N G S

2 2:30 p.m.

3 ASSOCIATE MEMBER WEISENMILLER: Good

4 afternoon. I'm Commissioner Weisenmiller.

5 To my left is our Chief Hearing Advisor, Paul

6 Kramer.

7 And all the way to the left is Galen Lemei,

8 Chair Douglas's advisor.

9 And to my right is Eileen Allen.

10 Thank you very much for your participation in

11 today's hearing.

12 We have called this special hearing to deal

13 with the issue of the U.S. Bureau of Land Management's

14 Cultural Resources Data and to answer the question of

15 access to that data.

16 And I want to make it clear that the

17 Committee takes this very seriously. We feel that our

18 obligations are certainly to protect the cultural

19 resources and part of that protection is ensuring

20 proper treatment of that data and access to it.

21 And at the same time, given our general

22 obligation under the Warren Alquist Act, we realize we

23 have to balance the need to have an open and

24 transparent process with the need to also maintain our

25 cordial relationship with the Bureau of Land Management

1 and to act in a responsible fashion with our federal
2 partner in this process.
3 So, with that, I'll turn this back to the
4 Hearing Advisor.
5 HEARING OFFICER KRAMER: Thank you, Dick.
6 Did you introduce Eileen as well?
7 ASSOCIATE MEMBER WEISENMILLER: Yes, I did.
8 HEARING OFFICER KRAMER: Okay. First, we
9 will introduce the parties, then. And this is a unique
10 case, relatively unique in that we've created a
11 separate docket to consider this but, in reality, the
12 parties come to us from six of our cases that are --
13 appear to us to be most potentially affected by this
14 issue.
15 So, in effect, the Siting Committee is acting
16 as the Committees for each of those cases, for the
17 limited purpose of discussing the issue that
18 Commissioner Weisenmiller just summarized.
19 And those are the Calico Solar Project, 08-
20 AFC-13, Genesis Solar Project, 09-AFC-8, Imperial
21 Valley, 08-AFC-5, Solar Millennium Blythe, 09-AFC-6,
22 Solar Millennium Palen, 09-AFC-7, and Solar Millennium
23 Ridgecrest, 09-AFC-9.
24 So, with that, let's go to introductions of
25 those of us that are here in the room and then we will

1 go to the folks on the telephone.
2 On the telephone, if you can mute your phone,
3 if you have a noisy background, that would be
4 appreciated. Although, I do have the capability of
5 muting you remotely here. So, for instance, you were
6 to put us on hold and we got music, which sometimes
7 happen, then I could take care of that.
8 But, please, still try to keep your noise
9 levels down to the lowest levels possible.
10 In the room, from staff, would you introduce
11 yourselves?
12 MR. RATLIFF: Dick Ratliff, Counsel for
13 Staff. With me is Terry O'Brien, the Deputy Division
14 Chief for Siting.
15 HEARING OFFICER KRAMER: And for CURE?
16 MS. KOSS: Good afternoon, Rachel Koss for
17 CURE. Also, on the telephone is Loulena Miles, counsel
18 for CURE in the Calico and Imperial Valley proceedings.
19 HEARING OFFICER KRAMER: Thank you. And you
20 have a witness, Mr. Whitley, he'll be on the phone as
21 well; right?
22 MS. KOSS: Correct.
23 HEARING OFFICER KRAMER: Mr. Whitley, are you
24 there on the telephone?
25 DR. WHITLEY: Yes, I am.

HEARING OFFICER KRAMER: Okay, thank you.

Mr. Galati, you're here representing which projects?

MR. GALATI: I'm representing NEXTera and Solar Millenium on the Genesis Project, Blythe, Palen and Ridgecrest.

HEARING OFFICER KRAMER: Okay, and next to you?

MS. FOLEY GANNON: Ella Foley Gannon, on behalf of Tessera Solar North America, with the Calico Solar Projects and Imperial Valley Solar Projects.

HEARING OFFICER KRAMER: Okay. Mr. Boyd, you were on the telephone, I heard?

MR. BOYD: Yeah, Mike Boyd, President of CARE, Californians for Renewable Energy.

HEARING OFFICER KRAMER: Thank you.

MR. BOYD: And we also have Alfredo Figueroa here, too, he'll be providing testimony along with me.

HEARING OFFICER KRAMER: From BLM, do we have representatives?

MS. CAMPBELL: Yes, we do, Vicky Campbell.

HEARING OFFICER KRAMER: Could you come to the microphone, just so you can be recorded and also heard on the telephone?

MS. CAMPBELL: Vicky Campbell, here for BLM.

1 HEARING OFFICER KRAMER: If you don't mind, I
2 think you're going to be participating enough that we
3 could certainly give you that empty seat there.
4 And those people are, in essence, parties,
5 BLM because, in one way, they've gotten us here by
6 filing objections to the release of information in the
7 Energy Commission process.
8 And then we have some other agencies who are
9 interested in, or at least we're interested in hearing
10 from them. One is the State Historic Preservation
11 Office. Mr. Donaldson, are you here? What's Wayne
12 Donaldson, for the record, he's in the audience.
13 And our Public Advisor, Jennifer Jennings, is
14 sitting back there, she just raised her hand.
15 And if any members of the public have
16 questions about how to participate in our proceedings,
17 she is the person to see, to give you advice about
18 that.
19 Not about how to conduct your case so much,
20 but about how to participate in our process.
21 I think we may also have a representative
22 from the -- is it the Quechan Tribe? Bridget Nash-
23 Chrabascz. Are you on the telephone?
24 Okay, I know she sent me an e-mail and was
25 going to be calling in, and she had some time

1 constraints, so perhaps she'll call in, in a few
2 minutes. We'll check back with her.
3 Do we have anybody else who considers
4 themselves a party and wants to introduce themselves at
5 this time?
6 MS. BELENKY: On the phone?
7 HEARING OFFICER KRAMER: Then who do we have
8 on the telephone?
9 MS. BELENKY: This is Lisa Belenky, from the
10 Center for Biological Diversity, and we're intervenors
11 in two of the matters, the Ridgecrest and the Genesis
12 matter.
13 HEARING OFFICER KRAMER: Okay. And as I
14 recall, your last name is spelled B-l-e-n-k --
15 MS. BELENKY: No.
16 HEARING OFFICER KRAMER: No, sorry, two Ls,
17 Bell --
18 MS. BELENKY: No. B-e-l-e-n-k-y.
19 HEARING OFFICER KRAMER: Oh, okay, I was
20 getting there.
21 MS. BELENKY: He was getting there. Thank
22 you.
23 HEARING OFFICER KRAMER: Anyone else on the
24 telephone?
25 MS. SCANLON: Mavis Scanlon, I'm with the

1 California Energy Markets, just following the
2 proceeding.
3 HEARING OFFICER KRAMER: And your first name
4 was?
5 MS. SCANLON: Mavis, M-a-v-i-s.
6 HEARING OFFICER KRAMER: Scanlon, okay.
7 MS. SCANLON: Right, thanks.
8 MS. LEIBA: And this is Angela Leiba, I'm
9 with URS Corporation, with the Imperial Valley Solar
10 and Calico Solar.
11 HEARING OFFICER KRAMER: Ma'am, your voice is
12 really low, can you speak up and repeat yourself?
13 MS. LEIBA: Sure. This Angela Leiba, with
14 URS Corporation.
15 HEARING OFFICER KRAMER: Okay. You're still
16 really low, Angela, but I got it that time.
17 MS. LEIBA: Okay.
18 HEARING OFFICER KRAMER: L-e-i-b-a, correct?
19 MS. LEIBA: Right.
20 HEARING OFFICER KRAMER: Okay. Anyone else
21 on the telephone?
22 MS. BAGWELL: Yeah, this is Beth Bagwell, I
23 work for Aspen and I've been the cultural resources
24 person for the Energy Commission for Genesis and, to
25 some degree, on some of the other nearby projects.

HEARING OFFICER KRAMER: Okay, I caught your last name as Bagwell, but not your first.

MS. BAGWELL: Bagwell, B-a-g-w-e-l-l, and Beth.

HEARING OFFICER KRAMER: Bette, B-e-t-t-e?

MS. BAGWELL: Beth Bagwell, B-e-t-h.

HEARING OFFICER KRAMER: Oh, Beth. Okay, thank you.

MS. APPLE: Rebecca Apple, with AECOM, cultural resource studies for the Solar Millenium Project and Imperial Valley Solar.

HEARING OFFICER KRAMER: And that was Rebecca. And was that Apple a singular or a plural?

MS. APPLE: Singular.

HEARING OFFICER KRAMER: Anyone else?

MS. EHRINGER: Candace Ehringer, with Environmental Science Associates.

HEARING OFFICER KRAMER: Was that Candace?

MS. EHRINGER: Candace.

HEARING OFFICER KRAMER: And could you spell your last name?

MS. EHRINGER: E-h-r-i-n-g-e-r.

HEARING OFFICER KRAMER: G-e-r?

MS. EHRINGER: Yes.

HEARING OFFICER KRAMER: Okay. You were

breaking up just a hair, but I got it.

Anyone else on the telephone?

MS. RUSSELL: This is Meg Russell, I'm with NEXTera Energy, the Genesis Project.

HEARING OFFICER KRAMER: Okay. Please spell your name again, I didn't catch most of it?

MS. RUSSELL: Sure. It's Meg, M-e-g, like Megan.

HEARING OFFICER KRAMER: Okay.

MS. RUSSELL: Russell, R-u-s-s-e-l-l.

HEARING OFFICER KRAMER: With NEXTera, okay.

MS. RUSSELL: Yes, thank you.

HEARING OFFICER KRAMER: Anyone else on the phone?

MS. HARRON: Yes, Alice Harron, H-a-r-r-o-n, of Solar Millenium.

HEARING OFFICER KRAMER: And it was Alice?

MS. HARRON: Yes.

HEARING OFFICER KRAMER: Okay.

MS. BERNHARDT: Tricia Bernhardt, representing NEXTera, I'm with Tetra Tech. Bernhardt is spelled B-e-r-n-h-a-r-d-t.

HEARING OFFICER KRAMER: And was it Patricia or Tricia?

MS. BERNHARDT: Just Tricia.

HEARING OFFICER KRAMER: Just Tricia, thank you.

MS. BERNHARDT: Thank you.

HEARING OFFICER KRAMER: More?

MR. WEST: Yes, Ira West.

HEARING OFFICER KRAMER: Okay. Anyone else?

MS. KIM: Betty Kim.

HEARING OFFICER KRAMER: Okay, Betty, your last name?

MS. KIM: K-i-m.

HEARING OFFICER KRAMER: Okay. Any affiliation we should note?

MS. KIM: No, actually, I just received this notice regarding this hearing, and asking if I would like to join the hearing, and I just wanted to listen in on what's going on.

HEARING OFFICER KRAMER: Okay. Well, welcome.

MS. KIM: Thank you.

HEARING OFFICER KRAMER: Anyone else?

MR. DECKER: This is Don Decker.

HEARING OFFICER KRAMER: And did you say John or Tom?

MR. DECKER: It's Don, D-o-n.

HEARING OFFICER KRAMER: Don, got it.

1 MR. DECKER: D-e-c-k-e-r.
2 HEARING OFFICER KRAMER: Thank you.
3 MS. LE POME: Penelope LePome, just a
4 citizen.
5 HEARING OFFICER KRAMER: If you'd like me to
6 spell your name correctly in the transcript, you'll
7 have to do it?
8 MS. LE POME: All right. L-e-P-o-m-e.
9 HEARING OFFICER KRAMER: Thank you. Okay,
10 did I miss anyone? Anyone else?
11 DR. HUNTER: Charlotte Hunter, I'm with the
12 BLM, but I'm currently in Santa Fe.
13 HEARING OFFICER KRAMER: Okay. Okay, well,
14 do we have others?
15 MR. FIGUEROA: Yes, this is Alfredo Acosta
16 Figueroa. I'm the Tribal State site monitor from
17 Blythe, California.
18 HEARING OFFICER KRAMER: That's Alfredo
19 Figueroa?
20 MR. FIGUEROA: Yes.
21 HEARING OFFICER KRAMER: Okay, yes, we got
22 you.
23 MR. FIGUEROA: Okay.
24 HEARING OFFICER KRAMER: Mr. Boyd introduced
25 you already.

1 MR. FIGUEROA: Okay, that's fine, I just
2 wanted to make sure.
3 HEARING OFFICER KRAMER: Yeah, okay. Well,
4 it sounds like we have a lot of visitors today.
5 Bridgit Nash-Chrabascz, did you come online,
6 yet?
7 HEARING OFFICER KRAMER: All right. Well, we
8 can catch some other names later, as people speak.
9 I'll note that our Chairman, Commissioner
10 Douglas, has joined us, so we have a complete Siting
11 Committee here to hear all the arguments and eventually
12 make a decision.
13 Did you want to say anything?
14 PRESIDING MEMBER DOUGLAS: I'd just like to
15 briefly welcome everybody here, the participants in
16 this proceeding and those who are just hear to observe
17 or just here to listen in.
18 We hope to take in sufficient information,
19 both evidence, argument, policy argument in this
20 hearing to be able to make an expeditious decision,
21 because the Committee believes it's important for us to
22 resolve these issues quickly, going forward.
23 HEARING OFFICER KRAMER: Okay. Well, with
24 that, I passed around an exhibit list, which was
25 derived from the exhibits that were submitted from e-

1 mail -- via e-mail last week, by the deadline we had
2 set.
3 Is any part intending to object to the
4 admission of any of these documents into evidence?
5 That would include the folks on the
6 telephone.
7 MR. BOYD: CARE has no objection.
8 HEARING OFFICER KRAMER: Did you say you do
9 have an objection?
10 MR. BOYD: No, I said CARE has no objection
11 to it being submitted.
12 HEARING OFFICER KRAMER: CURE, you're the
13 last one.
14 MS. KOSS: CURE has no objection.
15 HEARING OFFICER KRAMER: Okay. Well, with
16 that, then, we will enter the 15 exhibits by, in
17 effect, the stipulation of the parties, and we can move
18 on.
19 And also, perhaps, to focus and eliminate
20 some discussion, let me ask if any party believes that
21 the cultural resources data that we're talking about in
22 any of the six siting cases should not be given
23 confidential status and protected from release to the
24 general public.
25 If nobody is disputing that point, then we --

1 you know, we won't need to spend a lot of time talking
2 about the details of the data, except as it informs our
3 discussion of how or if it should be released.
4 So, do I hear any objection to that core
5 concept, that it should be confidential and protected
6 from release to the general public?
7 Seeing and hearing none -- let me also note,
8 then, by way of background, that so far we have data
9 that was released or we have requests filed for release
10 of data in five of the cases, and those are Imperial
11 Valley, where the data was released to CURE.
12 Genesis, which the Committee is treating as
13 having the release approved by the Chief Counsel's
14 Office, but then under appeal by the BLM, the release
15 that is, and that's the same for Imperial Valley, that
16 the BLM has requested that the Commission reconsider
17 the release of that data.
18 And then we have pending requests from CURE,
19 that have not been decided in any sort of preliminary
20 or final way in the cases of Calico, Blythe, and Palen.
21 Am I missing any requests on that list, that
22 people are aware of?
23 DR. HUNTER: Ridgecrest?
24 HEARING OFFICER KRAMER: Oh, okay, and
25 Ridgecrest from whom; CURE?

1 Okay, so, ma'am, please give us your name and
2 do you know who made the request in Ridgecrest?
3 DR. HUNTER: This is Charlotte Hunter. In
4 the original list that you read out, you had Calico,
5 Genesis, Imperial, Blythe, Palen and Ridgecrest.
6 HEARING OFFICER KRAMER: Oh, but are you
7 aware of a specific request for the data in Ridgecrest,
8 or just that that --
9 DR. HUNTER: No one.
10 HEARING OFFICER KRAMER: No?
11 DR. HUNTER: I was just going by your list.
12 HEARING OFFICER KRAMER: Oh, okay. No, it is
13 the -- could be the case that one of the cases I named
14 as one of the six does not have a data request in it,
15 yet, but because we were expecting one, we wanted to
16 wrap all those parties into this discussion.
17 DR. HUNTER: Okay.
18 HEARING OFFICER KRAMER: Because the point of
19 this consolidated proceeding is so that we don't have
20 to have this discussion six times -- well, five times
21 and maybe six, and maybe more if several parties make
22 requests.
23 So, it sounds like my list was correct as of
24 today and that the five cases had requests made. And
25 Ridgecrest, I suppose, is the one of the six that has

1 not yet had one.
2 MR. GALATI: Yes, I can confirm, as counsel
3 for Ridgecrest, I have not been served or seen a
4 petition for inspection, a copying, or a data request
5 relating to the confidential cultural material.
6 HEARING OFFICER KRAMER: Okay.
7 MS. KOSS: Hearing Officer Kramer, I hate to
8 interrupt and rush things, we are quickly running out
9 of time for Dr. Whitley.
10 HEARING OFFICER KRAMER: Oh, you're correct.
11 MS. KOSS: And if the Commission has any
12 questions for him, perhaps we could do that now and
13 then return.
14 HEARING OFFICER KRAMER: Yes, thank you for
15 the reminder.
16 Mr. Galati, you were the one party that
17 indicated to me that you wanted to ask some questions
18 of CURE's witness, Mr. Whitley.
19 MR. GALATI: Yeah, would now be appropriate
20 or is there direct testimony?
21 HEARING OFFICER KRAMER: I don't believe
22 there was any direct testimony intended, was there?
23 MS. KOSS: The order said no direct
24 testimony. I would be happy to introduce the witness.
25 We literally have one minute.

1 May I ask Dr. Whitley if he's going to be
2 available later, perhaps he can call back in after his
3 prior commitment.
4 Dr. Whitley, do you know how long your prior
5 commitment will last?
6 DR. WHITLEY: Well, it's scheduled from 3:00
7 to 4:00, but so I can certainly call in after 4:00. It
8 may not take that long, I'm not sure how long you will
9 be here in session.
10 I'd be glad to call back as soon as I'm done
11 with that conference call.
12 MS. KOSS: Is that acceptable to the
13 Commission?
14 HEARING OFFICER KRAMER: We're guessing we'll
15 probably be here still at 4:00 and maybe sooner, if he
16 --
17 MR. GALATI: If I'm the only one that has any
18 questions for this witness, I can probably pare it down
19 to a minute, if he has one minute.
20 DR. WHITLEY: Yeah, I'm delaying on moving to
21 the next one so I'm not signing off right at this
22 instant.
23 HEARING OFFICER KRAMER: Oh, okay. So, how
24 much time do you have, five minutes?
25 DR. WHITLEY: Five to ten minutes.

1 HEARING OFFICER KRAMER: Okay, could we have
2 a one-minute summary of his testimony and then Mr.
3 Galati can ask his questions?
4 And we need to have you sworn in. So, if you
5 would stand and raise your right hand, our court
6 reporter will swear you in. Or sit and raise your
7 right hand.
8 THE REPORTER: This is the court reporter, I
9 hope you can hear me. I'm a notary for the State of
10 California and I'd just ask you to raise your right
11 hand?
12 Whereupon,
13 DR. DAVID WHITLEY
14 was called as a witness herein and, having been first
15 duly sworn, was examined and testified as follows:
16 THE REPORTER: Would you please state and
17 spell your name for the record?
18 DR. WHITLEY: Dr. David Whitley, W-h-i-t-l-e-
19 y.
20 THE REPORTER: Thank you, sir.
21 HEARING OFFICER KRAMER: Please, go ahead.
22 MS. KOSS: Dr. Whitley, whose testimony are
23 you sponsoring today?
24 DR. WHITLEY: My declaration, with the
25 attached CHRIS Access agreement.

1 MS. KOSS: And do you have any changes to
2 your sworn testimony?
3 DR. WHITLEY: Yes, I would like to add the
4 following statement. Not only has the BLM shared its
5 site locational information and technical reports with
6 the CHRIS System for decades, but it has already shared
7 at least the site records and maps from this project
8 with the Riverside Information Center, which is the
9 local clearinghouse for archeological information
10 within the CHRIS System.
11 This was necessary, in fact, to attain the
12 site trinomial designations that are used to label and
13 discuss the site in the draft EIS/draft EIR.
14 MS. KOSS: Dr. Whitley, for clarification are
15 you referring specifically to the Genesis Project?
16 DR. WHITLEY: Correct, I am.
17 MS. KOSS: Thank you. Are the opinions in
18 your testimony your own?
19 DR. WHITLEY: Yes, they are.
20 MS. KOSS: Could you please summarize your
21 qualifications, education and professional experience?
22 DR. WHITLEY: I received --
23 HEARING OFFICER KRAMER: We might be able to
24 skip that step. Does anybody wish to dispute his
25 qualifications to testify?

1 MR. GALATI: No.
2 HEARING OFFICER KRAMER: Seeing or hearing
3 none, go ahead.
4 MS. KOSS: Okay, Dr. Whitley, please provide
5 a summary of your direct testimony?
6 DR. WHITLEY: The purpose of the CURE's
7 request for these documents is to facilitate peer
8 review by professional archaeologists. Professional
9 peer review is a cornerstone of science and it is
10 necessary to ensure that CEQA's objectives, that
11 significant impacts to the environment be fully
12 disclosed, adequately analyzed and properly mitigated.
13 BLM's prohibition of the release of the
14 cultural resource documents is unprecedented and
15 extreme and it violates long-standing professional
16 guidelines and practice.
17 Distribution of archeological technical
18 reports to professionals in the field is common
19 practice, in fact including by the BLM. And while
20 regulations prevent the dissemination of sensitive
21 archeological information to the general public, the
22 California Office of Historic Preservation, CHRIS
23 System, California Historic Resources Information
24 System provides access to and use of this information
25 by professional archaeologists and has done so for

1 almost a half a century.
2 The BLM has shared it's sensitive site
3 location information with the CHRIS System for decades
4 and it has already, in fact, done so in the current
5 circumstance.
6 The point, then, is that the BLM's current
7 stance represents a major change in BLM policy and
8 practice.
9 MS. KOSS: Thank you, Dr. Whitley. The
10 witness is available for cross-examination.
11 HEARING OFFICER KRAMER: Mr. Galati?
12 MR. GALATI: Yes. Dr. Whitley, hello. Are
13 you a lawyer?
14 DR. WHITLEY: No, I am not. I am a
15 practicing archeologist and have been so for over 30
16 years.
17 MR. GALATI: Okay. With regard to your
18 assertion on the legal requirements of CEQA, would you
19 defer to the legal opinion of a CEQA lawyer over your
20 own?
21 DR. WHITLEY: In terms of a comparison
22 between the CEQA process and the NEPA process?
23 MR. GALATI: No, in terms of what the legal
24 requirements are for disclosure for CEQA?
25 DR. WHITLEY: Well, I mean, I know what the

1 disclosure requirements are. I'm not sure that an
2 attorney would necessarily understand them. It would
3 depend on what the attorney's opinion happened to be.
4 Having worked under CEQA applications for 30 years and
5 seen how it's practiced, I would want to -- you know, I
6 wouldn't want to give a blanket deferral to a CEQA
7 attorney on that point.
8 In fact, I'm consulted by attorneys
9 frequently with respect to cultural resource issues and
10 controversies because implementation of CEQA varies
11 and, you know, is not necessarily clearly defined in
12 the statutes and regulations.
13 MR. GALATI: Well, maybe in another
14 proceeding I would have enough time to dissect that,
15 but I think I'll suffice it to say that you will not
16 defer to a legal attorney.
17 DR. WHITLEY: It depends on the attorney's
18 opinion and statement.
19 MR. GALATI: Okay, I cannot set up this
20 hypothetical appropriately in the amount of time given,
21 so I will move to have you reviewed the Genesis staff
22 assessment draft EIS?
23 DR. WHITLEY: This is the California Energy
24 Commission's staff assessment?
25 MR. GALATI: Yes, for the Genesis Project?

1 DR. WHITLEY: Yes, I have.
2 MR. GALATI: And have you reviewed the staff
3 report that was labeled Status Report Number 3?
4 DR. WHITLEY: I have reviewed a document
5 labeled C.3, dated March 2010. I'm not aware of a
6 status report beyond that.
7 MR. GALATI: Okay. Just to possibly refresh
8 your memory, it was a status report that was filed,
9 that had proposed mitigation or condition approach in
10 the Genesis Project presented at a status report --
11 excuse me, a status conference in late May?
12 DR. WHITLEY: That, I have not seen.
13 MR. GALATI: Okay. With respect to the
14 Genesis cultural resource material in the staff
15 assessment draft EIS, would you describe the -- as a
16 robust characterization of the cultural resources found
17 on the site?
18 DR. WHITLEY: Are you -- you're talking about
19 the draft EIS, let me make sure I get this correct?
20 MR. GALATI: That's correct.
21 DR. WHITLEY: Not the California Energy
22 Commission staff testimony?
23 MR. GALATI: In the --
24 DR. WHITLEY: That was dated March 2010?
25 MR. GALATI: The specific document is called

1 "The Staff Assessment and Environmental Impact
2 Statement for the Genesis Solar Energy Project," and it
3 is docked on March 26th, of 2010.
4 DR. WHITLEY: Yes.
5 MR. GALATI: Have you reviewed that document?
6 DR. WHITLEY: I believe I have. And if
7 you're asking me if I think that is a robust document,
8 it depends on whether we're talking about CEQA
9 compliance or National Historic Preservation Act, NEPA,
10 compliance. Because the point is that the two differ
11 in terms of implementation procedures and requirements.
12 MR. GALATI: Is the document sufficient for
13 you to determine whether the resources may be
14 historically significant and worthy of protection?
15 DR. WHITLEY: No, in fact it's not. And if
16 you look to the document that I've referred to, C.3,
17 page 122, you'll see that the staff conclusion is that,
18 in fact, the information available relative to the site
19 is insufficient on a variety of levels.
20 I can quote you that, if you'd be interested
21 in hearing it.
22 MR. GALATI: What page number?
23 DR. WHITLEY: It's 122. Staff had
24 insufficient information to make a determination on the
25 NRHD or CRHR eligibility of these seven resources,

1 that's seven out of eight.
2 MR. GALATI: That's correct. And did you
3 read -- or you didn't read the staff report from, I
4 believe, March -- or May 27th. But would it surprise
5 you that staff's approach is to presume that every
6 resource identified in this document would be deemed to
7 be potentially historically significant for CEQA
8 purposes?
9 DR. WHITLEY: No. No, I'm aware of that and
10 that is exactly the problem. The problem is that in
11 CEQA implementation, in every project I've been
12 involved in, under any jurisdiction, for the last two
13 to three decades, you can only assume significance if
14 you're going to preserve the resource.
15 The problem here is the concept of
16 significance has a variety of levels of value. A
17 small, prehistoric campsite may well be prehistorically
18 significant, but it has a different level of
19 significance than a very large village site that has a
20 cemetery of 300 or 400 people.
21 So, the issue here is assuming it's
22 significant and saying, well, we'll sort it out at the
23 back end of the process, results in projects like Playa
24 Vista and Playa del Rey, an Army Corps project, where
25 following NEPA and NHPA, they knew there was an

1 archeological site there, they didn't do adequate work
2 to fully assess it under CEQA and the result is that
3 they spent about $20 million and excavated well over
4 300 historical Native American burials in order to
5 create an artificial wetland.
6 So, I'm entirely aware of this assumption of
7 significance. The problem is, under CEQA, that's not
8 good enough.
9 MR. GALATI: And again, I would make a motion
10 to strike the last sentence about what is good enough
11 under CEQA. That is a legal determination and he is
12 not qualified to testify to that.
13 HEARING OFFICER KRAMER: Well, we understand
14 he's just giving us legal advice, so we'll leave it in
15 but take it for what it's worth.
16 DR. WHITLEY: Yeah. No, I'm talking
17 archeological practicality and implementation of CEQA,
18 in fact. I'm not pretending to be an attorney. I'm
19 pretending to provide advice to keep projects out of
20 trouble, frankly.
21 MR. GALATI: So, you believe that assuming
22 that all of the resources are significant and heading
23 towards a mitigation program is not conservative
24 treatment?
25 DR. WHITLEY: No. It's a one-size-fits-all

1 approach and it assumes -- again, a small, prehistoric
2 campsite that may only have a hundred artifacts has the
3 same significance as a major village that may have a
4 cemetery and religious values to Native Americans.
5 Now, let me point out that in fact -- and
6 this is a flaw under the National Historic Preservation
7 Act process, that when significance is determined,
8 which is determined by reference to eligibility to the
9 National Register of Historic places, that means that,
10 you know, if such a determination is made then there's
11 a potential for an adverse affect.
12 But when you actually get to a National
13 Register of Historic Places listing, they recognize
14 that cultural resources have different levels of
15 significance, which range from local, to statewide, to
16 national.
17 And if you have a cultural resource with a
18 national level of significance, it's a very different
19 game than if you have one that's just local.
20 CEQA recognizes the need to identify each
21 potential adverse affect and to provide mitigation
22 measures that are appropriate and adequate for that
23 particular impact. That's the difference here.
24 MR. GALATI: But isn't it possible to group
25 types of sites that are similar and treat them with

similar mitigation?

DR. WHITLEY: If you know that, in fact, if you have positively affirmed that they are similar through phase two test excavation and determination of significance, as it's labeled under CEQA or, alternatively, under the NHPA process, if you evaluated the sites, which is the same thing, test excavating them and positively affirms that they are similar.

The point here is if we knew what was a site represented by just walking over and looking at it, we wouldn't have to test excavate, we wouldn't have to excavate things. We don't know. And that's why archaeologists dig things, quite simply.

MR. GALATI: But you don't dig everything; correct?

DR. WHITLEY: You dig a representative sample, that's correct.

MR. GALATI: That's right, so it is possible to exclude from further testing and digging, so to speak, from information that you've collected from the surface; is that correct?

DR. WHITLEY: We're talking about digging versus surface information. I'm not clear on the point or your question, I guess.

MR. GALATI: The question is, is it or is it

1 not possible, based on surface information and
2 literature research, to exclude from further digging
3 requirements cultural resources that may have been
4 found on a site?
5 DR. WHITLEY: No.
6 MR. GALATI: I don't have any further
7 questions.
8 DR. WHITLEY: No, absolutely not. I mean, in
9 some cases you can make a guesstimate and you may or
10 may not be right. In other cases, you can really mess
11 up by doing exactly that. I mean, you can't tell
12 whether there's a subsurface archeological deposit.
13 Certainly, you couldn't prove it in a court of law by
14 saying, well, I looked at it and it didn't look like
15 there was one there to me.
16 MR. GALATI: Okay. So, if I could summarize,
17 and if I summarize this incorrectly, please correct me.
18 Is your contention that you need the information or is
19 your contention that the projects in front of the
20 Energy Commission, such as Genesis, must undertake
21 phase two testing before the Energy Commission can
22 conclude its CEQA analysis?
23 DR. WHITLEY: Well, we're talking -- I think
24 the purpose of this testimony and inquiry hearing is to
25 determine whether the information contained in the

1 technical reports should be released to other
2 professional archaeologists for peer review.
3 And my first reaction is before we even get
4 to that point, to the point of discussing whether test
5 excavations are necessary for CEQA review, first we've
6 got to be able to look at the technical reports and
7 make an assessment of them.
8 At this point, based on California Energy
9 Commission's staff assessment of the records in the
10 technical report, there's no indication to me that
11 those reports, themselves, are adequate, but I've got
12 to look at them to see.
13 MR. GALATI: So, you cannot tell from the
14 staff assessment draft EIS which areas you would
15 recommend for additional testing?
16 DR. WHITLEY: That's a very different
17 question. At this point, I -- well, you know, to put
18 it simply, no, without the site records in front of me,
19 without those records and the opportunity to evaluate
20 what was seen on each cultural resource in detail, I
21 couldn't make that -- I couldn't begin to make that
22 assessment.
23 MR. GALATI: I have no further questions.
24 HEARING OFFICER KRAMER: Does any other party
25 have questions?

1 MR. BOYD: This is Mr. Boyd, I have a
2 question.
3 MR. RATLIFF: Mr. Kramer, I do.
4 HEARING OFFICER KRAMER: Okay. Mr. Boyd,
5 let's let Mr. Ratliff go first.
6 MR. RATLIFF: These aren't intended so much
7 as cross-examination but, rather, a request that the
8 witness share his expertise with us. In his changes to
9 his testimony he stated that this is a great departure
10 from BLM practice in terms of sharing information and I
11 would like, if he would, to explain to us what the
12 normal procedure for the sharing of information is when
13 BLM has this kind of information?
14 DR. WHITLEY: Yes. Well, normally, if you
15 are a professional archeologist that meet the Secretary
16 of the Interior's standards and guidelines, you are
17 allowed full access to all archeological information.
18 The CHRIS System, which is our state site
19 inventory system, is set up and established precisely
20 so that archaeologists can share information to conduct
21 projects that are adequate, regardless of whether
22 you're talking about CEQA or NEPA, archaeologists have
23 to be able to access that data.
24 For example, it's important to see what an
25 archeologist might have found on an adjacent property,

1 if you're doing a study, so it would give you some
2 sense of what to expect in your particular case.
3 Quite frankly, this is entirely
4 unprecedented. I've not only never seen this before,
5 it's something that I can't imagine an agency
6 promoting. It's entirely contrary to everything I've
7 seen in my entire career.
8 So, it's a truly remarkable move and I can't
9 understand why. Well, for example, I mean one of the
10 protections of archeological information from
11 dissemination to the general public is specified in the
12 Archeological Resources Protection Act.
13 When I get an -- or ARPA, as it's called.
14 When I get an ARPA permit, I have to agree to keep that
15 information confidential from the general public.
16 Well, I, in fact, have an ARPA permit. I've
17 signed a document stating that I -- and I've signed
18 one, also, with CHRIS. So, normally, these things are
19 not debated, access to them is allowed.
20 And, of course, peer review of any document
21 that is to be used for a decision making process, in
22 this case these technical reports is standard operating
23 procedure.
24 MR. RATLIFF: So, if I understand you, then,
25 there is something that BLM has said that makes you

1 think that they are departing from that process. Can
2 you tell us what that is?
3 DR. WHITLEY: Well, their request that you
4 return the technical reports and their refusal to
5 release the technical report to professional
6 archaeologists that have signed confidentiality
7 agreements with the CHRIS system, and who hold ARPA
8 permits, BLM ARPA permits, which guarantee that we
9 won't disseminate information to the general public.
10 MR. RATLIFF: What makes you say that they
11 have denied you access to that information?
12 DR. WHITLEY: CURE asked for copies of the
13 technical -- I mean, that's the point of this hearing.
14 And the BLM asked that the reports, in fact, not be
15 distributed, and this is a hearing to determine if
16 that's --
17 MR. RATLIFF: Well, this is a hearing to
18 determine, I believe, how the Energy Commission will
19 deal with that data.
20 DR. WHITLEY: Correct.
21 MR. RATLIFF: But I'm not certain the
22 question of how BLM is going to disseminate the data
23 has been answered. Am I incorrect about that?
24 DR. WHITLEY: I'm not following you with that
25 question.

1 MR. RATLIFF: Well, have you requested
2 documents from BLM, that they have denied you, with
3 regard to these archeological ruins?
4 DR. WHITLEY: No, I have not. The requests
5 were made by CURE.
6 MR. RATLIFF: Okay. And does the federal
7 government have a process through which they
8 disseminate that material to cooperating parties, which
9 CURE is -- CURE does have that status.
10 DR. WHITLEY: Well, normally, it is provided
11 for peer review.
12 MR. RATLIFF: I mean, and at some point is it
13 possible that BLM is going to give you that data, when
14 it's been put in the form that BLM would normally do?
15 I mean, what is it that's so apparent that there's a
16 departure from the normal process here?
17 DR. WHITLEY: Well, normally, I would have
18 had these technical reports on my desk shortly after
19 asking for them.
20 MR. RATLIFF: Now, is this the -- when you
21 say "these technical reports," do you mean the reports
22 that are done in the field by a consultant --
23 DR. WHITLEY: Correct.
24 MR. RATLIFF: -- or do you mean the reports
25 that are actually put together by BLM, subsequently?

1 DR. WHITLEY: Correct, these are the
2 technical archeological studies prepared by
3 consultants.
4 MR. RATLIFF: So, you would normally have
5 access to all consultant data that is developed in the
6 course of the initial cataloguing of the artifacts that
7 are found on a site?
8 DR. WHITLEY: Well, yes. I mean, he
9 consultants are required to prepare a technical report
10 which, in the case of archeological resources,
11 constitutes a confidential component of an EIS or EIR.
12 And that is required to prepare the EIS/EIR.
13 So, it is those reports that I'm talking
14 about, inventory reports, survey reports, and if there
15 are any test excavation reports.
16 MR. RATLIFF: Well, this is interesting to me
17 and I'm not disputing your authority on this, but BLM
18 says that it is not the case, that they would not give
19 you the raw field reports that were compiled by
20 consultants, that they would give you a more refined
21 version that they have finished, themselves, and that
22 would be provided, presumably, after it has been
23 produced.
24 Are you saying that is incorrect and you
25 would normally have basically unfettered access that's

1 produced by anyone with regard to the artifacts on the
2 -- that were collected on BLM land?
3 DR. WHITLEY: Yeah, I think there's a point
4 of confusion here between raw data and technical
5 reports.
6 The BLM does not prepare the technical
7 reports, the consultants do. We are required to
8 prepare a report that is submitted and reviewed by the
9 BLM and is used as a confidential, but still supporting
10 document of a draft EIS/draft EIR.
11 That report includes the basic data, which
12 are site records, site location maps, analyses of
13 those, et cetera. And it's upon those reports that
14 decisions are made for the draft EIS/EIR.
15 So, it's those reports that normally I would
16 -- I would expect to be distributed.
17 MR. RATLIFF: Now, just to be clear, are you
18 talking about reports that have been put together by
19 consultants or are you talking about reports that have
20 been put together by BLM based on those consultant
21 reports?
22 DR. WHITLEY: The consultants' reports.
23 MR. RATLIFF: So, you're saying then that you
24 have access to all the information?
25 DR. WHITLEY: That is correct.

1 MR. RATLIFF: And that's under your ARPA
2 permit?
3 DR. WHITLEY: The ARPA permit constrains me
4 from providing confidential site location data to the
5 general public. The ARPA permit doesn't -- frankly, it
6 doesn't address this issue because it's so
7 extraordinary.
8 But as soon as those reports are filed with
9 the CHRIS System, then I will have full access to them.
10 It appears that may be after the comment and review
11 process has occurred for the draft EIS/EIR.
12 MR. RATLIFF: Right. And is that then --
13 that final point that you just made, is that then the
14 objectionable part of the timing of when you would have
15 access to the information?
16 DR. WHITLEY: Absolutely, that is the crux of
17 the matter. If there is to be public comment and input
18 on any kind of environmental review process, then it
19 needs to occur before the record of decision or the EIR
20 certification is made.
21 Absent that ability, then I think, you know,
22 environmental compliance has not been adequately
23 achieved.
24 MR. RATLIFF: Now, one further question about
25 the CHRIS System, any person who has the qualifications

1 that you have, has access to that system, is that what
2 you told us?
3 DR. WHITLEY: Correct. But following the
4 signing an access and confidentiality agreements.
5 HEARING OFFICER KRAMER: And access to that
6 system would give you access to the precise locational
7 data of artifacts?
8 DR. WHITLEY: Absolutely, that is correct.
9 MR. RATLIFF: Okay. Thank you.
10 HEARING OFFICER KRAMER: Mr. Boyd?
11 MR. BOYD: Okay, I have a question about the
12 tribal involvement in the process. And my question is
13 you brought up NEPA, isn't there a NEPA requirement,
14 and I'm asking you based on your experience, not on
15 your legal knowledge, in your experience is there any
16 duty, as part of the NEPA analysis for the United
17 States, in this case BLM, to conduct a government
18 consultant with the effects on the data being released
19 as part of the environmental review process?
20 DR. WHITLEY: Is that question being
21 addressed to me?
22 HEARING OFFICER KRAMER: Yes.
23 DR. WHITLEY: Tribal -- government to
24 government tribal consultation is required in the
25 Section 106 process, which is part of the National

1 Historic Preservation Act.
2 I'm sorry, but I am 20 minutes late on my
3 next conference call.
4 MR. BOYD: Okay, I've got one question. Do
5 you have -- do you know if they've conducted that, yet?
6 And if they've conducted it, would it be appropriate
7 for you to get the information after they conducted
8 that consultation?
9 DR. WHITLEY: I believe that they have, but
10 that would be better asked of a project proponent, the
11 consultant for the applicant.
12 HEARING OFFICER KRAMER: Okay.
13 Mr. Whitley --
14 MR. BOYD: Okay, thanks.
15 HEARING OFFICER KRAMER: -- thank you for
16 testifying. Could you call us back when your next
17 meeting ends?
18 DR. WHITLEY: I will. I'll definitely do
19 that.
20 HEARING OFFICER KRAMER: The Committee has a
21 few more questions for you, but we realize you've given
22 us more of your time than you'd hoped to before the
23 meeting, and we'll wait to hear from you afterwards.
24 Thank you.
25 DR. WHITLEY: Great. Thank you. Bye-bye.

1 HEARING OFFICER KRAMER: Were you trying to
2 say something, Mr. Boyd?
3 MR. BOYD: No, I'm muted off, I can't say
4 anything.
5 HEARING OFFICER KRAMER: Okay. Well, then
6 back to our -- well, let me check one more time to see
7 if Ms. -- I'm going to mangle her last name so badly
8 that I'll just ask for Bridgit Nash, are you on the
9 line?
10 Okay, she had told me that she was hoping to
11 testify before about now and I guess, for whatever
12 reason, she wasn't able to call in.
13 So, back to the order of things. I want to
14 make clear to everyone that this is not a hearing about
15 the merits of any of the projects, whether the
16 Commission should approve or deny them. We're just
17 talking about the release of data during the stages of,
18 basically, discovery, which leads up to hearings, after
19 which the Commission would make a decision.
20 But it really will do no good today to talk
21 about your feelings about a particular project.
22 And as we see it, what we're basically
23 looking at here is, I think Commissioner Weisenmiller
24 started to talk about it in his opening remarks, is a
25 balancing of interests.

1 There's the interest to protect these
2 cultural resources from harm, which might result if
3 somebody's given, you know, in effect a treasure map to
4 go find them. We don't want to call them out to the
5 attention of potential looters and collectors.
6 And, also, it's important to allow an
7 appropriate analysis of the impacts of these projects
8 in the BLM and Energy Commission permitting process.
9 And that's -- there's elements of informing the staff,
10 who prepares a very detail report for consideration at
11 our hearings.
12 And also, to the extent we can, to allow
13 other parties in the proceedings to prepare to, if you
14 will, test and perhaps dispute the testimony that the
15 applicants and the staff provide.
16 And all of this in a background where we are
17 under some time pressure to produce decisions, whether
18 it's up or down about these projects, so that if they
19 are approved, they have an opportunity to quality for
20 some very significant federal stimulus benefits that
21 would benefit everyone. Because, presumably, they'll
22 reduce the cost to consumers, at least to some degree,
23 of the energy that would result from the projects.
24 Then the question is how do you balance those
25 interests?

1 What I'm going to attempt to do now, very
2 briefly, is summarize what I've gathered are the
3 positions of the parties, from reading their briefs,
4 and then I'll give you an opportunity to tell me if
5 I've got it wrong.
6 But, hopefully, this will set everything in
7 context and it will maybe allow us to speed through
8 some parts that might otherwise take a while to
9 discuss.
10 From BLM, they're telling us that federal law
11 prohibits the release of cultural resources data about
12 federal property, that the Energy Commission doesn't
13 have the authority to release data that it has
14 received, to others.
15 But they are willing to let the Energy
16 Commission staff use that data in the preparation of
17 its analysis.
18 But as to everyone else, if they want to get
19 the data, they need to come to the BLM and ask for it,
20 and receive the data or not under the BLM rules and
21 standards.
22 CURE believes that the Energy Commission
23 should be able to release the data that it receives
24 under a nondisclosure agreement, which they believe
25 adequately protects the data.

1 They believe that the Energy Commission staff
2 needs the data and the Commission, itself, to comply
3 with CEQA, to assess the baseline levels and the level
4 of impacts on the specific resources.
5 And they believe that CURE cannot effectively
6 participate in our AFC proceedings without that data.
7 Tessera Solar asserts that neither the CEC
8 nor the parties really need this data, that we can rely
9 on the federal -- the federal landlords, as I believe
10 they call them, you know, BLM as the owner and overlord
11 of those lands to conduct a proper analysis -- I'll get
12 to you -- and adopt mitigation measures.
13 Where I derived this, just so you know, is
14 from at least one of your arguments was that the
15 Commission could make the standard findings under CEQA
16 that mitigation of these impacts is the province of
17 another agency and they can and should adopt impacts.
18 From Genesis, Blythe and Palen, they
19 similarly suggest that the parties have no right to get
20 this data and would recommend giving them no data or,
21 at best, redacted data so that locational information
22 was not available with the data.
23 And for Mr. Boyd, Mr. Boyd, you're work was a
24 little harder for me to decipher, but one of the things
25 I found in there was that the Energy Commission

1 shouldn't get the data because at least one point in
2 the past it has inappropriately released data that you
3 believe should have been confidential.
4 But kind of --
5 MR. BOYD: Well, there are --
6 HEARING OFFICER KRAMER: No, Mr. Boyd, let me
7 finish the summary and then you'll get a chance, along
8 with the others, to clarify.
9 MR. BOYD: Thank you.
10 HEARING OFFICER KRAMER: But then you say,
11 also, though, that the Commission needs the data in
12 order to conduct a proper baseline analysis.
13 So, let me start at the top of the list, and
14 BLM, did I get it sufficiently correct?
15 MS. CAMPBELL: Yes.
16 HEARING OFFICER KRAMER: CURE?
17 MS. KOSS: Close. I believe you correctly
18 stated CURE's belief is that the Commission needs the
19 information under CEQA to adequately analyze the
20 projects to determine whether there will be significant
21 impacts to cultural resources.
22 A couple of additions, CURE also submits that
23 the Energy Commission needs the data under the Warren
24 Alquist Act and Energy Commission regulations.
25 And not only does the Commission need the

1 data to determine significant impacts but, perhaps more
2 importantly, to compose adequate mitigation which, in
3 this case, is very important if resources need be
4 avoided. The locations are crucial to that
5 determination.
6 HEARING OFFICER KRAMER: So, then you believe
7 you need the locational information?
8 MS. KOSS: Absolutely.
9 HEARING OFFICER KRAMER: Okay. I think
10 that's a question we're also going to ask of Mr.
11 Whitley, when he comes back.
12 Tessera?
13 MS. FOLEY GANNON: Close.
14 HEARING OFFICER KRAMER: And I have the sense
15 you're being charitable.
16 MS. FOLEY GANNON: I wouldn't have started
17 out in the same way of phrasing it as you did. We do
18 not believe that no one needs this information.
19 We believe that to the extent the information
20 is available to staff, to other parties, it is
21 completely appropriate to -- and, I mean, the staff
22 needs to look at cultural resource issues, needs to
23 evaluate the impact on them.
24 What we think is missing from the
25 intervenor's argument is the recognition that there is

1 a recognition that there's a limitation as to what is
2 feasible.
3 And when something is not feasible, what
4 happens? And we believe that under your regulations,
5 under CEQA, you can proceed on limited information, if
6 it is truly infeasible to obtain that information.
7 And this is a case where it can -- it may be
8 truly unfeasible for you to get it. This is
9 information that is owned and controlled by the federal
10 government.
11 And if the case is that the BLM and the CEC
12 cannot work out a process for sharing this information
13 -- and we believe that, we're hopeful that there is
14 going to read that resolution, after reading BLM's
15 papers and reading the CEC staff papers, that there is
16 going to be a resolution that says that this
17 information can be shared and should be -- should,
18 therefore, inform the analysis and the consideration of
19 mitigation measures.
20 But what we were commenting on is if it is
21 not feasible to get that information, what happens?
22 And then as to mitigation measures, we do
23 think it is appropriate, particularly with regard to
24 mitigation measures, to utilize the could and should
25 provisions.

1 Because, again, this is something that is in
2 control of the BLM, it's on BLM lands and there are
3 limitations, legally, on what the CEC could require to
4 happen on those lands.
5 Obviously, you, the Commission, has to make a
6 determination about each project, about whether it
7 should be approved, despite potential significant
8 impacts that may or may not be able to mitigated. And
9 that's a different consideration, rather than what is
10 absolutely required to satisfy the requirements of
11 these various laws.
12 HEARING OFFICER KRAMER: So, the feasibility
13 is the federal prohibition on release and the control
14 of the information by BLM?
15 MS. FOLEY GANNON: Correct.
16 HEARING OFFICER KRAMER: And would you say
17 that it would be appropriate or it would be acceptable
18 if the BLM allowed different levels of data to go to
19 the Commission staff, as opposed to intervenors?
20 In other words, maybe the Commission staff
21 got it with all the locational data and the intervenors
22 had it redacted with -- that data redacted, would that
23 cause you any concern?
24 MS. FOLEY GANNON: I think that that could be
25 an entirely appropriate decision for the BLM to make.

1 You know, we did not object when the
2 intervenors requested the information on the part of --
3 in the Imperial Valley Project. We did not take any
4 position. We recognized that it was the BLM's
5 information and so, again, we were not -- you know,
6 we're not objecting to it or supporting that.
7 The question of can an intervenor, a party to
8 a proceedings meaningfully participate without that
9 level of information? We believe they absolutely can.
10 That they can evaluate whether there are significant
11 impacts, they can comment on it.
12 And I think that the staff assessments and
13 some of these -- the draft assessments, the draft
14 EIS's, which have been released on several of these
15 matters, show that there is a lot of information out
16 there in the record, that describes the types of
17 resources that are potentially impacted, the level of
18 impacts that may occur. And we think that that is
19 sufficient for there to be meaningful participation.
20 And I mean, I think looking towards other
21 review processes, by other state agencies, this issue
22 comes up frequently. I mean, generally, the specific
23 cultural resource information is not released to the
24 public and public often participates in that process
25 and even comments upon cultural resource impacts and

1 potential mitigation measures, and that there can be a
2 meaningful dialogue about those issues.
3 HEARING OFFICER KRAMER: Thank you. Mr.
4 Boyd?
5 MR. BOYD: Okay. You didn't actually get
6 that -- you weren't off that far, but what -- what our
7 issue is, is we don't think that the CEC is qualified
8 to be a repository of the data that's in question here.
9 We believe that data should be maintained at a
10 qualified repository, like the one -- like the
11 clearinghouse in Riverside, for example.
12 We believe that any data is available to
13 qualified persons, to archaeologists.
14 Alfredo?
15 MR. FIGUEROA: Yes, sir?
16 MR. BOYD: Could you be quiet because we can
17 hear you.
18 MR. FIGUEROA: Ah, you hear me? Sorry.
19 MR. BOYD: So, basically, what we're worried
20 about is that that information is being given to CEC
21 staff and that CEC staff have a physical copy of the
22 information and that they, then, can share that
23 information with other folks, as apparently they did.
24 When that information should have been maintained at
25 the repository of the information, where it's qualified

1 to be viewed and not copied.
2 And so, our concern, and the reason that
3 we're concerned about the CEC having the authority to
4 even have a copy of the information of its own, is
5 based on what happened with the Metcalf Project.
6 And what happened there was essentially the
7 CEC allowed the project applicant to remove human
8 remains without notifying the most likely descendent
9 first. And then the most likely descendent had to
10 fight with the company to get the remains back.
11 And so we don't think that the Energy
12 Commission, because of that, is qualified to handle
13 that information the way it's handling it, where
14 they're essentially acting as an unqualified repository
15 for culturally sensitive data.
16 And so, we just want you to give it back,
17 like the BLM asked. And if you guys want to go to the
18 repository and look at it, I don't have a problem with
19 that.
20 And if an archeologist, that's qualified to
21 look at it for CURE wants to go look at it, they should
22 be able to go look at it, too. That's why the system's
23 set up the way it is.
24 And what you guys are doing is what's
25 unusual, not what BLM is doing. BLM is just trying to

1 protect their resources. And they have good cause to
2 be afraid of people getting access to that information
3 because they can go destroy the resource as a result of
4 that.
5 So, that's our -- that, simply put, is our
6 position. We don't have a problem with getting the
7 data, just go to the proper place to view it.
8 HEARING OFFICER KRAMER: Okay. I don't want
9 to get into a debate with you, but I think in these
10 cases the data's actually generated by the applicants,
11 by and large, or their consultants, so they already
12 have access to it because they tend to bundle it up and
13 send it on to BLM and perhaps to our staff.
14 So, I'm not sure that a repository will deal
15 with the particular example you gave us.
16 But Mr. Galati?
17 MR. BOYD: Well, wait a second before you go.
18 The other issue I didn't bring up is the role of what
19 I call the invisible Native American here, which isn't
20 being considered, which is what is their say over that
21 data?
22 And if the government of the United States is
23 supposed to conduct a government-to-government
24 consultation with them, aren't they supposed to do that
25 before that data is released, as part of the NEPA/CEQA

1 process, the same question I asked the doctor.
2 I believe that you have to conduct that
3 government-to-government consultation first, and I
4 don't believe that's occurred.
5 HEARING OFFICER KRAMER: Okay. Well, we
6 understand that point.
7 Mr. Galati?
8 MR. GALATI: Yes, you were pretty close.
9 First, we don't have a problem with qualified people
10 looking at the data.
11 Our issue has to do with whether the data is
12 absolutely necessary for someone to participate and
13 whether or not this late request is going to be used as
14 the delay tactics to postpone these proceedings. So,
15 that's what we object to.
16 The second point I wanted to make, with
17 respect to our reply brief, is we believe that staff
18 needs the data. We believe that staff has looked at
19 and used the data appropriately for many, many years.
20 We believe staff is conducting the first set of peer
21 review of the applicant-conducted data.
22 We implore you to read the cultural resources
23 information in the staff assessment draft EIS, for the
24 Genesis Project, to look at the detailed enough
25 information to determine whether you can make a finding

1 of significance or make a finding of how to mitigate.
2 It's an imperfect world when you conduct that
3 balancing act. Obviously, you can't describe in here
4 the level of detail necessary that somebody like the
5 expert might want to make that determination.
6 But at some point in time, and up until these
7 solar projects, CURE has participated meaningfully in
8 the process before, with lots of cultural resources, on
9 projects that I've been involved with, large pipelines.
10 and they have never needed the background information,
11 nor ever requested it. The staff assessments have been
12 sufficient enough for them to determine whether the
13 mitigation proposed is appropriate or not.
14 And if you look at this document, it speaks
15 for itself. Because there are locational information
16 here, in a general way. It's not the GPS location,
17 but it will tell you whether or not it's within the
18 footprint and is likely to be disturbed.
19 And we had staff assessment workshops on this
20 document. Someone could have said, hey, I'm concerned
21 about this particular document, could you move your
22 project? We would have had that dialogue. But at this
23 late stage and what we heard and why we jumped into
24 this as an active party had to do with CURE claiming
25 that they cannot prepare testimony.

1 We listened to what happened in Imperial, and
2 we don't agree that that should continue in these
3 projects, that they cannot participate without the
4 information.
5 But I want to make absolutely clear, we
6 believe staff needs this information, they've used it
7 in the past and they've produced it, the exact,
8 redacted type of information that is necessary. And
9 that has been good enough for decades.
10 Now, the fact that these projects are larger,
11 I submit to you, if you have two very important
12 resources that are worthy of protection or moving your
13 project, what's the difference of wanting to know
14 exactly the detailed information about those two versus
15 the detailed information about 27?
16 The information is that if you can't
17 determine significance until you see the raw data, and
18 the site record, and the GPS location of it, then it
19 doesn't matter how many there are.
20 I believe this is a delaying tactic, I'll be
21 the bad guy in the room that says it. I think that the
22 Commission ought to continue its practice, deny CURE
23 this, honor BLM's request, allow the staff to use the
24 information, come up with a redacted version, and CURE
25 can come to hearings and say that that redacted version

1 isn't enough and explain to you specifically why on a
2 resource-by-resource basis. That's what's happened in
3 the past, that's what should happen now.
4 HEARING OFFICER KRAMER: Now, conversely, if
5 BLM were willing to let them have the data, would you
6 have any concern about that?
7 MR. GALATI: No. We didn't object to them
8 seeing the petition for the data.
9 Our objection is that they now claim that
10 they cannot participate without it. That is the
11 difference, that is why we're sitting at the table.
12 And we think the data is fundamentally incorrect and it
13 is inconsistent with all of the past practice. When I
14 used to have hair they didn't do it, and they don't do
15 it now, and so this is new.
16 HEARING OFFICER KRAMER: Okay.
17 MR. RATLIFF: Mr. Kramer, the staff also has
18 a dog in this race.
19 HEARING OFFICER KRAMER: You're correct, I
20 forgot to -- please. You'll have to set up your own
21 straw man and then knock him down.
22 MR. RATLIFF: Let me say straight out, the
23 staff has no objection to CURE having this information
24 under a nondisclosure agreement, but that isn't the
25 point here.

1 In our view, what we have here, in essence,
2 is an issue of control. Who controls the information
3 and the access to it?
4 The Bureau of Land Management and the
5 solicitor have both indicated that in order to fulfill
6 their duty, under federal law, they have to have the
7 control and they're now asserting their right to
8 exercise that control.
9 And in staff's view, whatever privileges
10 intervenors have, they will have to basically achieve
11 the obtaining of this information through the process
12 that BLM, itself, has to disseminate information.
13 Now, I'm -- every time you turn a page on
14 this thing and it gets a little murkier, we just heard
15 Mr. Whitley say anyone who's got an ARPA permit can get
16 the information. And if that's true -- if that's true,
17 and unless this is a departure from the process, then
18 this isn't going to be a problem at all.
19 But whether it is or not, I think the Section
20 106 process that the federal government utilizes in
21 these proceedings has got to be the vehicle by which
22 the information is disseminated.
23 There are many pages of this book that set
24 out that very elaborate process through which the
25 federal government allows the dissemination to parties,

1 who participate and obtain information under the
2 National Historic Preservation Act.
3 I think that has to be the vehicle here
4 because if it doesn't, the whole thing breaks down, the
5 wheels come off, we no longer we get the information we
6 need to do our job.
7 And that, I think, is something that has to
8 be prevented.
9 HEARING OFFICER KRAMER: And the reason you
10 don't get the information is, in effect, the feds don't
11 trust the Commission -- I'm sorry, BLM. Feds is kind
12 of pejorative -- to be able to hold onto the
13 information, if they receive it?
14 MR. RATLIFF: I don't know if it's a matter
15 of trust so much as, again, control. The Energy
16 Commission made this information available pursuant to
17 nondisclosure agreement, but without any consultation
18 or taking into consideration the concerns of the BLM
19 when it did so.
20 And it's our understanding that is what was
21 objectionable to BLM and that is what the solicitor is
22 saying cannot happen.
23 MS. CAMPBELL: Commissioner? This is Vicky
24 Campbell, from BLM.
25 HEARING OFFICER KRAMER: Please go ahead.

1 MS. CAMPBELL: Yeah, it's no a matter of BLM
2 not trusting the Energy Commission, it is a matter of
3 control.
4 And the laws that BLM are operating under for
5 archeological resources state that we must make an
6 affirmative decision to allow certain information to be
7 distributed or not.
8 Also, the comment that you made about
9 consultants preparing the reports and that that
10 information goes to the applicants, the consultants
11 preparing the reports and doing the studies on BLM-
12 managed lands actually get a permit to do so from BLM
13 and are subject to certain standards.
14 And in the letters that we've provided
15 before, those permits specifically state that those
16 technical reports and that data come directly to BLM
17 and is then the property of the federal government.
18 And that under federal law, BLM then, at that
19 point, decides what to release, when, where, et cetera.
20 And so, it's not a matter of the applicants
21 actually having the data, the data should come directly
22 to the Bureau of Land Management under federal law and
23 under the permits which the consultants are operating
24 on.
25 HEARING OFFICER KRAMER: So, while you're

1 there, do you want to ask a question?
2 ASSOCIATE MEMBER WEISENMILLER: Yeah, I just
3 had two clarification questions on BLM's position. The
4 first one was the comment in our staff filing that said
5 that, basically, the BLM objection -- well, actually,
6 it's page two.
7 "BLM believes that the Energy
8 Commission's unilateral release of
9 unredacted confidential information
10 compromises its ability."
11 Now, does that mean if we had released
12 redacted -- if we had redacted the GPS locations, that
13 the Bureau would have been comfortable with the release
14 of that information?
15 MS. CAMPBELL: I think we have to start at
16 the beginning. I think that, again, it goes to that
17 it's BLM's decision of what data is released. And if
18 the reports had come directly to BLM, then we had made
19 the decision then to provide them to the Energy
20 Commission, whether it be redacted versions or full
21 versions, we would then -- then when the CEC got a
22 request, we would say to the Energy Commission that,
23 actually, the request needs to come to BLM and BLM will
24 then decide what information to release based on who
25 the requester was.

1 ASSOCIATE MEMBER WEISENMILLER: Okay. Now, I
2 believe CURE's brief indicated that they had asked for
3 this information in a Section 106 consultation, is that
4 correct, and that BLM turned them down?
5 MS. CAMPBELL: They'd asked for it under the
6 Freedom of Information Act and BLM did deny it.
7 HEARING OFFICER KRAMER: So is there an
8 avenue by which they could have received it, do you
9 think?
10 MS. CAMPBELL: At this point you're beyond my
11 knowledge, so my answer would be I don't know.
12 If you don't mind if Charlotte Hunter, who is
13 the BLM's State archeologist, if she's still on the
14 line, maybe she could answer that.
15 HEARING OFFICER KRAMER: She appears to be.
16 Did you hear the question, Ms. Hunter?
17 DR. HUNTER: It's Dr. Hunter. It's a
18 decision that we have to make at the time that it's
19 requested. I don't think that it would be appropriate
20 to answer a general question like that, because we are
21 going back to the issue of process. And we need to go
22 through our process to make that determination.
23 HEARING OFFICER KRAMER: Well, generally, in
24 the past have you released that type of information to
25 parties in a similar position to CURE?

1 DR. HUNTER: We haven't had a situation where
2 a company or organization has no previous interest in
3 archeology asks us for such a thing.
4 HEARING OFFICER KRAMER: Could you speak up,
5 your voice is barely audible here.
6 DR. HUNTER: Okay, let me get off the
7 speakerphone.
8 HEARING OFFICER KRAMER: Wow.
9 DR. HUNTER: Much better?
10 HEARING OFFICER KRAMER: Yes.
11 DR. HUNTER: Okay. We have -- well, in my 25
12 years of archeology and the last, I guess, 11 with
13 federal agency, I've never had an organization who has
14 not been involved in archeological research or data
15 gathering, themselves, ask for this type of
16 information.
17 And so, my answer is that, no, I have not
18 given information to just anyone who has an interest in
19 archeology. They really have to come to me with a need
20 to know, a research question. I mean, a university
21 might want to do a project and would have a legitimate,
22 professional reason for needing the data for research
23 and we would give it to them.
24 But I have never had that experience.
25 HEARING OFFICER KRAMER: So, hypothetically,

1 somebody who is using a professional archeologist and
2 coming to you to ask for the data, so that they can
3 prepare to comment on a permit application, is that
4 something that could possibly be granted or do you have
5 any feeling at all about where that fits in your
6 continuum or under your standards?
7 DR. HUNTER: It is within the realm of
8 possibility, yes. And it is a requirement that we make
9 a judgment on that and determine the need to know,
10 whether or not we believe that the information can be
11 protected, particularly the site location information.
12 And whether they can -- whether redacted
13 information is more appropriate. There are very few
14 times that the location information is necessary to
15 make a decision about eligibility or appropriateness of
16 mitigation methods.
17 It would be more in terms of scientific
18 research that that would be useful data. Or, it is
19 very useful to looters.
20 And it's useful to people who do not
21 understand archeological laws, and federal laws, and
22 collect avocationally.
23 So, we go through a fairly rigorous
24 investigation of anyone who is asking for site location
25 data.

PRESIDING MEMBER DOUGLAS: Are you saying that when it comes to projects that are potentially trying to get a permit, that could affect cultural resources, and they're looking at mitigation, that you typically do not consider the specific GPS coordinates and the specific location of sites to be necessary?

DR. HUNTER: I'm sorry, I don't -- I really don't understand your question?

PRESIDING MEMBER DOUGLAS: You said that typically -- you said that disclosure of site-specific locations is more often done in the context of research, university research, for example, as opposed to assessing the appropriateness of mitigation. Is that what you said?

DR. HUNTER: Well, when someone applies for an ARPA permit, or what we call a cultural resources use permit, they have to have professional qualifications and experience, and we make the decision as to whether or not they're qualified to do field work.

And that would be like an archeological contractor, or a portion of another company that was doing archeological contracting. And, of course, they would know where the data are located because they're the ones out in the field.

1 But what I'm saying is that if just a person
2 comes to the BLM and says I would like to have the
3 location information of every site that is in the solar
4 array area, no, I would not divulge that information.
5 If you wanted to know what type of sites are
6 generally found in that area, you would have to go to
7 CHRIS and then you would have to have professional
8 qualifications to get that information from CHRIS, or
9 from the SHIPO's office.
10 HEARING OFFICER KRAMER: And either of those
11 would have the precise coordinates?
12 DR. HUNTER: Certainly, CHRIS will, and
13 possibly the SHIPO. Not always. Sometimes.
14 HEARING OFFICER KRAMER: So then, in a sense,
15 you are willing to delegate the decision about who gets
16 the data to the CHRIS, because they'd be the gatekeeper
17 in that case; right?
18 DR. HUNTER: They are the gatekeeper, yes, on
19 specific site location information. They are the
20 repository for the State of California, and they do
21 have confidentiality agreements with the federal
22 government.
23 HEARING OFFICER KRAMER: But maybe this is
24 more for Vicky, than you, or whoever wishes to answer.
25 But it sounds as if you do not wish to delegate the

1 ability to decide who's qualified to receive that
2 information to the Energy Commission?
3 DR. HUNTER: No. I can answer that. No.
4 HEARING OFFICER KRAMER: I think your mike
5 may be off but --
6 MS. KOSS: Maybe I'm just not close enough.
7 How's that?
8 It seems to me, from what Dr. Hunter is
9 saying, and Dr. Hunter correct me if I'm wrong, but it
10 seems to me that BLM is willing to release specific
11 site location information to qualified professional
12 archaeologists who, A, have an ARPA permit and, B, have
13 signed CHRIS agreements. Am I correct?
14 DR. HUNTER: We are not arguing about --
15 HEARING OFFICER KRAMER: Your voice went way
16 down again.
17 DR. HUNTER: Okay. We are not arguing about
18 whether or not we would give information to a
19 professional archeologist. What we are arguing is that
20 in order for us to meet our obligations under federal
21 laws, we are the entity that must make that decision.
22 MS. KOSS: And I'm trying to find a potential
23 resolution to this issue and --
24 DR. HUNTER: We do have a resolution and that
25 is that the information, as it states in the ARPA

1 permit, belongs to the federal government.
2 The information that is gathered by the
3 contractor belongs to the federal government. That is
4 the bottom line, as has been stated by our attorney.
5 It is government information, it belongs to the federal
6 government and we are asking that it be returned to us
7 so that we can make the proper decision that we must
8 make under federal law.
9 HEARING OFFICER KRAMER: And I think what Ms.
10 Koss is trying to do here, on behalf of CURE, is get a
11 sense for whether, if she comes to you and asks if her
12 expert is going to get the data in a relatively --
13 DR. HUNTER: I understand that is the
14 question. But that is not the point of this meeting.
15 HEARING OFFICER KRAMER: Well, no, but it is
16 a very -- it is very relevant to a potential solution
17 of the competing interests we have here if --
18 DR. HUNTER: Oh, certainly, but that's not
19 the question at hand.
20 The question at hand is whether or not the
21 information that was given to the CEC belongs to the
22 federal government and should be returned. Is that
23 correct?
24 HEARING OFFICER KRAMER: That's, perhaps, one
25 element of it, but it's certainly not the only element.

1 And we are -- the Committee has -- we are
2 deciding or going to decide the BLM requests, which
3 were in one case to have the decision to release the
4 information overturned and the information returned.
5 But we are also trying to design some kind of
6 protocol for future requests in these next few months,
7 and we actually have three pending requests.
8 So, for instance, I would suspect if Ms. --
9 if CURE thought that they could come over to your door
10 and ask for the data, and get it, they might very well
11 withdraw their request to the CEC. Because I believe
12 they're more interested in getting the data than they
13 are in banging on the wrong door, so to speak.
14 DR. HUNTER: Uh-hum.
15 MS. FOLEY GANNON: Hearing Officer Kramer,
16 one question that might be pertinent is has the BLM
17 changed its normal procedures for how it submits
18 information to the CHRIS System?
19 I mean, is there something different, is this
20 information being handled differently than it is in
21 every other matter that's on BLM land?
22 DR. HUNTER: No. No, there's no change
23 whatsoever.
24 MS. FOLEY GANNON: So, other qualified
25 experts' access to this information is exactly the same

1 as it is for every other project that's involved on
2 federal land, you can get it through the CHRIS System
3 if you are appropriately qualified?
4 DR. HUNTER: That's absolutely correct.
5 MS. MILES: And I actually have a question,
6 this is Loulena Miles on the phone. And I'm wondering,
7 when is this information typically filed with the CHRIS
8 System, or is there a typical time when it's submitted
9 into that system? And can you tell me generally, Dr.
10 Hunter, if it's submitted prior to a project decision,
11 you know, for approval or not from the agency?
12 DR. HUNTER: Generally, the process is that
13 the contractor goes in the field and produces a
14 preliminary report. The BLM judges whether or not that
15 preliminary report is adequate and correct.
16 At that time, they may request that the
17 contractor go back out in the field, perhaps write the
18 description of the site in a different way, add data,
19 go back out in the field and check on things that we're
20 uncertain about.
21 And it's not until the final report is ready
22 would that information go to CHRIS. And that will be
23 done prior to a decision.
24 HEARING OFFICER KRAMER: But would the raw
25 data, that first comes in, would that go to CHRIS right

1 away or only after you've, in effect, brought it up to
2 your standards?
3 DR. HUNTER: It would only go in after it has
4 been brought up to standards.
5 HEARING OFFICER KRAMER: Okay. It occurs to
6 us that you've been -- some of the things you've said
7 are probably in the order of testimony and perhaps we
8 should have had you sworn in at some point.
9 DR. HUNTER: And that's not what I've been
10 told to do. I've been told to --
11 HEARING OFFICER KRAMER: You're not allowed
12 to offer sworn testimony?
13 DR. HUNTER: No, no at this point.
14 HEARING OFFICER KRAMER: Okay. Does any
15 party object to the consideration of what Dr. Hunter
16 has said as -- in making our decision?
17 MS. FOLEY GANNON: Tessera has no objection.
18 MR. BOYD: I don't, but I have a question
19 regarding it.
20 HEARING OFFICER KRAMER: Okay, we'll get you
21 in a minute, Mr. Boyd. Hearing no objections, we will
22 treat her statements as information about the way BLM
23 handles these matters, as if it were, in effect, sworn
24 testimony. Nobody has raised any objections to the
25 veracity of her information.

1 Let's see, is it on a different line, Mr.
2 Boyd, or a continuation of the topics that are being
3 talked about?
4 MR. BOYD: Well, it's on the same general
5 topic. I'm just trying to find out, what I'm hearing
6 from Dr. Hunter is that she's not saying no or yes to
7 CURE's request.
8 She's basically saying, look, we control the
9 data, the United States has the duty and the
10 responsibility to protect that data, and all you're
11 asking is you let us do our process, our data
12 processing, quality control process before we -- and
13 we'll decide which information can be released and
14 where it can appropriately be released and where the
15 data will be maintained.
16 And, essentially, they're not saying that if
17 you're a qualified archeologist that you can't get the
18 data, but they still have to do their process first.
19 And so, what I'm hearing is that the issue
20 is, essentially, that the CEC was bypassing or taking
21 control of the data away from BLM before BLM could do
22 their process on the data.
23 And so, I don't see what the problem is,
24 except that if you are considering Mr. Galati's
25 concern, which is that we're trying to do this just so

1 we can delay their project, which I think is purely a
2 commercial concern of the applicant and shouldn't have
3 any impact on an independent environmental assessment
4 of the project, I think that what you need to do is
5 face the fact that there's going to be a delay in the
6 amount of time before you have the necessary baseline
7 information to make a final decision.
8 Essentially, you don't have all the facts,
9 yet. And until CURE has access to whatever information
10 that the BLM deems appropriate to release at the
11 appropriate location, they can't make a decision.
12 So, I don't see how the CEC and the CEQA
13 decision can be made by the CEC for the same batter.
14 And I thought these were being done together,
15 NEPA and CEQA. So, I think you just got to bite the
16 bullet, give them the data back and ask them if they
17 could review it in an expeditious basis and I think
18 that's the best you can do.
19 DR. HUNTER: Could I make a comment?
20 HEARING OFFICER KRAMER: Okay, I didn't hear
21 a question there. Did I, Mr. Boyd, that was a comment
22 and argument?
23 MR. BOYD: Well, I asked -- my question was
24 you're not saying you're not going to give them data or
25 you're not going to release data. You're just saying,

1 Dr. Hunter, that you need to process that data
2 according to your BLM protocol, first, before the data
3 can be released in the appropriate manner?
4 DR. HUNTER: That's correct.
5 MR. BOYD: Okay.
6 HEARING OFFICER KRAMER: And so, at what
7 point would that version of the data be available?
8 DR. HUNTER: Are you asking me for a date?
9 HEARING OFFICER KRAMER: No. I mean, just
10 roughly in the process, is it before the final EIS
11 comes out, for instance?
12 DR. HUNTER: It would be probably, I am
13 estimating, approximately 30 days before ROD.
14 Because that would include the report, the treatment
15 plan, an inadvertent discovery plan, a NACPRA plan, and
16 we estimate that that would be 30 days prior to a ROD.
17 HEARING OFFICER KRAMER: And that's the first
18 time that you would be willing to release the data to
19 parties, such as CURE?
20 DR. HUNTER: No, I didn't say that.
21 HEARING OFFICER KRAMER: Okay. Well, that's
22 what I'm trying to understand, where that point in time
23 would be?
24 DR. HUNTER: Well, I would have to review
25 CURE's request. They asked for the data via the

1 Freedom of Information Act and the Freedom of
2 Information Act specifically states that if any other
3 law prohibits the dissemination of the information,
4 that I must redact that information. And that is
5 archeological site location information by ARPA and
6 other laws.
7 And so, I could not give CURE that data via a
8 FOIA.
9 HEARING OFFICER KRAMER: Okay. And then,
10 because they didn't ask for it under Section 106, you
11 did not consider it under that process?
12 DR. HUNTER: They didn't ask for it under any
13 other process. That is the only thing that they asked
14 for.
15 They also asked for it from the SHIPA's
16 office via a FOIA, and the SHIPA's office turned them
17 down.
18 MS. MILES: Oh, can I clarify for a moment,
19 this is Loulena Miles, from CURE.
20 HEARING OFFICER KRAMER: Go ahead.
21 MS. MILES: We actually, just submitted a
22 generalized FOIA to the BLM asking for documents
23 relating to the project. So, we were not specifically
24 asking for a final, or draft technical resources
25 report.

1 But I do want to clarify that we did request
2 the information through the 106 process as a consulting
3 party, and we were told that we could get the
4 information -- no, we were not told we could get the
5 information.
6 What we were told was that the information
7 would not be available to any participants in the 106
8 process until the technical report was finalized. And
9 that includes the Tribe.
10 And so, in the Imperial Valley case, no one
11 has seen the draft technical report in the -- that are
12 106 consulting parties, except for CURE, and so we
13 haven't really been able to participate meaningfully or
14 work with other parties, or discuss anything with
15 anyone because --
16 DR. HUNTER: But you're making the assumption
17 that you cannot meaningfully contribute without site
18 location information. Is that correct?
19 MS. MILES: Well, what I'm saying is, to the
20 extent that we could gain information through that
21 technical report and use it in our participation in the
22 106 process, we have not been able to do that because
23 other parties have not had that information available
24 to them.
25 And so, in particular, we've noted that the

1 tribes have repeatedly asked for the technical report
2 and have been denied that information until the report
3 is finalized. And so, that's why it's so critical --
4 DR. HUNTER: We don't give out draft reports.
5 MS. MILES: Right.
6 DR. HUNTER: The very word "draft" tells you
7 that we do not consider them to be adequate.
8 MS. MILES: Right. And then we've also found
9 that to be true with biological data, draft biological
10 reports that have gone to BLM, now that the applicants
11 are not providing them to the Energy Commission,
12 they're providing them only to BLM. And then when BLM
13 goes through them and decides that they are finalized,
14 then they are being released to the Energy Commission
15 and intervenors.
16 DR. HUNTER: Well, I know from my personal
17 experience as a professional archeologist, I would not
18 publish a draft report because the draft report is what
19 we use to go back and get all of the proper information
20 that we need.
21 It would be tantamount to publishing a
22 incorrect document. And we are professional
23 archaeologists, we are -- we spend our lives protecting
24 cultural resources. This is what we do, not just as a
25 living, but who we are. We care about the resources.

1 We are doing everything that we feel that we are
2 legally required to do to protect this data.
3 And as far as working out a process with
4 CURE, that is something that certainly we entertain.
5 But I cannot give you a decision because I
6 don't know what CURE wants. All I know is that CURE
7 asked for all cultural resource data in the FOIA, it
8 was not just a normal FOIA.
9 In fact, the only FOIAs that I have ever
10 received in my professional life is the one from -- are
11 the ones from CURE. No one else has ever asked for
12 cultural resources data.
13 HEARING OFFICER KRAMER: Okay, let me ask
14 Loulena Miles, you said, in essence, in Imperial you
15 have more information than the other parties. And
16 because they didn't have it, you couldn't use it. Is
17 that an artifact of the nondisclosure agreement or what
18 prevented you from using it?
19 MS. MILES: Well, to the extent that we would
20 discuss the information about how to mitigate impacts
21 on the project sites, or avoid -- whether avoidance
22 would really be an adequate mitigation strategy for
23 example, with other consulting parties we could not do
24 that. And that's because the other consulting parties
25 don't have the information.

1 HEARING OFFICER KRAMER: So, to do that would
2 be, in some kind of way, sharing information that would
3 violate the agreement?
4 MS. MILES: Well, yeah, it would definitely
5 violate the agreement if we share it with parties that
6 have not been granted access to that information from
7 BLM.
8 HEARING OFFICER KRAMER: Okay. And, Dr.
9 Hunter, if you know, is the information that CURE
10 received from the CEC, is -- was that at some earlier
11 part of the process, before the level of the final
12 technical report? I gather it was draft information,
13 is that correct?
14 DR. HUNTER: That's correct.
15 HEARING OFFICER KRAMER: And are you saying,
16 then, that -- or would you confirm what Loulena Miles
17 said, that you do not wish to release anything that is
18 earlier in time than the final technical report?
19 DR. HUNTER: I would have to consult with
20 other people and that is the reason that I did not want
21 to be sworn in, because I have to make certain of
22 certain legalities. I would just prefer not to answer
23 that at this time, but I'd certainly be willing to
24 discuss it after I confer with other people at the BLM.
25 I'd certainly be willing to discuss it with CURE.

1 HEARING OFFICER KRAMER: But is it fair to
2 say that final technical reports are normally released
3 to people, such as CURE?
4 DR. HUNTER: I've never had this experience
5 before.
6 HEARING OFFICER KRAMER: Are they released to
7 the public?
8 DR. HUNTER: No, they are not.
9 HEARING OFFICER KRAMER: Okay, so they still
10 have confidential data in them?
11 DR. HUNTER: Yes, they do.
12 HEARING OFFICER KRAMER: And does that
13 include the locational information?
14 DR. HUNTER: The locational information is
15 the confidential data. I have released reports to the
16 public with the confidential information redacted.
17 Often, federal agencies will prepare a general report,
18 with overview information, previous archeology general
19 information and have the site location -- not just the
20 location, but a description of the character of the
21 site is also confidential and that will be published
22 under a separate cover as confidential information that
23 is not disseminated to the public.
24 HEARING OFFICER KRAMER: Commissioner
25 Weisenmiller had a question.

1 ASSOCIATE MEMBER WEISENMILLER: Just wanted
2 to clarify, in terms of the reports, when are they
3 posted on the CHRIS system?
4 DR. HUNTER: I don't know the answer to that.
5 I don't know --
6 HEARING OFFICER KRAMER: Mr. Donaldson, if
7 you could come to the mike?
8 DR. HUNTER: Yeah, I don't know the answer to
9 that, I'd have to get -- I'd have to speak with the
10 field archeologist to find out when, exactly, they do
11 do that process. Because I don't think there's a --
12 you know, a specific time frame for that.
13 HEARING OFFICER KRAMER: Okay, Mr. Donaldson,
14 before you speak, and do we have anyone else in the
15 audience who's going to testify?
16 Was Mr. Figueroa going to testify, Mr. Boyd?
17 MR. BOYD: Well, we already provided a
18 written declaration and written testimony and unless --
19 we don't have anything to add to that, if that's what
20 you're asking.
21 HEARING OFFICER KRAMER: Okay, does anybody
22 want to cross-examine Mr. Figueroa?
23 Okay, so we'll just have Mr. Donaldson sworn
24 in then, in case he gives us some testimony.
25 THE REPORTER: Please raise your right hand.

1 Whereupon,

2 MILFORD WAYNE DONALDSON

3 was called as a witness herein and, having been first

4 duly sworn, was examined and testified as follows:

5 THE REPORTER: Would you please state and

6 spell your name for the record?

7 MR. DONALDSON: My name is Milford Wayne

8 Donaldson, M-i-l-f-o-r-d, Wayne, like John Wayne, and

9 Donaldson, like Donald Duck with an s-o-n.

10 I am the State Historic Preservation Officer.

11 To try to answer the questions when the

12 reports get back to the CHRIS, this is an access

13 agreement that we have, that's part of the users in

14 terms of gaining access to the CHRIS System.

15 Again, the CHRIS is the California Historical

16 Resources Information Center. It's a relatively old

17 system, but was put under our own regulations after the

18 1966 National Historic Preservation Act came out. It

19 was actually a system that was started back in the

20 1930s, some of the repositories being at the State

21 universities.

22 Currently, we have, now, 11 of these

23 information centers and they're -- they're put together

24 by way of counties. So, if you went on our system and

25 take a look at the CHRIS System, and you were doing

1 work in a particular county, you would go to that
2 particular information center in order to get the
3 information.
4 Part of this is an access agreement and we've
5 heard a couple of archaeologists already note that.
6 I did want to also tell you that there's
7 other folks that could be qualified for gaining access
8 to this, besides archaeologists, and you can also find
9 that on site, including architects, historians and
10 others that meet the Secretary of the Interior's
11 qualifications in order to submit on that, and then
12 also meet certain State requirements.
13 And if you wish me to go into more detail, I
14 can.
15 But part of the access agreement says that "I
16 understand that any CHRIS confidential information I
17 receive shall not be disclosed to individuals who do
18 not qualify for access to such information as specified
19 in our Section 3 of the document, of the CHRIS
20 Information Center Rules of Operation Manuals, or in
21 publicly distributed documents without written consent
22 of the information center coordinator."
23 So, if you're going to distribute this, you
24 need to go back to that particular CHRIS coordinator
25 and get approval to do so, written approval.

1 Then it also says, and this is getting back
2 to the question at hand, "I agree to submit historical
3 resource records and reports based in part on the CHRIS
4 information released under this access agreement to the
5 information center within 60 days of completion."
6 So, basically, we have a criteria that within
7 60 days after you complete your report and, again, this
8 would be the final report that's distributed, that you
9 go back and you deposit this back into the information
10 centers.
11 The reason of that, of course, then that
12 becomes the updated and the most current information,
13 so if another archeologist or another person going in
14 there, they will have the most current information.
15 Also, you agree to pay your bill within 60
16 days as well.
17 Now, anything that is a failure to comply
18 with this access agreement, because we're always asked,
19 okay, what if a person doesn't do this, then we deny
20 access to the CHRIS information and through our State
21 Historical Resources Commission we actually, now, have
22 expanded that to the company that the person works for.
23 So, therefore, for people that have 30 or 40
24 archaeologists, that are currently working on
25 especially a lot of these recovery things, they really

1 abide to this access agreement. And that's just in
2 part, there's other regulations with this.
3 So, I hope that answers the requirement to
4 return this information in its final form back to the
5 CHRIS.
6 HEARING OFFICER KRAMER: So, for this work
7 that we're talking about, that's done by private
8 consultants, but basically under the direction, if you
9 will, of BLM, would it be considered final, do you
10 think, when BLM has labeled it a final report or at
11 some sooner time?
12 MR. DONALDSON: When the report is released
13 as a final document, that's correct.
14 HEARING OFFICER KRAMER: Okay, so it sounds
15 like that report isn't going to come soon enough to
16 allow CURE to prepare for hearings.
17 ASSOCIATE MEMBER WEISENMILLER: I had just a
18 couple of follow-up questions. It sounds like the
19 purpose of CHRIS is to provide data for professional
20 archaeologists, say, to do research, primarily, as
21 opposed to providing a repository for litigation
22 support.
23 MR. DONALDSON: Actually, it has been used
24 for litigation support. Many of the CHRIS coordinators
25 are sworn in to both hearings and to cases. They also

1 are on contracts with cities and counties to provide
2 such information. And, certainly, it has come up for
3 information that is provided in there.
4 And the information varies in terms of its
5 scope, and reliability, and everything else, like any
6 other kind of reports that you may have.
7 ASSOCIATE MEMBER WEISENMILLER: Thank you.
8 But is it likely that it's going to work in timing for
9 folks looking at our specific cases?
10 MR. DONALDSON: That, I don't now.
11 Everything, of course, is always wrapped around time,
12 level of effort to do these reports and, of course, the
13 cost. And if you can get all of this stuff without
14 really going through time, level of effort and cost, it
15 behooves everybody.
16 We, from the Office of Historic Preservation,
17 are interested in all of the same things that you are,
18 it's protection of these sites. Especially given, in
19 terms of the Indian country, we have 106 federally
20 recognized tribes and 47 tribes that are not federally
21 recognized, but that we also need to make sure that we
22 protect these particular resources.
23 So, our bottom line is, as long as those
24 resources are being protected, duly right under the
25 laws that we have, we're fine with however this

1 information goes.
2 But the bottom line is it always comes down
3 as to who owns the information.
4 HEARING OFFICER KRAMER: Thank you.
5 MR. RATLIFF: Before Mr. Donaldson leaves,
6 could I ask him a couple of questions?
7 HEARING OFFICER KRAMER: Go ahead, Mr.
8 Ratliff.
9 MR. RATLIFF: I didn't understand the last
10 sentence that you stated?
11 MR. DONALDSON: It comes down to who owns the
12 information?
13 MR. RATLIFF: Yes.
14 MR. DONALDSON: Yes.
15 MR. RATLIFF: The bottom line?
16 MR. DONALDSON: The bottom line is that we,
17 at the Office of Historic Preservation do not own all
18 the information that's in the CHRIS System. A lot of
19 the information that's in the CHRIS System is owned by
20 that particular university, or institution, or county
21 that controls that information.
22 Therefore, in order to gather that
23 information, you need to go to the CHRIS center, the
24 information center, and through an agreement like this,
25 pay the fees and stuff in order to obtain the

1 information for whatever your project is.
2 MR. RATLIFF: So, does it matter who owns the
3 information to get access to it?
4 MR. DONALDSON: It depends. Not for access
5 to the CHRIS. In other words, if you're qualified to
6 get the information and you pay the fees, then you will
7 be given the information.
8 MR. RATLIFF: Okay, thank you. And one other
9 question, is there any violation of your agreement with
10 CHRIS if you produce an analysis that's based on that
11 information, so long as it doesn't disclose the most
12 sensitive information, such as the locational data?
13 MR. DONALDSON: You mean in terms of the
14 information that you're handing out, whether they're
15 sensitive sites or they're sites that --
16 MR. RATLIFF: Well, if your a party, say, to
17 this proceeding and you wanted to produce testimony on
18 the impact or the significance of the resources, is
19 there any violation of a CHRIS agreement if you
20 actually were to prepare testimony on that, if you
21 didn't disclose the locational data?
22 MR. DONALDSON: No, and that happens all the
23 time.
24 MR. RATLIFF: Okay.
25 MR. DONALDSON: In fact, there was a case

1 that came up several years go, before I became as the
2 State Historic Preservation Officer, where a city
3 actually took the information and on their FTP site
4 went ahead and put all the information, all the
5 sensitive sites, even the burials on there, and
6 published it for anybody to read. And it came down
7 very heavy on them on that particular case.
8 So, as long as you're protecting the
9 resources both from either a trinomial number, or a
10 site location map, or a detailed description of that,
11 according to the CHRIS criteria, then you can certainly
12 go ahead and put a report of findings and what you're
13 determinations are.
14 MR. RATLIFF: Yeah, I don't know if this
15 question is one for you or one for Dr. Hunter, but you
16 heard the statement earlier, by Mr. Whitley, perhaps
17 it's Dr. Whitley, that if you have access to CHRIS you
18 would get not only the final report from BLM, but you
19 would also get access to all the other documents,
20 including the background documents that were done in
21 the field by the consultants. Is that correct?
22 MR. DONALDSON: If they were deposited at the
23 CHRIS, uh-huh.
24 MR. RATLIFF: Deposited, okay.
25 So, there's no restriction once you -- you

1 either have access to CHRIS or you don't then?
2 MR. RATLIFF: Okay, thanks.
3 MR. GALATI: Mr. Kramer, can I ask a few
4 questions of Mr. Donaldson?
5 HEARING OFFICER KRAMER: Go ahead, Mr.
6 Galati.
7 MR. DONALDSON: I'm not a lawyer, guys, I'm
8 an architect.
9 MR. GALATI: I'm not going to ask any more of
10 those questions. Those were particularly effective and
11 I'm done being effective.
12 Let me ask you, I'd like to try and describe
13 to you my understanding of what happens is, okay, if
14 someone is planning a project, they hire a qualified
15 archeologist. The archeologist goes to the CHRIS
16 Center, signs the agreement, shows the appropriate
17 qualification. And what that person, that consultant
18 then does is has access to studies that were done maybe
19 in and around the area.
20 And so the purpose of going to CHRIS in the
21 first place is to get the records that might be within
22 some sort of area of potential affect of a project, to
23 determine if anyone else had done work out there to
24 find stuff that we know about. Right?
25 MR. DONALDSON: Correct.

1 MR. GALATI: Okay. Then the second stage
2 would be to go out in the field and do pedestrian
3 surveys of the site to see, maybe there weren't any
4 studies in the area in the CHRIS information, so you do
5 your own studies. Correct?
6 MR. DONALDSON: That depends upon the
7 project.
8 MR. GALATI: Okay. It's that pedestrian
9 information and the compilation of what was in the
10 CHRIS from the other studies that is then bundled by
11 the consultant and given to BLM. Is that correct?
12 MR. DONALDSON: I'm not sure what the process
13 is, but that would be a good way to describe a project.
14 MR. GALATI: And so is it fair to say that
15 BLM is treating that compilation as draft until they
16 decide that it is representative or enough field work
17 has been done to bundle it into a study that they then
18 can file with CHRIS, so someone else can find it?
19 MR. DONALDSON: Yes.
20 MR. GALATI: Okay, thanks.
21 MS. FOLEY GANNON: I have a question.
22 MR. DONALDSON: Also, I'd like to note that
23 our office, for the Section 106 process, under the
24 National Historic Preservation Act, does not require
25 that you go to the CHRIS for the information.

1 We recommend that you do, unless we have a
2 program agreement, like with the U.S. Forest Service,
3 or with FEMA, or somebody like that, to where they must
4 go to the access.
5 MR. GALATI: So, it is possible, when BLM
6 determines that its report is final, it might have raw
7 data in it, but it's that data that BLM has determined
8 is now sufficiently peer reviewed or sufficient enough
9 to actually make it into the report. Correct?
10 MR. DONALDSON: It's up to them.
11 MR. GALATI: Okay.
12 MS. FOLEY GANNON: And as part of your
13 participation in the 106 process, you frequently get
14 the draft reports; is that correct?
15 MR. DONALDSON: Sometimes we do and sometimes
16 we don't. It really depends on what our intervention
17 is and also what -- we may have a programmatic
18 agreement with some of the larger federal agencies.
19 Some of the smaller ones we don't.
20 For instance, we just recently completed a
21 programmatic agreement with the California Energy
22 Commission.
23 MS. FOLEY GANNON: And if you had the draft
24 report, would you share that with a member of the
25 public?

1 MR. DONALDSON: No.
2 MS. FOLEY GANNON: And would there be a
3 process by which they could obtain that draft report
4 from you?
5 MR. DONALDSON: They can retain any kind of
6 information they want through a Public Records Act
7 request, but they would still not get the confidential
8 information.
9 MS. FOLEY GANNON: Thank you.
10 PRESIDING MEMBER DOUGLAS: One more question,
11 Mr. Donaldson.
12 MR. DONALDSON: Okay.
13 PRESIDING MEMBER DOUGLAS: You indicated that
14 the specific locations of the sites would be viewed as
15 confidential information. What other information, if
16 any, would be viewed as confidential? In this case,
17 the characterization of the sites, descriptions,
18 anything like that?
19 MR. DONALDSON: There is probably more
20 detailed information in the CHRIS manual that really
21 kind of outlines that. I can read those point by
22 point, if you wish.
23 But, essentially, it's anything that would
24 cause harm to a particular site that we consider to be
25 confidential.

1 PRESIDING MEMBER DOUGLAS: Okay.
2 MR. DONALDSON: So anything, any kind of
3 information, because there has been, in the past,
4 certain information in the way it's written, the way --
5 especially, when we're getting into traditional
6 cultural properties, where we're doing view sheds and
7 stuff like that, that almost if you could get to the
8 spot of the way it's being described, you could be at
9 that location.
10 So, we're very wary of that kind of
11 information, even though you're not having a map site,
12 an area of potential affect, and the other things that
13 actually you could GPS to the site, itself.
14 PRESIDING MEMBER DOUGLAS: If someone were to
15 indicate that there was a higher concentration of sites
16 in a certain, say, 500 square feet on the proposed
17 project site, or were to produce a high level scatter
18 plot of where sites were that was not detailed enough
19 to show where the actual site was, but was detailed
20 enough to show at least where the concentration of
21 sites were, that sort of -- that sort of presentation
22 of information, you know, does the SHIPRA provide
23 guidance on how to do that?
24 MR. DONALDSON: You know, I think you're
25 talking about the amoebas or the blogs in this case to

1 kind of show a general area where it's not -- we do not
2 support that as well.
3 PRESIDING MEMBER DOUGLAS: When you say you
4 do not support that as well --
5 MR. DONALDSON: We did not support the blob
6 imagine. In other words, sometimes you've heard about
7 people, in terms of art sites saying, well, this is
8 kind of the area that it's at, we do not support that
9 as well.
10 Rather than being very specific where the
11 actual units were being tested on the ground.
12 HEARING OFFICER KRAMER: So, you think the
13 blob is still potentially too descriptive?
14 MR. DONALDSON: Yes. Because you're
15 indicating within a certain boundary that these things
16 exist.
17 Now, if you go to the information center, the
18 information will give you a list of known sites that's
19 within your area of potential affect, but it will not
20 tell you where those sites are. You have to be
21 qualified in order to get those sites, in the sites
22 records.
23 PRESIDING MEMBER DOUGLAS: So, could you
24 potentially get a list of known sites that were within
25 a project, for example, or could you get a number of

1 known sites that were within, or within a hundred feet,
2 or within half a mile of the project?
3 MR. DONALDSON: We would not tell you that,
4 how close it is within ten feet or that. We would say
5 that it's within your area of potential affect. And
6 you could have a series of different layers of
7 potential affects, especially if you're doing a
8 cultural property analysis.
9 For instance, our Solar Two Project is very
10 similar to that. We have four different layers of
11 potential effects.
12 PRESIDING MEMBER DOUGLAS: I see.
13 ASSOCIATE MEMBER WEISENMILLER: And with
14 those layers, could one look at the potential avoidance
15 or mitigation strategies for cultural resources?
16 MR. DONALDSON: If you were qualified to get
17 that information, of course you could. Because we
18 always -- we always work with her to avoid, minimize or
19 mitigate, in terms of any kind of negative affects or
20 adverse affects to the properties.
21 You look blank?
22 ASSOCIATE MEMBER WEISENMILLER: No, that was
23 good, just looking at the chart.
24 HEARING OFFICER KRAMER: Okay, thank you.
25 MR. DONALDSON: By the way, if you want a

1 detailed in terms of how the agreement, what you're
2 signing to, what you can access, what you can't access,
3 there is some information that you cannot directly
4 access yourself. You'll have to pay one of our
5 coordinators or their staff to go in and get that
6 information and then pay that fee for them to bring it
7 out to you.
8 So, if you're wanting to know how all that
9 works, I invite you to go to our website, it's very
10 detailed, and you can comb through the manual and
11 stuff, if you really want some good reading.
12 (Laughter.)
13 ASSOCIATE MEMBER WEISENMILLER: I'm just
14 curious, do some of the fees that are paid then go back
15 to the owners of the data, is that part of the --
16 MR. DONALDSON: All of the fees do.
17 ASSOCIATE MEMBER WEISENMILLER: Oh, okay, so
18 that's why it's a bottom line thing. To quote you a
19 few minutes ago.
20 MR. DONALDSON: Absolutely.
21 ASSOCIATE MEMBER WEISENMILLER: Got ya.
22 MR. DONALDSON: The information centers are
23 much more than just a library, they provide a lot of
24 services to the public.
25 MS. KOSS: I would like to ask just a couple

1 of questions, if I may?
2 HEARING OFFICER KRAMER: Okay.
3 MS. KOSS: Mr. Donaldson, would you say that
4 the locations of the cultural resources are critical to
5 an evaluation of whether mitigation is adequate?
6 MR. DONALDSON: Yes.
7 MS. KOSS: And if an expert has CHRIS access,
8 if they've signed an agreement, does that mean that it
9 has been determined that release of that specific site
10 location information would not endanger those
11 resources?
12 MR. DONALDSON: To a qualified personnel,
13 that's correct.
14 MS. KOSS: Thank you.
15 HEARING OFFICER KRAMER: So, could there be a
16 resource that's so, so sensitive that you can't even
17 tell a qualified person where it is located?
18 MR. DONALDSON: There are some -- there are
19 some resources, although they're probably not cultural
20 resources, that we do have on military bases, that are
21 not allowed because of the mission critical.
22 HEARING OFFICER KRAMER: So, they're using
23 equipment that's over 50 years old or something?
24 MR. DONALDSON: No, they're probably using
25 state of the art, in an area that you do not want to be

1 in during that time.
2 HEARING OFFICER KRAMER: Okay. Thank you.
3 We may have more questions, but we really do appreciate
4 your coming over.
5 ASSOCIATE MEMBER WEISENMILLER: Actually, let
6 me ask one more. As I understand it, CURE also
7 submitted data requests to you and you basically
8 deferred to BLM on it?
9 MR. DONALDSON: You know, I just heard that
10 today. Personally, I'd have to check with my staff on
11 that, I was not aware of that.
12 ASSOCIATE MEMBER WEISENMILLER: Thank you.
13 MR. DONALDSON: Okay.
14 HEARING OFFICER KRAMER: Okay, Mr. Boyd, did
15 you have any particular presentation that you wanted to
16 make?
17 MR. BOYD: No, sir. You guys heard what I
18 had to say and took our testimony and declarations, and
19 I think you got enough information to do the right
20 thing and I just hope you do.
21 MS. KOSS: Hearing Officer Kramer, I just
22 received an e-mail from Dr. Whitley that he is back on
23 the line.
24 HEARING OFFICER KRAMER: Oh, good.
25 DR. WHITLEY: Yes, I am here.

1 HEARING OFFICER KRAMER: Okay, and you're
2 still sworn.
3 DR. WHITLEY: Yes, I am.
4 HEARING OFFICER KRAMER: We explored with, I
5 think probably right after you left us, the notion of
6 the degree of or level of information you need to
7 properly analyze these proposed projects and testify in
8 our proceedings, and I think you hinted at -- or you
9 may have even said that locational information is a
10 very important part of that. Am I recalling that
11 correctly?
12 DR. WHITLEY: That is correct, yes.
13 HEARING OFFICER KRAMER: So, I think I know
14 your answer, but I'll ask. Actually, that's what we're
15 supposed to do as lawyers, I suppose.
16 So, then, you would not consider it adequate
17 to know just the types of resources that are on the
18 site and also, then, be able to review the mitigation
19 that's proposed, the mitigation plan should those
20 resources be encountered during a project; that's not
21 enough for you, am I right?
22 DR. WHITLEY: Correct, correct. I would need
23 to see the original site records and the location maps.
24 For example, speaking specifically of the Genesis
25 Project, it is close to, if not on, a prehistoric lake

1 shoreline. That's potentially extremely significant in
2 terms of understanding the nature of the resources that
3 might be present there.
4 So, knowing for example that a site was
5 located in that particular spot would tell me quite a
6 lot in terms of its potential for having significance
7 in the environmental compliance since it remains
8 present. That wouldn't show up in just a data table
9 that says, you know, there's such and such site located
10 within the APE.
11 HEARING OFFICER KRAMER: So, location may
12 affect its significance?
13 DR. WHITLEY: Yes. I mean, it's one of a
14 variety of lines of evidence that an archeologist would
15 want to assess.
16 HEARING OFFICER KRAMER: Now, if you have
17 this information would you -- would you go out and
18 visit the locations?
19 DR. WHITLEY: Certainly, in some cases, I
20 have been requested to do that, that does happen. In
21 some -- in CEQA reviews and things of that nature.
22 And in this case, if I was asked to do that,
23 I would do that, yes.
24 HEARING OFFICER KRAMER: But is it also
25 possible for you to simply review the narrative that

1 another of your colleagues prepared, describing the
2 setting and do you get enough information about the
3 setting from that description to substitute, if you
4 will, for a visit to the site?
5 DR. WHITLEY: It depends on what you mean
6 precisely by narrative. I would want to see the
7 original site record, which is the data form that an
8 archeologist fills out to describe a site and that is
9 then archived in the CHRIS information centers.
10 And, frankly, it would depend on how detailed
11 that record might be. If the record is poorly filled
12 out and there's not a while lot of information on it,
13 then I would probably feel that a site visit would be
14 necessary.
15 If the archeologist -- I mean, here it's
16 partly a qualitative judgment. If they go into detail
17 and it's clear that, you know, they understand the
18 variables and so on, then it might not be necessary.
19 HEARING OFFICER KRAMER: And for the projects
20 that CURE has an interest in, have you made visits to
21 the CHRIS data?
22 DR. WHITLEY: No, I have not.
23 HEARING OFFICER KRAMER: Why not?
24 DR. WHITLEY: I haven't been asked to. And
25 my assumption at the outset, frankly, was that the data

1 had not been released to the CHRIS System, that was a
2 reaction to the BLM's request that you not -- that you
3 return the -- that the Commission returns the
4 information.
5 I was surprised, in fact, to realize this
6 morning that when I was looking over the draft EIS/EIR
7 again, it hadn't occurred to me, frankly, that
8 trinomials existed, so that something might have
9 been -- or something must have been filed in the
10 information center.
11 Now, I don't now if the BLM has also
12 requested those back, those records back or not?
13 HEARING OFFICER KRAMER: Well, but there
14 might have been records at CHRIS that resulted from
15 research done in the past, somewhere more than a year
16 ago, for instance, that would be available; correct?
17 DR. WHITLEY: Well, there might be. I have
18 no way of knowing.
19 I mean, there certainly are records of the
20 previously recorded sites within the APE, those would
21 be within the CHRIS system. But it's the newly
22 recorded sites, I have no idea when those would have
23 been submitted and, you know what their availability
24 might be.
25 HEARING OFFICER KRAMER: So, do you know from

1 the Imperial data, do you have a sense of how much of
2 the information -- because you did receive the draft
3 information; correct?
4 DR. WHITLEY: The draft.
5 MS. KOSS: May I interrupt? Sorry, let me
6 just interrupt for one moment.
7 Dr. Whitley has only been hired for the
8 Genesis proceeding.
9 HEARING OFFICER KRAMER: Oh, okay.
10 MS. KOSS: Claudia Nesley is our expert for
11 the Imperial Valley proceeding and, unfortunately, she
12 is not on the line.
13 HEARING OFFICER KRAMER: Okay. So, then he
14 has not seen, then, any of the data that -- okay,
15 understand.
16 Let me ask if any of the other parties want
17 to comment further on the notion, I think it's been
18 developed by both Ms. Gannon and her -- Gannon Foley --
19 Foley Gannon, I'm sorry, and Mr. Galati that it's not
20 necessary to have the precise locational data in order
21 to perform an adequate analysis.
22 MR. GALATI: I would like to expand on that a
23 bit. I know you don't have the Genesis staff
24 assessment in front of you and I would normally cross-
25 examine Mr. Whitley with it in front of him.

1 But if you were to, after this hearing,
2 please take a look at page 88 through 89 of the
3 cultural resource section, there is about a five-
4 paragraph descriptions that starts with "the site is an
5 oblong prehistoric archaeologic deposit, approximately
6 six, 7,689 square meters in area.
7 It is located in the southeastern portion of
8 the site. It goes on to talk about what they found
9 there. It goes on to talk about what context it's in.
10 The archaeologists for the applicant do not specify a
11 function for the site. They do suggest that the
12 presence of the ground stone is generally consistent
13 with a late archaic period occupation, 8,000 to 6,000,
14 but not explain why the site cannot also be consistent
15 with other time periods.
16 There is a lot of analysis and description of
17 this particular site, which the Energy Commission
18 staff, lacking additional information that you might
19 get from testing, have determined how to mitigate this
20 impact.
21 There is enough information here for Mr.
22 Whitley to say -- for Dr. Whitley to say that he can
23 recommend that that's the wrong mitigation.
24 There's enough information here, and this is
25 the balance, your staff has done it forever. And it's

1 a great balance, and it has worked.
2 And we heard today from the federal agency
3 they've never seen a FOIA like this before, so it's new
4 there, too.
5 So, while Dr. Whitley might get hired by
6 somebody who pays him to go to CHRIS and get the
7 information, this -- what's happening here, today, is
8 something new. We don't have to keep reinventing the
9 wheel on every solar project, they're not that
10 different.
11 So, they are large pieces of property. But
12 as we've discussed that before, what I really want you
13 to focus on here is that I anticipate in four of my
14 cases, Genesis and Blythe being the first two, that
15 come time for evidentiary hearing, we've already
16 submitted testimony on some, we're going to be
17 submitting testimony on Blythe, on Friday, so will
18 CURE, that you will get an argument or a motion from
19 CURE that says they cannot participate and we cannot go
20 forward to evidentiary hearings and you, Energy
21 Commission, can't decide a case without their
22 participation and, therefore, you shall delay.
23 So, if CURE would stipulate that they would
24 not do that information, I will pack up and leave.
25 If they won't, then I would like you to

1 decide today, or on your deliberation, that CURE does
2 not need the information.
3 And I implore you to look at what your staff
4 has done on every project, including the Genesis
5 project, and determine for yourselves whether they have
6 presented and brought that balance, redacted only the
7 information so that you don't go out and loot it, but
8 described it enough.
9 And so, I know that's contrary to Dr.
10 Whitley, I wish your staff would testify, because I
11 think it's enough.
12 HEARING OFFICER KRAMER: Were you referring
13 to the March staff assessment or the May version?
14 MR. GALATI: I haven't got the -- there's no
15 May version, yet.
16 HEARING OFFICER KRAMER: Okay.
17 MR. GALATI: The may was in proposed
18 mitigation. The March staff assessment draft EIS,
19 Section C.3. I would love to take a lot of time and
20 maybe I will in the Genesis proceeding, if Dr. Whitley
21 testifies, to go through each resource, but I can't do
22 that here.
23 He said it's not sufficient, I ask you to
24 please read it and see if you think it's sufficient.
25 DR. WHITLEY: May I respond to that, since I

1 think this started out as a question to me?
2 MR. GALATI: No, it didn't.
3 DR. WHITLEY: Oh, okay.
4 HEARING OFFICER KRAMER: Well, do you happen
5 to have that Genesis staff assessment with you?
6 DR. WHITLEY: Yes, I do, I have it up on my
7 screen and I'm looking at page 88.
8 HEARING OFFICER KRAMER: Okay. Have you
9 finished reviewing that or would you like a little more
10 time to do that?
11 DR. WHITLEY: No, I've read it previously and
12 was able to look it over right away. And my immediate
13 reaction is, yes, there is a lot of information there.
14 Is there all the information and is there enough for
15 me to adequately evaluate the status and significance
16 of the site without the locational information?
17 The answer is simply no. I mean, one of the
18 first things that's noted is that this particular site
19 was found in some proximity to another. In fact, it
20 was found, let me look again, 86 meetings north of
21 another recorded site. That's not very far, 86 meters,
22 that's less than 30 paces.
23 Now, if in fact there's an intervening land
24 form, like an arroyo, between those two sites, then I
25 probably concur that they're two separate cultural

1 resources, two distinct resources.
2 But if there's not, and if there's a
3 continual alluvial surface, for example, or colluvial
4 surface, then I'd look at that and I'd think this
5 surface inspection may not be right, this may be
6 another manifestation of that other resource, and this
7 is just much bigger, and it's been mis-mapped and mis-
8 interpreted at the initial survey level.
9 So, no, I have to disagree, as a professional
10 archeologist, that the locational information is
11 actually pretty important.
12 MS. KOSS: May I also add that not only does
13 Dr. Whitley, in his professional opinion, feel that the
14 location information is critical, but a minute ago we
15 heard from Mr. Donaldson, the State Historic
16 Preservation Officer, that the cultural resources site
17 locations is -- are absolutely critical to determining
18 whether mitigation is adequate. And CURE did not hire
19 Mr. Donaldson.
20 MR. GALATI: Yeah, but what Ms. Koss fails
21 to -- and what Dr. Whitley fails to make a distinction
22 is, is your staff has a different obligation than the
23 intervenor. Okay. And your staff is the person doing
24 that. They are doing that, they've done it for years.
25 So, Dr. Whitley may believe, if I worked for

1 you, at the Energy Commission, I couldn't conclude what
2 your staff has, but that doesn't mean that he can sit
3 in the shoes of your staff and say I, as a party,
4 because there's nothing in the regulations that say he
5 gets the information as staff, and my brief addressed
6 that. Your staff has a higher duty, they've done it,
7 and we need to cut to the chase here and talk about do
8 we need to continue to have a conversation about
9 whether CURE needs this information?
10 It's useful. There's lots of information as
11 an applicant I would like to have, that is useful, that
12 I don't have access to.
13 So, all I can tell you is think about what
14 you might be doing here. If an intervenor came in with
15 a commercial interest in another project, would now
16 your staff, who evaluates a confidential piece of
17 information, that might be confidential commercially,
18 is that now acceptable to that person because they're a
19 party?
20 How about if there is a person who -- let's
21 just take a recent example. Imagine giving the
22 confidential cultural resource information to something
23 like the Eastshore Project number of intervenors, with
24 all professional archaeologists.
25 You need to recognize that your staff has a

1 different obligation. CURE has decided that they would
2 like to be and have the same access as your staff.
3 They don't need to and they've proven time and time
4 again that they can participate fully without it.
5 And if we can get there, then we can let the
6 rest of this happen at the federal level. But I think
7 that's the crux of the decision.
8 PRESIDING MEMBER DOUGLAS: I'd actually to,
9 and I have been meaning to ask Mr. Donaldson for a
10 clarification or a follow-up question on that, if you
11 don't mind coming back up.
12 And, obviously, I think you understand that
13 we, the Energy Commission staff, is performing the role
14 of preparing a CEQA equivalent, but's a CEQA,
15 essentially, lead agency, with an obligation to assess
16 the environmental impacts of a project under CEQA and I
17 think you made it pretty clear that in your opinion the
18 Energy Commission staff needs locational information on
19 the sites. Is that what you said or that they should
20 have it, that they need it?
21 MR. DONALDSON: Yeah, it depends upon what is
22 out there, what research is done, how the reports and
23 the information that you have.
24 And we pretty much focus on the Section 106
25 process, not really the CEQA.

1 We did have a person working for us, who is
2 currently now working for you, that was our CEQA
3 expert, and we're not really doing any CEQA cases
4 because we get about 80 to 100 per day from the State
5 clearinghouse, so we're lucky if we can get two or
6 three.
7 In any case, under the Section 106 or, to a
8 certain degree under the CEQA/NEPA process, the more
9 information that you have on a site, the better then
10 you can plan your particular project.
11 And for instance, like Solar Two I think is a
12 prime example of that. Solar Two was much larger than
13 it is now, but there was more resources that was found
14 to the east and they decided to basically take that out
15 of their project, reduce the amount of SunCatchers that
16 they're going to have, to still meet their requirements
17 with San Diego Gas & Electric in terms of supplying
18 solar power.
19 And that's a clear case that they wanted to
20 avoid those because of the density, the impact,
21 potential cremations and stuff that's there. So, they
22 had really good information on that.
23 But in the same sense, all of the federal
24 agencies that we work with, it really depends on how
25 information -- whether or not you've got adequate

1 information in order to make a findings of effect in
2 what and how you're going to treat the property.
3 And a lot of the programmatic agreements
4 which we write into, which is not necessarily the best
5 way to do it, but it is a way to do it, is that you do
6 write it.
7 And I think you've heard from some of the
8 archaeologists today is you will find some sort of a
9 discovery document in there, you'll find a treatment
10 plan. So, in other words, if you come upon resources,
11 how you're going to treat those.
12 And if you try to rush that, without really
13 getting adequate information, it's just going to make
14 the end findings more difficult.
15 And I think you heard a couple of cases, like
16 down at Playa del Rey, that maybe in their own mind
17 adequate information, adequate research was done, but
18 once the project then started, a big discovery, then
19 ended up spending a lot more money and, you know,
20 delaying the project beyond what you wanted to do.
21 But it really varies with the agency that's
22 performing it, what the site holds, the history of the
23 site, what you get out of the information. How you
24 ground proof some of that information, whether the
25 information is correct.

1 And you do your best during the process that
2 you have and the time limits that you do.
3 By the way, a lot of people think that our
4 office somehow goes out and grounds proof this
5 information, but we act pretty much like other
6 agencies. For those particular reports and stuff that
7 we get, that are done by qualified people, we go on
8 faith as we read those.
9 If we think there's some inadequacy about
10 that we will ask questions, perhaps, to go out and get
11 more information.
12 But again, that information that we get, we
13 do not go out and ground proof, we do not do basic
14 research on the information that comes in to us.
15 PRESIDING MEMBER DOUGLAS: And so,
16 presumably, after a lead agency, either with site --
17 either with locational information or with sufficient
18 information to fulfill its requirements, produces a
19 document for public review that obviously does not give
20 away the location of sites, but characterizes them
21 something like what Mr. Galati read into the record,
22 would you say that's standard in terms of how cultural
23 resources impacts are evaluated and presented?
24 MR. DONALDSON: It's standard under 106.
25 It's perhaps not the best way we can do it, but it is

1 standard for the general public.
2 MS. KOSS: May I respond to Mr. Galati's
3 comments, please?
4 HEARING OFFICER KRAMER: Go ahead.
5 MS. KOSS: Thank you.
6 MR. DONALDSON: Am I done?
7 MS. KOSS: I'm done with you, I'm not -- I
8 just want to make it clear why CURE cannot fully
9 participate without this information. If, for example,
10 staff and the applicant agree on mitigation, it's not
11 contested, but CURE disagrees after reviewing
12 information, I mean, that would be the only way they'd
13 be able to determine that, there would be no way to
14 provide evidence to support our argument and that's our
15 burden.
16 If staff and the applicant agree, the burden
17 shifts from the applicant to intervenor to provide
18 evidence to support their argument.
19 Without the information, we will have no
20 evidence.
21 Also, I want to make that very clear, that is
22 a right as a party to submit testimony, to provide
23 evidence. And, actually, we're mandated to do so if we
24 disagree with the applicant and staff.
25 ASSOCIATE MEMBER WEISENMILLER: Well, let me

1 ask you a question. In the PUC context are you aware
2 of an organization called the Coalition of California
3 Utility Employees?
4 MS. KOSS: Yes.
5 ASSOCIATE MEMBER WEISENMILLER: Okay, is that
6 familiar?
7 MS. KOSS: It is.
8 ASSOCIATE MEMBER WEISENMILLER: Now, would
9 you be surprised if in those proceedings, particularly
10 rulemaking proceeding 05, 06, 040, that in a joint
11 brief the position of CURE -- excuse me, the Coalition,
12 was "as previously noted by joint utilities, market
13 participants wrongly attempt to equate the right to
14 gain access to Commission proceedings, to which they
15 have access, but the right to gain access to
16 confidential information, to which they should not."
17 MS. KOSS: Can you read it one more time?
18 ASSOCIATE MEMBER WEISENMILLER: Sure. "As
19 previously noted by joint utilities" -- this is a
20 filing of a number of parties, including the Coalition
21 -- "market participants wrongly equate the right to
22 gain access to Commission proceedings, to which they
23 have access, but the right to gain access to
24 confidential information, to which they should not."
25 MS. KOSS: I'm not honestly sure I understand

1 that statement. I do know that it's routine for CUE to
2 gain access to confidential information in PUC
3 proceedings through nondisclosure agreements, it's
4 routine.
5 ASSOCIATE MEMBER WEISENMILLER: It --
6 MS. KOSS: I'm sorry, I just don't understand
7 what that statement --
8 ASSOCIATE MEMBER WEISENMILLER: Well, the
9 issue the Commission was struggling with was should
10 market participants, or should their attorneys and
11 representatives, to the extent of -- attorneys and
12 consultants, to the consent they signed an NDA, should
13 they gain access to confidential information?
14 And the conclusion was they shouldn't. So,
15 essentially, they have a much tougher burden in
16 participating in those cases, to the extent they're
17 denied access to confidential information.
18 MR. BOYD: Only to the degree they're a
19 market participant though.
20 ASSOCIATE MEMBER WEISENMILLER: That's
21 correct. But at least I'm saying at least in that
22 case, where a party has a commercial interest, that
23 affects their rights as an intervenor in those cases,
24 and that's certainly been consistent with the
25 Coalition's position.

1 So, I guess what I'm trying to --
2 MS. KOSS: So, CUE is not a market
3 participant.
4 ASSOCIATE MEMBER WEISENMILLER: No, but you
5 certainly, as you indicated in your intervention
6 status, are representing the economic interest of your
7 clients, in terms of the existing projects and future
8 projects.
9 So, again, at least the basic theory is
10 should -- by being an intervenor, should you have the
11 same rights as all other intervenors? At least in that
12 context, the position of your -- I would say the firm
13 at least was representing was no.
14 MR. BOYD: Non-market participants have
15 access to that information, consumer groups, CURE, CUE,
16 all those guys, if they sign a nondisclosure agreement,
17 they can get access to the information. That only
18 applies to market participants and that has to do with
19 commercial interests, nothing to do with cultural or
20 resources, or their confidentiality.
21 MS. KOSS: Yeah, that's correct. For
22 example, we couldn't use proprietary information to
23 harm, you know, the applicant's economic interests. We
24 couldn't release proprietary information about their
25 technology, et cetera, that kind of thing.

1 So I'm not -- I just -- I don't think that's
2 applicable here. Frankly, I don't really know anything
3 about that case.
4 I do know that CUE routinely signs
5 confidentiality agreements in PUC proceedings to gain
6 access to confidential information from utilities, for
7 example. I signed one recently.
8 And the other distinction that I'll make is
9 that in the Energy Commission regulations it does say
10 that intervenors have the same rights as every party,
11 Section 1207.
12 PRESIDING MEMBER DOUGLAS: I think the
13 question that Commissioner Weisenmiller was getting to,
14 and it's also related to what Mr. Galati is asking, is
15 whether adequate access and participation to a process
16 necessarily means that an intervenor has to have access
17 to all confidential information.
18 And I think he was pointing out that in
19 another context CURE or CUE thought that it was
20 reasonable for a process to go forward or advocated for
21 a process to go forward, in which that was not the
22 case.
23 I understand that this is a different
24 context, but I think it's helpful that we indicate to
25 you that, you know, we've heard your argument, we've

1 heard Mr. Galati's argument, we certainly saw your
2 arguments in the brief and so this is helpful. If you
3 want to bring up more information in the context of
4 this proceeding to substantiate either your assertion,
5 or Mr. Galati, on your side, I think that is getting to
6 the crux of the issue or at least one of the core
7 issues that we're here to decide.
8 MS. KOSS: Well, in this case, the -- as Dr.
9 Whitley said, the confidential information is critical
10 to evaluating significant impacts and determining
11 whether mitigation is adequate.
12 As a party to the proceeding, that is our
13 right to do. So, in order to provide testimony and
14 cross-examine, it's all clearly laid out in our brief.
15 I'm not sure if I have any additional information for
16 you.
17 MR. BOYD: Can I ask a question?
18 HEARING OFFICER KRAMER: Yeah, who is this?
19 MR. BOYD: This is Mike Boyd.
20 HEARING OFFICER KRAMER: Go ahead.
21 MR. BOYD: So, is what you're saying that we
22 should just accept on good faith the applicant's claims
23 regarding the presence or absence of cultural
24 resources, as presented in the staff assessment, in the
25 draft EIS, based on the fact that it's not complete

1 information being presented, is that what you're
2 asking?
3 HEARING OFFICER KRAMER: No, I don't think so
4 because it was -- I believe they're talking more about
5 locational data and the ability to go and complete
6 review all of the conclusions that were made.
7 The absence or presence of resources is going
8 to be reported to some level of detail in the staff
9 analysis and --
10 MR. BOYD: Which is based on information the
11 staff independently turned themselves or they got from
12 the applicant.
13 HEARING OFFICER KRAMER: Well, it would be
14 from the applicants, consultants hired by the
15 applicant. But as we heard, who may not even provide
16 the data to the applicant, at least the confidential
17 parts. It just goes to BLM and BLM may choose to
18 release it to Commission staff. I gather that they
19 have in the past.
20 So, one of the questions becomes whether --
21 well, what extent --
22 MR. BOYD: Well, essentially --
23 HEARING OFFICER KRAMER: Go ahead, Mr. Boyd.
24 MR. BOYD: Well, essentially, what we're left
25 with is accepting on good faith the applicant's claim,

1 that's what I see. I don't see any independent review,
2 I don't see -- I mean, essentially, this is what
3 happened with Metcalf. We hired to qualified
4 archaeologists that both concluded there was a high
5 likelihood that human remains were present on the
6 project site.
7 The Commission ignored this and chose to
8 accept, on good faith, the applicant's claim that such
9 remains were unlikely.
10 Then, in June 2002, 17 to 20 human burial
11 remains were discovered, ten cultural artifacts were
12 found, too.
13 And so, my question is that's why I'm asking
14 you this, why should we rely, on good faith, on
15 applicant's claim, because that's what we're doing.
16 Because, obviously, the Commission staff doesn't have
17 the resources to independently collect the data on
18 their own that is needed for them to make an informed
19 decision.
20 So, how can you expect intervenors to accept
21 that is what I'm asking? How can you just expect us to
22 accept the claims that are in the staff assessment, in
23 the draft EIS that, basically, you got that information
24 from the applicant?
25 MS. KOSS: May I just ask if Loulena Miles

has any additional comments to make, as counsel for CURE?

HEARING OFFICER KRAMER: Go ahead.

MS. KOSS: Thank you. Loulena, are you there?

MS. MILES: I am.

MS. KOSS: Do you have any additional comments to make in response to Commissioner Douglas's question? I just wanted to give you the opportunity, if you do.

MS. MILES: I thought you stated it quite well, that's it really that we need this information in order to participate and that it is the basis for our testimony. It is the evidence that supports our testimony.

So, I think that pretty much sums it up.

HEARING OFFICER KRAMER: Okay, staff, do you want to -- are you willing to respond to Mr. Boyd's rhetorical question?

MR. RATLIFF: Well, I don't think it would be a response that would be satisfactory to him. But the check on applicant's data, of course, is that it's provided by BLM and the Energy Commission staff. That's the role of the agencies, that's the burden of the agencies.

1 And I think that there is, in addition to
2 that, something of a misconception that has arisen, and
3 it gets repeated, and I feel like I have to say
4 something about it. That by virtue of becoming an
5 intervenor that you have exactly the same rights as the
6 staffs of the agencies, or of the applicant, itself,
7 and I think that's not only questionable, it's actually
8 wrong.
9 And I'll tell you why. Because the role of
10 intervenors -- intervenors come into a proceeding with
11 no duties, except those that the Committee may assign
12 to them.
13 The duty of the applicant is a very high
14 duty, they have to prepare an application, they have to
15 present a great deal of testimony to go forward with
16 their case.
17 That the role of the staff, the duty of the
18 staff is a very high one because we have to provide an
19 environmental document that is legally sufficient, as
20 does BLM. Not a party to this proceeding, as they were
21 characterized, but also a sister agency with that duty.
22 That's very different. And there is,
23 generally speaking, no due process right and no
24 statutory right and, in the view of staff at least, no
25 right under our regulations to unfettered participation

1 in the same manner that the staff participates in the
2 proceeding.
3 I think the misconception comes because the
4 Energy Commission has, as a cultural matter, always
5 tried to accommodate the interests of intervenors such
6 that they could fully participate and that's certainly
7 a value that we have here, and that is important to us.
8 But it's not the -- that's different, I
9 think, and we have to recognize the distinction between
10 a cultural participation and an agency culture as being
11 different and distinct from a legal right or a legal
12 imperative.
13 And that's -- that's what I think I had to
14 address in view of the comments that preceded.
15 MS. BELENKY: Excuse me, are other parties
16 going to be able to address that point?
17 HEARING OFFICER KRAMER: Are who?
18 MS. BELENKY: Are other parties going to be
19 able to address that point, now that we're far away
20 from the cultural resource issue?
21 HEARING OFFICER KRAMER: Certainly, and I
22 think they have been so far.
23 Mr. O'Brien? Who was that speaking?
24 MS. BELENKY: I'm sorry, this is Lisa
25 Belenky, with the Center for Biological Diversity.

1 HEARING OFFICER KRAMER: Lisa, hold on a
2 second and we'll get -- we certainly invite you to
3 discuss that.
4 But Mr. O'Brien, I think, wanted to follow up
5 to Mr. Ratliff's comment.
6 MR. O'BRIEN: Yeah, thank you, Mr. Kramer. I
7 just wanted to make one point in response to Mr. Boyd,
8 which is the staff performs, the Energy Commission
9 staff performs an independent analysis in the area of
10 cultural resources.
11 And so, while it's true that on these solar
12 projects the applicants hire consultants, who go out
13 and survey the project site, the staff reviews that
14 information. In many instances, the staff is on site,
15 itself, meeting with the agency representatives from
16 the BLM, for example.
17 And so, it's an incorrect statement by Mr.
18 Boyd that the Energy Commission staff does not perform
19 an independent analysis.
20 MS. CAMPBELL: Commissioner, can I add to
21 that? This is Vicky Campbell, with the Bureau of Land
22 Management. I'd like to support what Mr. O'Brien said.
23 And also, address what Mr. Boyd said about
24 the data belonging to the applicant and us just
25 accepting what the applicant has said.

1 As I described and Dr. Hunter described, is
2 the consultants are working on BLM managed lands, in a
3 sense for BLM, even though they are paid by an
4 applicant, and that data belongs to the U.S.
5 government.
6 And as Dr. Hunter explained, that when we do
7 get a draft report from a consultant, that it does go
8 through an analysis by the BLM archaeologists and
9 additional work might be required before BLM ever
10 finalizes it.
11 So, it actually becomes a BLM document and
12 the data becomes BLM even before we pass it to
13 California Energy Commission.
14 HEARING OFFICER KRAMER: Thank you.
15 MR. BOYD: Thank you for that.
16 HEARING OFFICER KRAMER: Okay, Lisa Belenky?
17 MS. BELENKY: Yes, hi. I just wanted to --
18 can you hear me okay?
19 HEARING OFFICER KRAMER: You're fine.
20 MS. BELENKY: Okay. I just wanted to address
21 a few points that have been made and, first, I think I
22 need to go back to this point that was just made, I
23 believe, by Mr. Ratliff, on behalf of the staff.
24 And I think that we're way far away from the
25 cultural resource issue before us. But intervenors are

1 parties and need to be treated equally for many
2 reasons. And if the -- if the Commission is going to
3 change that and treat the parties differently,
4 including the intervenors, we would like an opportunity
5 to brief that issue.
6 I do not believe and I do not accept what Mr.
7 Ratliff said as accurate.
8 Secondly, several times it has been raised in
9 this today, this afternoon, in this hearing that, you
10 know, these issues were raised either at a late stage
11 or it's just this is a mere delaying tactic.
12 And I don't believe that that is accurate and
13 I do not feel that that is fair to the way the issue
14 was raised.
15 And we are clearly operating under an
16 accelerated schedule, which the Commission, itself, has
17 stated many times and, indeed, in the staff -- the
18 staff briefing on this matter, they mention the
19 accelerated schedule.
20 And it is really important to accommodate all
21 of the parties and the public having a full and fair
22 review of these projects.
23 Now, I'm not, at this time -- the Center for
24 Biological Diversity is not at this time taking a
25 specific position on how the data, especially the site-

1 specific, very fine-grained data on cultural resources
2 is released or is provided to various parties.
3 However, we are very concerned that any
4 resources would be destroyed when there hasn't been
5 adequate public review and an ability for the public to
6 be part of that process.
7 We are also concerned that in the State side
8 of this process, before the CEC, the tribes are clearly
9 not represented. They are represented in a government-
10 to-government procedure, in front of the federal
11 government, and that these two processes need to take
12 the time it requires to ensure that all of these
13 resources are adequately protected.
14 I think the standard is quite different if
15 the resources are not impacted by the project, compared
16 to if the resources will be destroyed by the project,
17 and we need to keep that very much in the front of all
18 of our proceedings.
19 You know, we have tried very hard and all the
20 intervenors have, I think, to accommodate the
21 accelerated schedule, but that cannot be done at the
22 expense of the resources or the legal requirements.
23 So, I think those are just the few things I
24 really wanted to say. I really want to thank everyone
25 for giving us this opportunity to flesh out and hear

1 all of these issues, it's been very, very enlightening.
2 HEARING OFFICER KRAMER: I'm not sure I
3 understand the depth, the degree of the argument with
4 regard to the tribes. Are you saying that the tribes
5 need to be consulted in the decision about what data
6 gets released or just that they need to be consulted
7 before a final report is prepared and released to any
8 of the other parties?
9 MS. BELENKY: Well, on the latter, I don't --
10 you know, it's a very complicated area of law because
11 the federal government acts as trustee to the tribe.
12 And I believe that the tribe's position may be somewhat
13 different than the federal government's position in
14 this, and they need to be treated as a government in
15 government-to-government consultation.
16 So, I'm not going to presume to speak to the
17 tribes as to what stage and at what point they need to
18 be consulted and provided with the ability to say that
19 certain documents or information are confidential.
20 HEARING OFFICER KRAMER: Okay. Well, I'll
21 note that not tribe has made a request.
22 I gather one of their complaints is that
23 they're not getting the information from BLM and none
24 of them, to my knowledge, have made a request, similar
25 to CURE's, of the Energy Commission. So, perhaps, it's

1 an academic point.
2 MR. BOYD: Oh, but, sir, they're seeking
3 government-to-government consultation.
4 HEARING OFFICER KRAMER: With the BLM?
5 MR. BOYD: With the BLM, yeah. They haven't
6 been consulted, yet, is the point.
7 HEARING OFFICER KRAMER: Okay, well --
8 MR. BOYD: And you want them to be consulted.
9 The data will be made available when all the protocols
10 have been fulfilled. You haven't done the
11 consultation, which is part of an EIS.
12 HEARING OFFICER KRAMER: You're recognizing
13 the Energy Commission's lack of jurisdiction over the
14 federal government, right?
15 MR. BOYD: Oh, I understand.
16 DR. HUNTER: This is Doctor --
17 MR. BOYD: You have no jurisdiction at all
18 over any of this and that's the whole point.
19 DR. HUNTER: This is Dr. Charlotte Hunter.
20 The tribes have been consulted at the start of the
21 projects. They are continually being consulted.
22 They have not received the draft report
23 because we do not give out draft reports until we have
24 had the opportunity, until we make certain that they
25 are correct and adequate.

1 As I said before, a draft report is exactly
2 what it says it is and we do not give out information
3 that we are uncertain as to is validity.
4 And I also want to add in that in the review
5 of these reports and the field work, we have added a
6 third-party reviewer. Our archaeologists go out into
7 the field, the third-party, reviewing archeological
8 group goes out in the field, in addition to the
9 contractor who was hired by the applicant.
10 This is not simply a case of where the
11 applicant pays to get what they want to hear.
12 We have been very, very cautious about any
13 information getting out before that we know that it
14 meets the requirements of the Secretary of the Interior
15 before it is professionally acceptable.
16 And believe me, we have spent a very, very
17 long time getting that information to be accurate.
18 HEARING OFFICER KRAMER: Mr. Galati, you can
19 comment on this, the general topic we've been talking
20 about?
21 MR. GALATI: Yeah. Yeah, I just want to
22 reiterate in response to Ms. Belenky. The Genesis
23 Project had a staff assessment out in March, we had
24 five workshops on that staff assessment.
25 The information that I read to you was in

1 that staff assessment. There was no participant from
2 CURE, with an archeologist saying this information's
3 not good enough for us.
4 Recently, CURE filed the data response
5 request for us in Blythe and Palen three days before
6 the date was due and after the first brief filed
7 petitions to review inspections of material.
8 The Blythe and Palen Projects were out in
9 March and we had three workshops combined. Cultural
10 resources was on the topic. No member of the public,
11 no party brought up that this information is
12 insufficient to go forward.
13 So, the concept of this being late and, I
14 apologize I keep going back to this, because we're
15 going to end up doing this at every pre-hearing
16 conference if you don't make an order today that this
17 is not necessary for them, or you'll be hearing this at
18 every pre-hearing conference that we have coming up in
19 the next month.
20 But this is late, this CURE intervened in
21 December. They participated and were at different
22 workshops. Both data requests, I think that the latest
23 status report from Genesis was something like 11 to 15
24 public workshops. The adequacy of this information was
25 never disputed.

1 So, I think that if you do not say they need
2 it or not, you can at least say that it's late to be
3 asking for it in time to delay our hearings.
4 So, I disagree with Ms. Belenky on these
5 projects. Maybe on other projects, I'm not involved
6 in, it's not late. Here, it's late.
7 MS. KOSS: May I respond?
8 HEARING OFFICER KRAMER: Yes, go ahead.
9 MS. KOSS: CURE requested this information, I
10 know in the Imperial Valley case and Molina, and you
11 can correct me, but several months ago. And CURE
12 requested the information in Genesis more than a month
13 ago.
14 And CURE is not attempting to delay this
15 process at all. We would happily go forward if we had
16 the information. Unfortunately, it's BLM's decision to
17 withhold this information.
18 I'd also like to make --
19 HEARING OFFICER KRAMER: And that raises a
20 question. So, what can we do here? If BLM is the
21 owner of the data, are you wasting your time asking us
22 for it?
23 MS. KOSS: Well, we didn't think we were.
24 That's why we did. We petitioned under Energy
25 Commission regulations for confidential information as

1 laid out in Section 2506, and Chief Counsel decided to
2 release the information because CURE, number one, under
3 Section 1207, and I quote has, "Any person who's
4 petition is granted by the Presiding Member shall have
5 all the rights and duties of a party under these
6 regulations, intervenor." And that's in Chief
7 Counsel's decision to release the information to CURE.
8 That's number one.
9 Number two, releasing the information would
10 not endanger the debt of the resources because CURE
11 hired a qualified expert to review the data and sign a
12 nondisclosure agreement.
13 And, third, CURE met all of the requirements
14 in CEC regulations 2506 to obtain those documents.
15 So, we thought things were moving along
16 swimmingly. We were granted access.
17 So this is -- the delay is, unfortunately,
18 because of BLM's current stance.
19 We believe that CURE's approach in signing a
20 stringent nondisclosure agreement to ensure
21 confidentiality is sufficient.
22 You know, ultimately, it's going to have to
23 be the State of California that's going to have to
24 resolve this issue with the Department of Interior in
25 order for these projects to go forward.

1 I mean, if the State of California, if the
2 Energy Commission wants to proceed with permitting
3 these projects, they're going to have to resolve it
4 with the Department of Interior.
5 MS. MILES: And if I may, I'd like to ask
6 something. This is Loulena Miles.
7 I've participated in a number of workshops
8 for Imperial Valley where the staff has stated again
9 and again that they cannot go forward with the analysis
10 until they have -- I mean, they can't complete their
11 analysis and their testimony until they final report.
12 And I think that the information provided by Dr.
13 Hunter today, from the BLM, further supports that
14 because there's concerns about whether a draft report
15 has incorrect information in it.
16 And so, and that BLM is uncertain as to the
17 validity of the information of the draft reports, and
18 that there are third-party reviewers undergoing a
19 review of this information.
20 And so, I really think that the Energy
21 Commission shouldn't be relying on the draft report and
22 that a finalized report needs to be provided and that
23 there needs to be agreement, you know, with the BLM to
24 get the final report. And that the Energy Commission
25 cannot rely on the draft report that may have incorrect

1 information and be invalid as information.
2 HEARING OFFICER KRAMER: So, can I have Mr.
3 Ratliff and then I think Ms. Gannon wanted to say
4 something.
5 MR. RATLIFF: Could I just interject
6 something at this point, I mean, it raises -- I think
7 the last comment goes to what I think seems
8 fundamentally the issue that we're left with, and that
9 is the timing of the final reports that go into the
10 CHRIS system.
11 If the draft reports had already been filed
12 and were part of the CHRIS system, all of the data
13 would be available to anyone who cared to hire a
14 qualified person who has access and an agreement with
15 CHRIS and we wouldn't be talking about this. We could
16 tell CURE to go to CHRIS and that would resolve the
17 issue nicely.
18 The only reason we're left with the issue at
19 all, I think, is because that hasn't happened and we
20 don't have a final report from BLM that enables
21 interested parties, with qualified archaeologists, to
22 access that information.
23 And so, I wonder, I wonder if the real
24 question then is, is the timing of that report and
25 whether or not those reports will be available such

1 that both staff and other parties would have access to
2 the information in a way that they could comment
3 effectively on it.
4 DR. HUNTER: Could I interject something at
5 this point?
6 HEARING OFFICER KRAMER: Well, let me,
7 because Ms. Gannon has been waiting a while, is it on
8 this point or --
9 DR. HUNTER: Oh, I'm sorry. Okay.
10 MS. FOLEY GANNON: If it's on this point, she
11 can go ahead.
12 HEARING OFFICER KRAMER: Okay, you'd like her
13 to go ahead. Okay, Dr. Hunter, go ahead.
14 DR. HUNTER: I just wanted to explain that it
15 is standard procedure to have sometimes even first, and
16 second drafts before you have a final report. That
17 this is not unusual in archeology and it's part of the
18 process of getting the best information possible.
19 The CEC cultural resources staff has to have
20 the same types of information and we have worked hand-
21 in-hand with the CEC cultural people in order to get
22 the information that the CEC needs and the information
23 that the BLM needs from the field archaeologists.
24 And it is a refining process. It's not that
25 the contractor did a bad job, it's that we look at it

with a magnifying glass and we ask for certain things to happen. And it is just a normal part of the process.

But it is what the CEC has to have in order to come up with a staff assessment and it's what we have to have in order to fill Section 106 and NEPA.

So, I wanted to make certain that that was understood.

HEARING OFFICER KRAMER: Thank you.

And Ms. Gannon.

MS. FOLEY GANNON: Thank you. I think you just asked the question, so what are you going to do? What should you do?

And I think that there's two parts to that, really, what can you do and what should you do.

And I think that the answer to what can you do, we addressed in our brief. We do think that you can go forward with an assessment based upon the information that is before you in the staff assessments, at least the ones that we have been involved in and have reviewed. They give you an evaluation of the potential impacts, they set forth the information and we think that is sufficient, certainly to meet the legal requirements of CEQA, the Warren Alquist and your regulations.

1 Again, it's not -- none of those laws or
2 regulations require perfection. They all recognize
3 that there's going to be some limitations.
4 You're going to have to make a judgment here
5 at some point, and make a decision, and maybe you even
6 say with this perfect information we think that there
7 could be a significant impact left. Should we do an
8 override, should we approve the project, should we deny
9 the project? That's all going to come in and inform
10 your final decision.
11 But does this whole process have to stop and
12 be delayed because there is an argument about whether
13 an intervenor can have certain confidential information
14 at their fingertips.
15 And again, I think the answer is no.
16 Particularly when the reason they can't have it is
17 because the federal government has made a decision, the
18 owner of the information has made a decision that it
19 shouldn't be released in this matter, in this way.
20 So, should your process, does your process
21 have to stop? I don't think that it does.
22 And I think that in terms of an intervenor
23 having all the rights of the parties, I think you also
24 have to recognize with relationship to the cultural
25 resources, and it was raised earlier, the applicant

1 doesn't even have access to this information. We have
2 never seen the cultural resource reports because we
3 can't, it's confidential.
4 We had consultants that were paid by Tessera
5 to do this analysis, but we have never seen these
6 reports, we have never seen the maps. We have seen
7 what everyone else has seen, which is a very thorough
8 description of these are the types of resources that
9 are out there. This is basically where they are. This
10 is how we're evaluating them and this is what we think
11 is appropriate mitigation, if avoidance isn't possible.
12 I mean, that's -- that's the same thing that
13 we have.
14 And we have commented on that staff
15 assessment and on the draft EIS. And we made comments
16 about the evaluation of cultural resources, and we
17 think that those comments should be considered by you
18 and we hope that they will inform your decision.
19 I think that Dr. Whitley made some comments
20 about the staff assessment that was read out here,
21 saying, well, then, I would have a question about the
22 connection between these two resources.
23 That question, then, can be asked, and then
24 it can be responded to by staff.
25 I mean, there is certainly -- we're not

1 talking about anyone asking you to act in a vacuum.
2 We did say, and as your summary of our
3 argument in the beginning was saying that we said you
4 don't need any information, you don't need to look at
5 anything.
6 And we did say, you know, we figured you were
7 going to take it to the absolute extreme, we think that
8 there are arguments to be made under California law
9 that you could do that and you'd have to make a
10 decision about whether you want to go forward or not.
11 But we are not there today. Factually, where
12 we are today is you have hundreds of pages of
13 information in most of these staff assessments that
14 describe, very thoroughly, these resources.
15 There are mitigation proposals that have been
16 offered and we think that that's enough.
17 So, what we think you should do is you should
18 move forward. Hopefully, there's a resolution, now,
19 between the BLM and the CEC about how on future
20 projects, and on these projects going forward, this
21 information will be shared with staff and staff has
22 access to it.
23 Staff also has access to the evaluation made
24 by the BLM staff, who have extensive experience in
25 dealing with these resources.

1 Again, under your regulations, it's totally
2 appropriate for you to rely upon an assessment made by
3 another agency, after independently reviewing it.
4 So, we think that there isn't a huge problem
5 here and there is a clear path forward, should you
6 choose to take it.
7 HEARING OFFICER KRAMER: Okay, let's go off
8 the record for a minute and we're going to caucus.
9 Back you in a second.
10 (Off the record.)
11 HEARING OFFICER KRAMER: We're back on the
12 record.
13 We've decided that we've run out of questions
14 for you. So, does any party wish to make a concluding
15 statement?
16 Mr. O'Brien.
17 MR. O'BRIEN: Mr. Kramer, I just wanted to
18 say, you know, on behalf of the staff that, you know,
19 first of all I'm going to state the obvious. That this
20 issue is having an adverse impact on our timely review
21 of the projects and, therefore, we hope and desire that
22 the Committee will reach a timely decision here that
23 will allow us to go forward with this analysis.
24 Obviously, it's having some impact right now
25 in terms of staff's ability to review the information,

1 the confidential cultural information in BLM's
2 possession.
3 And so, I'm confident that the agencies are
4 going to be able to come up with a mechanism that will
5 allow us to be as timely as possible, but clearly a
6 Committee decision on this issue is very important.
7 The other thing I want to state is that the
8 staff does not want to have this issue adversely impact
9 our working relationship with BLM, which is critical, I
10 think, to the State of California and to the timely and
11 comprehensive processing of these renewable energy
12 projects.
13 And the agencies, BLM and the Energy
14 Commission, in conjunction with the Fish and Game, and
15 U.S. Fish and Wildlife Service, as part of the
16 Renewable Energy Action Team, have been working closely
17 together for quite some time. I think it's a very good
18 example of federal and state cooperation and I cannot
19 emphasize too much how important this positive working
20 relationship is to the Energy Commission and to, I
21 think the Renewable Energy Action Team.
22 And so, I definitely want to leave you with
23 that. And so, hopefully, you know, we can move forward
24 on this issue quickly, get resolution.
25 I would also say that the Energy Commission

1 staff, in my estimation, just speaking personally, is a
2 different party. We have an obligation to every
3 citizen in this State. We operate as an objective,
4 independent party, separate from the Commissioners. We
5 provide you with our independent analysis and, as such,
6 I think we are different than intervenors in these
7 proceedings. And, as such, I would just leave you with
8 that thought.
9 HEARING OFFICER KRAMER: Thank you.
10 Anyone else in the room?
11 MS. CAMPBELL: Commissioner, I'd like to.
12 HEARING OFFICER KRAMER: Go ahead.
13 MS. CAMPBELL: This is Vicky Campbell, for
14 BLM. I'd like to entirely agree with what Mr. O'Brien
15 said about the relationship between the federal and
16 state government.
17 And also, reiterate, as we have in numerous
18 of our communications, that BLM did seek and continues
19 to seek return of the data, the sensitive data, so that
20 we can control its dissemination consistent with
21 federal law.
22 And that once the Commission does make its
23 decision and the data is returned to BLM, that we can
24 quickly come to agreement with the Energy Commission on
25 how data is exchanged back and forth. And we do have

1 some recommendations for that, as was put forward in
2 our documents.
3 But, again, we would like to have the data
4 back and be able to control its destiny, as was
5 appropriate under federal law.
6 HEARING OFFICER KRAMER: Anyone else in the
7 room?
8 MR. RATLIFF: None from me.
9 HEARING OFFICER KRAMER: Anyone on the --
10 MS. KOSS: I would like to make a statement.
11 HEARING OFFICER KRAMER: Okay, Ms. Koss.
12 MS. KOSS: Thank you. As CURE stated today
13 and in its briefs, it cannot fully participate in these
14 proceedings without this information. And you heard
15 from our expert the same. It is our right to
16 participate fully under the Energy Commission
17 regulations.
18 And it seems to me that the real concern is
19 the endangerment of these resources by release of the
20 information. There's no evidence that release to
21 qualified archaeologists, for example Dr. Whitley,
22 would endanger the resources.
23 And it seems like because this information is
24 routinely released to professional archaeologists,
25 there may be a solution. I hope that BLM can

1 communicate with CURE to figure out how we can gain
2 access to the same information that staff has had
3 access to, to form their staff assessment.
4 I believe, because it is routine, we may be
5 able to come to agreement. I understand that it's on a
6 case-by-case basis and there's no guarantee.
7 So, although I'm hopeful, CURE still may be
8 left in the lurch if BLM decides, for some reason, that
9 our professional archeologist cannot have access to it.
10 I don't know why they would come to that conclusion,
11 but it is a possibility.
12 I'm just putting that on the table that
13 perhaps that is the solution to the problem, that we
14 could gain access to the information, not through the
15 CHRIS system, but from BLM directly.
16 Perhaps BLM wants to comment on that right
17 now, I don't know.
18 HEARING OFFICER KRAMER: Your choice.
19 MS. CAMPBELL: Those are decisions that would
20 have to be made in the future and I'm not here to do
21 any pre-decisional type of speaking.
22 So, that is something that through the
23 regulatory, the federal regulatory processes that CURE
24 would have to come through to request any information
25 from BLM, so it would have to be consistent, again,

1 with federal law and the regulations that govern how
2 BLM releases sensitive data.
3 MS. KOSS: May I just ask how CURE should
4 request this information from BLM? We've tried FOIA
5 and we've tried through the 106 process, and neither of
6 those processes have produced documents, so I'm not
7 sure what the next step is?
8 HEARING OFFICER KRAMER: Maybe you should
9 have that discussion offline. But we certainly
10 encourage you to do that. Maybe you can have it on the
11 way out of the building, get started.
12 But, yes, we -- I think we would -- anything
13 that you to parties, and then any other party who's
14 interested in getting the data, can do to speak
15 directly with BLM, that does seem to be the most direct
16 and perhaps fruitful approach.
17 MS. KOSS: But without the guarantee, there's
18 still a dilemma.
19 HEARING OFFICER KRAMER: Well, you'll have to
20 wait and see what the Committee decides but, you know,
21 there's no guarantee with -- the Commission process
22 hasn't been exactly smooth, either.
23 Do you want to say something?
24 MR. BOYD: Can I say something, now?
25 HEARING OFFICER KRAMER: Let me finish in the

1 room, Mr. Boyd, and then we'll go to you.
2 MS. FOLEY GANNON: I'd just like to echo what
3 Mr. O'Brien said, we hope to see a timely decision so
4 that we can move forward on these issues. I know that
5 you're well aware of the pressures that are playing in
6 these cases, and particularly upon staff and meeting
7 their deadline. So, we hope that we will hear a timely
8 decision.
9 And on behalf of Tessera, I would just like
10 to thank you for giving us this opportunity to
11 participate in this conversation this afternoon.
12 HEARING OFFICER KRAMER: Mr. Boyd, was it?
13 MR. BOYD: Boyd, yeah.
14 HEARING OFFICER KRAMER: Go ahead.
15 MR. BOYD: You know, first I want to say that
16 CARE fully supports what the BLM is requesting. We
17 have no question about the BLM's ability to impartially
18 analyze the data that they're collecting and
19 appropriately distribute that data through the
20 appropriate legal avenues. That would be available to
21 anyone, I assume, who's qualified to receive that data
22 once the final report is made final and released by the
23 BLM.
24 So, that raises the fundamental issue for
25 these projects, which is the timeline, for them to

1 receive their 30 percent tax grant that they're seeking
2 under ARRA, and that's the concern, that's a commercial
3 concern, a commercial interest of all the applicants
4 that are a party to this matter today.
5 And we believe that the CEC has to do what
6 the BLM is requesting and both the CEC has to comply
7 with their laws, the state law and the federal law.
8 And that should be harmonized, there should be no
9 disparity or any reason for there to be a problem with
10 that.
11 But you just got to take the time to do it
12 right, that's what I'm hearing.
13 And so, I don't hear any pre-judgment on
14 whether CURE can get that information or not. I think
15 that everyone can get the information through the
16 appropriate channels, as defined by the BLM.
17 And I would ask Dr. Hunter if I said anything
18 that is inconsistent with that or if that's wrong in
19 any way?
20 MR. BOYD: Well, I don't hear anything, so I
21 assume this is correct.
22 HEARING OFFICER KRAMER: Any other closing
23 comments?
24 MR. BOYD: My other point, that I wanted to
25 make for my closing comment is I come back to what I

1 call the invisible Native American. We want -- what I
2 look for and the way I determine whether there's
3 adequate information, as an intervenor representing
4 Native American members, is I look for what they tell
5 me is correct and what they tell me is incorrect.
6 And if they tell me there's some cultural
7 resource site here that's significant to them, that is
8 being missed, I'm going to trust them over what your
9 report says. Okay. And I'm going to fight for them to
10 prove their case as far in the courts as I have to go
11 to do that.
12 And so, that's my perspective on it. I just
13 want you to do the right thing. I'm not telling you
14 what to do, I'm just saying let the process do what the
15 law says and consult the tribes.
16 I'm hearing the BLM saying they're
17 consulting, they just want to give them the final
18 report, so that they have something that's meaningful
19 to consult with them about.
20 HEARING OFFICER KRAMER: Okay. Well, that
21 sounds like a conversation you should have with the
22 BLM, not the Energy Commission.
23 MR. BOYD: No, that's the same thing the
24 intervenors want, that's the same thing the Commission
25 staff wants. The staff wants the same information the

1 intervenors want and the tribes want.
2 So, let's just wait for the information
3 before we make a pre-decision on something without all
4 the information at hand. That's all we're trying to
5 say. You can revise your staff analysis at a future
6 data.
7 So, let's just wait until we get the
8 information and then do -- revise the analysis and give
9 the tribes their rightful right to participate in the
10 project.
11 And, you know, it's unfortunate that you
12 can't do all that within the timeline that the
13 companies want.
14 And the job for the Commission, obviously, is
15 to figure out what time is reasonable. And I guess
16 I'll leave it at that.
17 HEARING OFFICER KRAMER: Thank you. Anyone
18 else on the telephone want to make a closing statement?
19 Okay, do we have anyone who wishes to make a
20 public comment, either on the telephone or -- I don't
21 see any members of the public in our audience, but does
22 anyone wish to make a public comment? Oh, do we have
23 one? No.
24 Public comment going once, twice --
25 MR. THOMPSON: This is Robert Thompson.

1 HEARING OFFICER KRAMER: Thank you.
2 Ms. Belenky, we've taken your suggestion that
3 further briefing is necessary on the issue of what the
4 scope of the intervenor's rights are. And we're
5 declining your offer to do that on the basis that the
6 issue was put on the table for these hearings by
7 question number 14, on at least in the sense that it's
8 relevant to what we're discussing in general.
9 By question 14, of Appendix C, of the notice
10 of this hearing. Which asked, in essence, if the CEC
11 staff has access to certain data must some or all
12 parties have access under the Warren Alquist Act, or
13 the Commission's regulations, CEQA, NEPA, other laws.
14 So, we believe that we've heard enough on
15 that topic and we don't feel the need to take further
16 briefing.
17 Procedurally, our court reporter contract
18 will deliver a transcript to us, hopefully, on Monday,
19 that's about three days, and we hope to be able to
20 issue a decision shortly after that. But it may be
21 that we need to wait to be able to make some reference
22 to the transcripts and get some of the quotes exactly
23 right.
24 But we do hope to issue a decision very
25 quickly.

1 And with that, we'll thank you all for coming
2 or calling in. And do you want to make any closing
3 comments?
4 MS. BELENKY: Oh, I'm sorry, I missed when
5 you said my name. This is Lisa again. I touched the
6 phone to get off mute and I missed what you said, but
7 you took my question.
8 HEARING OFFICER KRAMER: Okay. No more
9 briefs. We're not going to invite briefs on the issue
10 of the scope of intervenor's rights.
11 And I'll just refer you to question 14, of
12 Appendix C, of the notice of this hearing, which seems
13 to have put that issue on the table.
14 And we've certainly talked about it, in the
15 Committee's mind, sufficiently today.
16 So, we're not going to invite further
17 briefing on that topic.
18 ASSOCIATE MEMBER WEISENMILLER: Okay. No, I
19 just wanted to thank everyone for their participation
20 today and for their filings, I think they've given us a
21 lot to think about and to move forward. Thanks again.
22 HEARING OFFICER KRAMER: Okay, so we are
23 adjourned.
24 (Whereupon, at 6:05 p.m., the
25 Committee Conference was adjourned.)

CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Consolidated Hearing; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said conference, nor in any way interested in the outcome of said conference.

IN WITNESS WHEREOF, I have hereunto set my hand this 14th day of June, 2010.

PETER PETTY, CER**D-493

CERTIFICATE OF TRANSCRIBER

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.

/s/ Barbara J. Little
Barbara J. Little, CET**D-520

June 14, 2010

EXHIBIT 517

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

TESTIMONY OF MATTHEW F. HAGEMANN ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON HAZARDOUS MATERIALS AND WASTE MANAGEMENT OF THE GENESIS SOLAR ENERGY PROJECT

June 18, 2010

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2364-074a

I. Introduction

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Project" or "GSEP") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential environmental and health and safety impacts.

My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 25 years of working on environmental issues. A summary of my education and experience is attached to this testimony as Attachment 1.

II. Failure to Estimate Annual and Worst Case Spill Volume

The Project proposes to use parabolic mirror solar trough technology. The Revised Staff Assessment ("Revised SA") states that GSEP would circulate 2,000,000 gallons of Therminol VP-1 heat transfer fluid (HTF) through a piping system to generate high pressure steam.[1] This is the same technology and the same HTF used at the Luz Solar Energy Generating Stations (SEGS) III through IX facilities Kramer Junction, California.[2]

Past HTF spills at the SEGS facilities have generated significant quantities of contaminated soil and the generation of liquid waste. For example, a July 27, 2007 HTF spill of 30,000 gallons (more than the capacity of a backyard swimming pool) resulted in the offsite transport of 6,408 cubic yards of impacted soil for disposal (Attachment 2). Numerous other large spills have occurred at the SEGS facilities.

The Revised SA states:

> The Project will include a bioremediation LTU to treat soil impacted by incidental spills and leaks of HTF at various concentrations. The unit will be designed and permitted as a Class II LTU in accordance with CRRWQCB and CIWMB requirements.
>
> Based on available operation data from other sites, it is anticipated approximately 750 cubic yards (on average) of HTF-affected soil may be treated per year. Larger or smaller quantities could be generated during some years, depending on the frequency and size of leaks and spills.[3]

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[1] Revised SA, p. C.4-8.
[2] http://en.wikipedia.org/wiki/Solar_Energy_Generating_Systems
[3] Revised SA, p. B.1-12.

The Revised SA provides no analysis to support the estimate that 750 cubic yards of HTF-contaminated soil would need to be treated per year in the LTU. Additionally, no attempt is made in the Revised SA or supporting documentation to quantify a worst-case spill and to identify measures that would be taken to respond to such a spill, including testing, transport, and disposal of the contaminated soil and of the spilled HTF in excess of the capacity of the LTU.

Failure to substantiate the annual estimate of HTF-contaminated soil and to identify a worst-case scenario is a significant shortcoming of the Revised SA. Large spills, on the order of tens of thousands of gallons as documented at SEGS, may also occur at GSEP and would overwhelm the 750 cubic yard per year capacity of the facility that is proposed in the Revised SA to treat contaminated soil. For example, two past spills at SEGS would greatly overwhelm the 750 cubic yard treatment facility proposed for GSEP: a May 1999 spill of 21,000 gallons which generated 2,000 cubic yards of HTF-contaminated soil and the July 2007 spill of 30,000 gallons which generated more than 6,500 cubic yards of HTF-contaminated soil (Attachment 2).

Spills of HTF are likely to generate significant amounts of hazardous waste at GSEP, well in excess of the capacity of the LTU, as evidenced by records of spills at the analogous SEGS facilities. The Revised SA makes no provisions for treatment or offsite disposal of contaminated soils that would exceed the LTU capacity. The Revised SA states only that 10 cubic yards of contaminated soil per year would require offsite disposal as hazardous waste.[4]

The Revised SA must substantiate the annual estimates of HTF-contaminated soil and identify worst case scenarios that would estimate maximum spill volumes of HTF and the amount of contaminated soil that would be generated by such spills.

III. Conditions of Certification are Inadequate to Mitigate Spills of Heat Transfer Fluid

Conditions of Certification in the Revised SA fail to ensure that impacts from HTF-spills will be reduced to less than significant. WASTE-11, the only condition of certification that addresses HTF spills, requires the following:

> The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are documented and cleaned up and that wastes generated from the release/spill are properly managed and disposed of, in accordance with all applicable federal, state, and local requirements.[5]

Waste-11 provides for no specific provisions to properly manage and dispose of hazardous substances, materials or wastes and fails to consider worst case spill scenarios that may involve thousands of gallons of HTF.

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[4] Revised SA, p. C.13-14.
[5] Revised SA, p. C.13-31.

Further, the Revised SA defers the establishment of a concentration for HTF-contaminated soils that would define whether the waste is hazardous or non-hazardous. The Revised SA states:

> Soil contaminated with HTF measured at concentrations >10,000 mg/Kg is anticipated to approved as Non-RCRA hazardous waste.[6]

Condition of Certification Waste-11 must establish specific measures to respond to spills of HTF and establish a concentration of HTF in soil that would be considered to be a hazardous waste. Without a hazardous waste criterion for HTF in soils, impacts cannot be adequately predicted, and response plans cannot be formulated to address spills.

IV. Plans for Field Response to HTF Spills are Inadequate

Inadequate provisions are made in the Revised SA and supporting documents to respond to spills of HTF in the field. The ROWD states:

> Spills of HTF will be cleaned up within 48 hours and affected soil will be moved to a staging area in the LTU where it will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material.[7]

At ambient temperatures, the HTF is of a liquid consistency at temperatures above 54 degrees Fahrenheit.[8] At the SEGS facilities, when spilled, the HTF forms wax-like piles of free standing liquids on the ground surface (Attachment 2). The piles are scooped up or are vacuumed in cleanup efforts documented at the SEGS facilities. The Revised SA makes no provisions for the management of the free standing liquids following a spill.

Additionally, the Revised SA makes no provisions for sampling HTF-contaminated soil at the point of the spill origin. The ROWD states only that spills will be "cleaned up within 48 hours and affected soil will be moved to a staging area in the LTU where it will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material."[9] Movement of contaminated soil without testing prior to placement in the LTU may result in placing hazardous waste in the land treatment unit, which is prohibited by state law, as discussed further in section VII below.

A corrective action plan for cleanup of spills of HTF-contaminated soils must be included as a requirement for certification. The corrective action plan should identify a numeric cleanup standard for HTF-contaminated soils to ensure the adequacy of cleanup in protecting human health and the environment at the point of spill origin.
The corrective action plan should include sampling procedures, cleanup goals, and methods for long term monitoring.

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[6] Revised SA, p. C.13-16.
[7] ROWD, p. 21.
[8] Revised SA, p. C.4-8.
[9] ROWD, p. 21.

V. The Presence of Benzene as an HTF Degradation Product in Vapor and Soil May Put Workers at Risk and Has Not Been Analyzed or Mitigated

Benzene is identified as a degradation product of Therminol VP-1 in the Revised SA[10] and at other solar thermal projects that utilize Therminol VP-1 as a heat transfer fluid.[11] For the purposes of modeling air emissions, the Revised SA states that thermal decomposition of Therminol VP-1 in fugitive emissions results in the formation of benzene and phenol at 89.9 percent and 9.8 percent, respectively.[12]

Therefore, when HTF is spilled on soil, workers who respond may be exposed to benzene in vapors that originate from the contaminated soil as the HTF degrades. Additionally, workers may be exposed to benzene through dermal contact with the HTF.

Benzene is a known human carcinogen.[13] Without proper precautions and protective equipment, including respirators and appropriate gloves and clothing, workers who respond to the spills may be exposed to benzene while breathing the vapor or when touching contaminated soil. Additionally, workers who tend to the HTF-impacted soil in the LTU may be at risk from inhalation of vapors and from dermal contact without precautions.

The Conditions of Certification Worker Safety-1 through Worker Safety-9 do not provide for adequate safeguards to protect workers who respond to spills and workers who tend to contaminated soils at the LTU. Worker Safety-2 does require a personal protective equipment program to be submitted to the CPM for review and comment; however, no provisions are made in the Revised SA to ensure specific protective measures for response personnel and LTU workers to prevent exposure to benzene, a known human carcinogen.

VI. Analytical Methodology for Testing HTF-Contaminated Soil is Inappropriate

The Revised SA identifies EPA Method 8015 as the test method to be used for analyzing HTF-contaminated soil.[14] However, in the review of the proposed Abengoa solar thermal facility, the Lahontan RWQCB staff determined that EPA Method 8015 was not appropriate as the sole analytical method for Therminol VP-1.[15] For soil testing at the LTU at Abengoa, the Lahonton RWQCB required analysis using EPA Method 1625B for HTF and Method 8260 for volatile degradation products of HTF such as benzene and toluene. Testing for known degradation products of HTF, including benzene, using EPA

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[10] Revised SA, p. C.5-13.

[11] http://www.energy.ca.gov/sitingcases/solar_millennium_palen/documents/applicant/data_responses_set_1/Public%20Health/DR%20172-179%20Palen%20Public%20Health.pdf

[12] Revised SA, p. C.5-16.

[13] http://www.atsdr.cdc.gov/tfacts3.html

[14] Revised SA, p. C.13-30.

[15] http://www.energy.ca.gov/sitingcases/abengoa/documents/others/2010-02-25_HTF_Conditions_From_James_Brathovde_TN-55665.pdf

Method 1625B or other appropriate analytical methodology must be incorporated into the Revised SA as a condition of certification.

Additionally, soil should be tested for benzene as a condition of the baseline characterization and annual monitoring at the LTU. The ROWD states that prior to the discharge of any HTF impacted soil into the LTU, soil samples will be taken to establish background concentration in the soil. Subsequently, soil samples will be collected on an annual basis at a depth of one foot below the compacted soil base at the LTU. The background and annual soil samples are to be analyzed using modified EPA Method 8015 to verify that HTF is not migrating below the 5-foot treatment zone underlying the unit. If HTF concentrations above the laboratory detection limit are found below the 5-foot treatment zone, the facility will implement a corrective action plan and notify the CRBRWQCB to report evidence of a release.[16]

It is essential to monitor for benzene, a known degradation product of the Therminol VP-1 HTF to be used at the site. The main ingredients of Therminol VP-1, biphenyl and diphenyl oxide, are not considered to move readily through soil, whereas benzene is known to move rapidly through soil. Therefore, monitoring for the presence of benzene with EPA Method 8260 is critical to determine if a release has occurred from the LTU.

VII. The Presence of Benzene in Groundwater as a Degradation Product of HTF Must be Considered in Monitoring Well Design and LTU Design to Prevent Degradation of Water Resources

A groundwater monitoring network, consisting of three monitoring wells, is to be established to monitor groundwater for potential releases from the six proposed evaporation ponds and the LTU.[17] Groundwater samples are to be analyzed for biphenyl and diphenyl oxide, major components of Therminol VP-1, using EPA Method 8015; however, benzene is not included in the list of compounds to be analyzed in the groundwater monitoring program.[18] The Revised SA must include benzene as a groundwater monitoring constituent using an appropriate analytical methodology.

Unlike other components of HTF, benzene is highly mobile in soil and does not typically adsorb to soil.[19] Therefore, releases of benzene would potentially move to groundwater.

The water table is found at 70 to 90 feet below ground.[20] Groundwater provides the only available water resource in Chuckwalla Valley. Designated and potential beneficial uses of groundwater in the basin include domestic, municipal, agricultural and industrial use.[21] The Revised SA must address benzene as a groundwater contaminant that could impact the designated beneficial uses of groundwater.

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[16] ROWD, p. 8.
[17] ROWD, p. 5.
[18] ROWD, Table 1.
[19] See for example http://www.cluin.org/download/toolkit/petrefsn.pdf, p. 61.
[20] Revised SA, p. C.9-52.
[21] Revised SA, p. C.9-22.

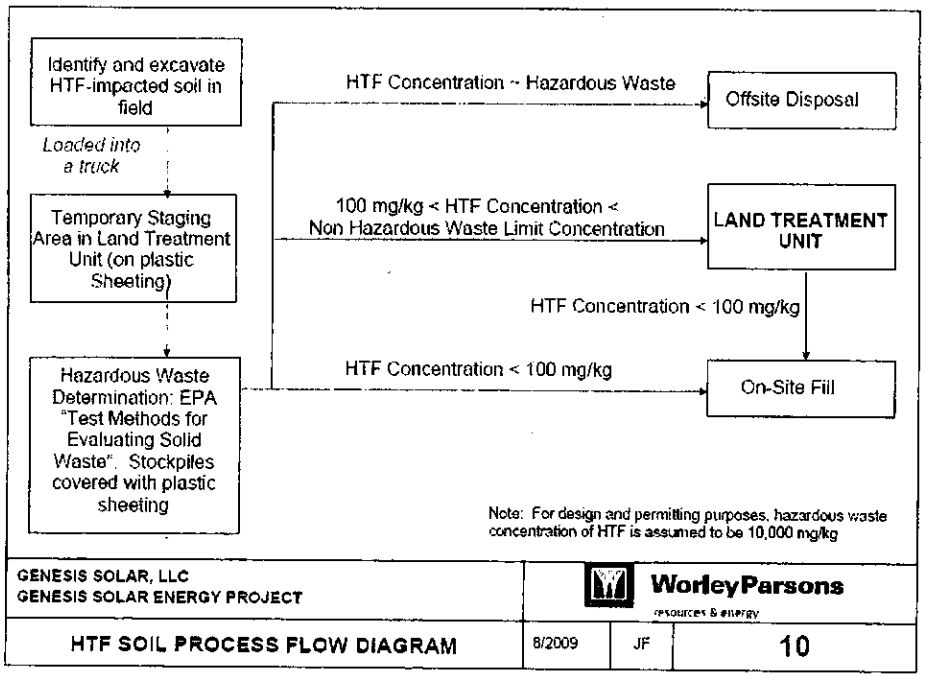
VIII. Plans for Staging HTF Spills may Violate the California Health and Safety Code

The LTU will be used for the staging of soil that is contaminated by HTF spills. The Revised SA states:

> The LTU will not incorporate a liner containment system or LCRS, but will be constructed with a prepared base consisting of 2 feet of compacted, low permeability, lime-treated material. This base will serve as a competent platform for land farming activities, and will serve to slow the rate of surface water infiltration in the treatment area.
>
> A staging area is allocated in the LTU for storage of HTF-impacted soils while they are being characterized. Soil characterized as hazardous will be removed from the site; therefore, no additional liner system is required in the LTU to cater for the hazardous waste.[22]

The Revised SA states that HTF-contaminated soil will be placed on plastic sheeting pending receipt of analytical results and characterization of the waste material.[23]

A flow diagram, as follows, is provided in the ROWD as Figure 10:



[22] Revised SA, Soil and Water Resources, Appendix B, Facts for Waste Discharge.
[23] Soil and Water Resources, Appendix B, Facts for Waste Discharge, p. 16.

The flow diagram shows that HTF-impacted soil will be placed in the staging area of the LTU without sampling. HTF-impacted soils will be identified (presumably by visual means) and then moved to the LTU prior to sampling.

Section 25203 of the California Health and Safety Code prohibits the disposal of hazardous waste except at a hazardous waste facility. "Disposal" means either of the following:

> (1) The discharge, deposit, injection, dumping, spilling, leaking, or placing of any waste so that the waste or any constituent of the waste is or may be emitted into the air or discharged into or on any land or waters, including groundwaters, or may otherwise enter the environment.
> (2) The abandonment of any waste.[24]

If a leak occurs, section 25123.3 of the California Health and Safety Code sets forth the requirements for temporarily staging waste. Temporary waste staging is appropriate for hazardous waste only if, among other criteria:

- the hazardous waste being accumulated does not contain free liquids;
- the hazardous waste is accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation, among other requirements.

If any of the requirements are not met, then the Project must be regulated as a hazardous waste storage facility under Health and Safety Code Section 25200 et seq.

The staging area of the Project's LTU does not meet the requirements for a temporary staging area under Section 25123.3(a)(2) of the Health and Safety Code for two reasons. First, the hazardous waste being accumulated would likely contain free liquids. Spills of HTF will generate free liquids at temperatures above approximately 54 degrees Fahrenheit. The ROWD and the Revised SA make no mention of liquid wastes that will be generated when HTF is spilled. Second, contaminated soil would not be "accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation." The Revised SA states only that HTF-contaminated soil will be "placed on plastic sheeting" pending receipt of analytical results and characterization of the waste material.

The Revised SA must incorporate as conditions of certification all measures necessary for compliance with all cited sections of the California Health and Safety Code.

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[24] Health and Safety Code §25113(a).

IX. A UXO Survey is Necessary Prior to Certification

A Phase I Environmental Site Assessment (ESA) was conducted in support of the AFC.[25] According to the Revised SA, the Phase I ESA found that the Project area:

> was within General Patton's World War II (WWII) Desert Training Center, California-Arizona Maneuver Area region (1942 to 1944). The region surrounding the Project Area was considered a suitable location for training troops that would be deployed in the North Africa Campaign. After 2 years in operation and the training of one million troops, the desert training camps were closed in 1944. Military trash scatter including ration containers, military-issue utensils, and one 50-caliber cartridge were identified during the Tetra Tech site visits.

The Revised SA concludes that there is potential for unexploded ordnance (UXO) at the Project site.[26]

The Phase I recommended a UXO survey, stating:

> Due to the use of the use of the Subject Property for military maneuvers, the potential exists for the presence of UXO. Prior to construction, it may be a prudent safety measure to conduct a stand-alone UXO screening of the Subject property.[27]

Condition of certification WASTE-5 requires the following:

> The project owner shall prepare a UXO Identification, Training and Reporting Plan to properly train all site workers in the recognition, avoidance and reporting of military waste debris and ordnance.[28]

Despite the Phase I recommendation, the Revised SA does not provide for a pre-construction UXO survey in WASTE-5 or in any other condition of certification. WASTE-5 provides for only a plan for a training program to identify UXO that relies upon construction personnel to identify UXO in the field during excavation and grading operations.

The need for a UXO survey prior to construction is heightened by the finding during the preparation of this testimony that the general vicinity of the Project area was in an area identified as a "gunnery range" on a map of the Desert Training Center/California Maneuver Area (see Attachment 3).

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[25] Phase I Environmental Site Assessment, Genesis Solar Energy Project, Ford Dry Lake Site, August 2009.
[26] Revised SA, p. C.13-11.
[27] Phase I ESA, p. 6.1.
[28] Revised SA, p. C.13-28.

Additional research has shown that several exercises were held in Chuckwalla Valley, in an area that the Army believed to best represent terrain found in Libya. Small unit training was emphasized in the Chuckwalla Valley. A WWII-era map of the CAMA shows a feature, labeled No. 29, to be located approximately eight miles west of the Project (see Attachment 4). The feature is identified as the Headquarters of the Army Ground Forces, 1943.[29]

During field maneuvers, divisions defended positions opposing forces by placing numerous obstructions, including minefields.[30] Palen Pass, located approximately two miles north of the Project site, was the site of the largest maneuvers during the period the CAMA was in use.[31] Fortifications were constructed throughout the area of Palen Pass and bomb craters and cartridge cases can still be found in the area.[32]

Given the intensity of the military maneuvers in the general vicinity of GSEP, the Revised SA should include a condition of certification that would require a UXO survey in the Project area. The UXO survey should be conducted by trained and credentialed UXO professionals and consistent with BLM and Army Corps of Engineers Guidance in the Project area and the transmission line right of way prior to commencement of construction. Without such a condition, construction worker safety will be potentially jeopardized by the presence of UXO.

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[29] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 2, Historical and Archeological Contexts for the Arizona Desert. p.38, Prepared for the Bureau of Land Management under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html).
[30] The Desert Training Center/California Maneuver Area, 1942 – 1944, Volume 1, Historical and Archeological Contexts for the Arizona Desert. p.102, Prepared for the Bureau of Land Management under contract with the U.S. Army Corps of Engineers, Statistical Research Inc., September 2008 (available at http://www.sricrm.com/publications/tech.html).
[31] *Id.*, p. 103.
[32] *Id.*, p. 103.

EXHIBIT 518

DECLARATION

I, Matt Hagemann, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at Newport Beach, California.

Dated: 6/18/09 Signed: M Hagemann

PROFESSIONAL GEOLOGIST
MATTHEW HAGEMANN
No.8571
STATE OF CALIFORNIA

EXHIBIT 519

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Email: mhagemann@swape.com

Matthew F. Hagemann, P.G.

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Regulatory Compliance
CEQA Review
Expert Witness

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certification:

California Professional Geologist, License Number 8571.

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Senior Environmental Analyst, Komex H2O Science, Inc (2000 -- 2003);
- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);

- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a project to provide technical assistance to a comunity adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Lead analyst in the review of numerous environmental impact reports under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions and geologic hazards.
- Lead analyst in the review of environmental issues in applications before the California Energy Commission.
- Technical assistance and litigation support for vapor intrusion concerns.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.
- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of

wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the dischrge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.
- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.

- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F.** 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

EXHIBIT 520

kjc OPERATING COMPANY

41100 highway 395
boron, california 93516-2109

phone 760-762-5562
facsimile 760-762-5546
www.kjcsolar.com

June 4, 1999

Ms. Diane Ventura
Lahontan Regional Water Quality Control Board
15428 Civic Drive, Suite 100
Victorville, CA 92392

Re: Spill Report for 5/22/99 Incident

Dear Ms. Ventura:

Attached is a report of the spill, which occurred at SEGS III on May 22. If you have any questions, please contact me at your convenience.

Sincerely,

(FOR D.RIB)

David M. Rib
Manager of Regulatory Affairs

DR/pd
DR99-006

Attachment

cc: Joe Koutsky / LRWQCB
Steve Munro / CEC

SPILL REPORT

OWNER:	Kramer Junction Company
OPERATOR:	KJC Operating Company
PERMITS:	Board Order #6-97-58, WDID #6B364550002 (site and evaporation ponds) Board Order #6-95-102, WDID #6B368909005 (bioremediation)
DATE:	May 22, 1999
TIME:	11:30 a.m.
SITE ADDRESS:	41100 Highway 395
LOCATION:	SEGS III solar field, northwest quadrant
MATERIAL SPILLED:	Heat Transfer Fluid (HTF), Biphenyl-Diphenyl Oxide
APPROXIMATE VOLUME SPILLED:	Approximately 21,000 gallons where released, at least 10,000 spilled to soil
APPROXIMATE VOLUME OF CONTAMINATED SOIL:	Approximately 2000 cubic yards
CONTAMINATED SOIL DISPOSITION:	Soil was removed and staged in the on-site bioremediation facility. The volume of the contaminated soil is beyond the current permit capacity of the bioremediation facility, so the soil will be sent to the TPS Technologies thermal treatment facility in Adelanto.
LRWQCB CONTACT:	Diane Ventura at 12:55 on 5/24/99. Follow-up message left for Ms. Ventura on 6/1/99 at 12:50.

CIRCUMSTANCE OF SPILL:

The spill was caused by the failure of a "flexhose," which is the flexible connection between segments of the "Solar Collection Assemblies" (SCA) that allows each SCA to individually track the sun angle. This particular flexhose was at the end of a row where the local isolation valve is located, so it took longer to stop the leak by isolating a larger section of the solar field. There was a strong flow of HTF spilling onto the ground for about 15 minutes. There was a loss of approximately 21,000 gallons of HTF from the system, approximately 1,500 gallons of which was recovered from standing puddles. The HTF-contaminated soil in the area to a depth ranging from a few inches to several feet deep.

There is an ongoing program to replace the flexhoses with "balljoint" connections. This conversion is approximately 40% complete throughout the SEGS III-VII site. The flexhoses are periodically inspected, and most failures can be detected as they usually leak for several days before failing completely. Some failures can occur much more rapidly, as is thought to have happened in this case.

amec

SECOND SEMESTER AND ANNUAL 2007 BIOREMEDIATION MONITORING REPORT LUZ SOLAR PARTNERS III – VII LTD. SEGS III THROUGH VII FACILITIES BORON, CALIFORNIA

Submitted by:

FPL Energy Operating Services, Inc. for
Luz Solar Partners III – VII Ltd.
SEGS III – VII Facilities
41100 Highway 395
Boron, CA 93516

Gregg Sellers
Agent For
Luz Solar Partners III – VII Ltd.

SECOND SEMESTER AND ANNUAL 2007 BIOREMEDIATION MONITORING REPORT LUZ SOLAR PARTNERS III – VII LTD. SEGS III THROUGH VII FACILITIES BORON, CALIFORNIA

10 January 2008

Prepared for:

Luz Solar Partners III – VII Ltd.
c/o FPL Energy Operating Services, Inc.
41100 Highway 395
Boron, CA 93516

Prepared by:

AMEC Earth & Environmental
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Calgary, Alberta
T2E 6J5

Project No. CE03501

Ian E. Hattie, M.Sc.
Associate

amec

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Appendix A: Second Semester 2007 Routine Soil Sampling – Laboratory Data Sheets and Chain-of-Custody Records

1.0 INTRODUCTION

Luz Solar Partners III through VII Ltd. Solar Electric Generating Systems (SEGS) III through VII sites are located at 41100 Highway 395 in Boron, California (Kramer Junction). The SEGS III through VII sites are authorized to operate soil bioremediation cells and a landfarm the location of which are shown on Figure 1. The treatment facilities were designed and constructed in accordance with the requirements of Title 23, subchapter 15, of the California Code of Regulations. Under the terms of Revised Waste Discharge Requirements (WDRs) Board Order No. 6-95-102 issued by the California Regional Water Quality Control Board - Lahontan Region (RWQCB), the bioremediation treatment facility is referred to as the "Bioremediation Unit" and the landfarm is referred to as the "Landfarm". The combined facilities are simply referred to as the "Facility". The bioremediation facility receives soils impacted with heat transfer fluid (HTF) for treatment whereas the landfarm contains a combination of partially and fully-remediated soils or soils staged for treatment in the bioremediation cells as shown on Figure 2.

Soil treatment within the bioremediation facility involves manipulation of environmental controls such as moisture content, soil nutrients (nitrate fertilizer), and aeration of the soils through weekly to bi-weekly tilling to achieve the desired conditions for enhancing biodegradation of the constituents of concern. Soils treated to below 1,000 parts per million (ppm) HTF may be transferred to the Landfarm where passive treatment (natural attenuation) is allowed to occur.

Periodic testing of the soils undergoing treatment is conducted and analyzed by an independent laboratory to confirm the concentration of HTF. Once treatment has been completed and soil HTF concentrations are below 100-ppm (the permitted limit), remediated soils are available for reuse within the sites.

2.0 HTF RELEASES AND TREATMENT MONITORING

During the First Semester of 2007 approximately 125-130 cubic yards of HTF-impacted soils were generated. These HTF-affected soils were the result of remedial actions related to unanticipated releases that occurred on-site on 27 March and 27 February 2007. In both instances recovery of free-standing HTF product was implemented as soon as the release area was secured. The largest release occurred on 27 February 2007 which involved approximately 1,000 gallons of HTF in the SEGS VI solar field. Removal of HTF-impacted soil is typically initiated once free product is removed, however in the case of the 27 February 2007 event soil removal was temporarily suspended on 28 February due to high winds.

During the Second Semester of 2007 a release of approximately 30,000 gallons occurred on 16 July 2007 in the SEGS VII Power Block resulting in the generation of approximately 6,558 cubic yards of HTF-impacted soils. Recovery of free-standing HTF product was implemented as soon as the release area was secured.

Notification of releases was made to the California Regional Water Quality Control Board – Lahontan Region (RWQCB), National Response Center, California Office of Emergency Services, San Bernardino County Fire Department Hazardous Materials Division, and California Energy Commission on 01 March 2007, 30 March 2007, and 17 July 2007.

Soils affected with HTF as a result of the releases were promptly excavated and transported to the Landfarm facility for temporary storage. In the case of the 16 July 2007 release at the SEGS VII Power Block, approximately 6,408 cubic yards of HTF-affected soils were removed and transported offsite to an approved disposal facility and another 150 cubic yards was taken to the Bioremediation facility on site. Soil samples were subsequently collected from the excavations to determine if further soil removal was required. Soil sampling reports were prepared for each of the releases that summarized the methods employed for sample collection and laboratory analytical results. These reports have previously been submitted to the RWQCB.

Releases that occurred during 2007 are summarized in Table 1 below.

Table 1: Summary of 2007 HTF Releases

Release Date	Location	Volume of HTF Released
27 February 2007	SEGS VI SCA 39P	1,000 gallons
27 March 2007	SEGS V SCA 23P	35 gallons
16 July 2007	SEGS VII Power Block	30,000 gallons

3.0 OPERATION AND MAINTENANCE REPORTING

FPL Energy Operating Services, Inc. has not experienced any technical issues since assuming operational control of the Facility. Visual observations indicate that the structure of the bioremediation Unit is in good working order and that no obvious defects or structural damage is evident.

The Bioremediation Unit is constructed with two rectangular cells and a row of concrete blocks dividing the facility into two portions, a north and south half: One half of the structure is typically used to store HTF-impacted material prior to treatment and the other half for active soil remediation.

Visual inspection of the primary concrete containment structure was last conducted in 2007 on 31 December. No structural damage or signs of weakening or failure were visible at the time of inspection.

The drainage sumps for the Bioremediation Unit are checked approximately once a week. No significant accumulation of water has been noted in the sumps, suggesting that no leakage is occurring.

4.0 SAMPLING SUMMARY AND LABORATORY ANALYTICAL RESULTS

On 08 March 2007 Northstar Environmental Remediation (Northstar) conducted a random sampling of soil from the Landfarm. Northstar also collected compliance soil samples from the Bioremediation Unit on 11 June 2007. The sampling was performed to determine the concentration of HTF in impacted soils undergoing treatment. The 08 March soil samples were collected from materials which were generated from the February HTF release at SEGS VI and which were subsequently stored on plastic sheeting in the Landfarm Remaining soil in the Landfarm represents materials generated from an accidental HTF release at SEGS III in October 2005 which was subsequently tested and found to be below the 1,000 mg/kg limit.

On 19 December 2007 Northstar collected the annual "unsaturated zone monitoring system" soil sample at a depth equal to approximately one foot below the native ground surface grade (approximately 5.5 feet below the top of the landfarm for HTF. Both HTF analytes were found to be non-detectable as shown on Table 2.

The results of the laboratory analytical analyses for the First Semester 2007 reporting period are summarized in Table 2. Laboratory reports for the First Semester sampling events were previously included in the First Semester 2007 report. Laboratory data sheets and chain-of-custody record for the annual landfarm "unsaturated zone monitoring" soil sampling event are included in Appendix A.

Soil samples were collected using a stainless-steel hand-auger, and stainless-steel drive sampler equipped with clean 2-inch diameter by six-inch long stainless-steel sample sleeves. Samples were first collected in the stainless steel sleeves and then immediately transferred into laboratory-supplied, certified clean glass jars and properly labeled. The samples were then placed into a cooler, chilled with ice in sealed Ziploc™ bags and transported under chain-of-custody to Del Mar Analytical Laboratories in Irvine, California for analysis of HTF component concentrations using EPA Method 8015 Modified for HTF. Soil was collected from four randomly selected locations in the Bioremediation Unit, composited in the field and submitted to the laboratory to be analyzed as one representative sample. The same procedure was followed for the Landfarm soil sample.

All equipment was cleaned using non-phosphate detergent and triple-rinsed with deionized water between sampling locations in order to prevent cross-contamination.

Table 2: Laboratory Analytical Results

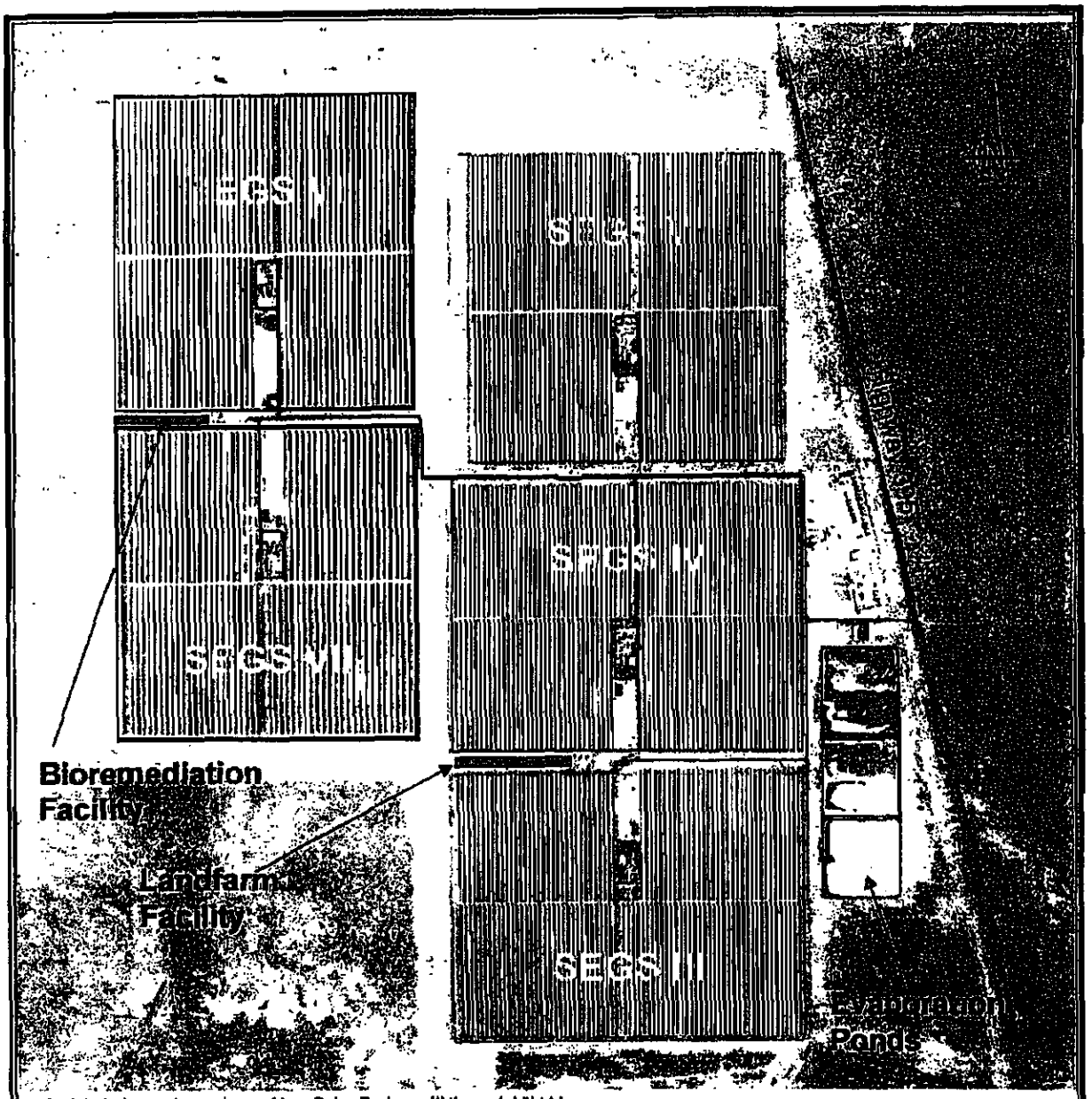
Sample Identification	Date	1,1'-Biphenyl (mg/kg)	1,1'-Oxybisbenzene (mg/kg)
LF-1[1]	08 March 2007	7,900	8,200
LF-2[1]	08 March 2007	6,200	6,200
LF-3[1]	08 March 2007	1,700	1,800
BRN (EAST) 6-11-07[2]	11 June 2007	ND	2.1
BRN (WEST)6-11-07[2]	11 June 2007	ND	33
KJ-LF-5.5'-12-19-07	19 December 2007	ND	ND

Notes:

[1] sample collected from the Landfarm facility between SEGS III & IV

[2] sample collected from the Bioremediation facility between SEGS VI & VII

Samples analyzed by EPA Method 8015B Modified for HTF. The analytes 1, 1'-Biphenyl and 1, 1'-Oxybisbenzene are components of the HTF used at the site. ND = Not Detectable



Aerial photograph courtesy of Luz Solar Partners III through VII Ltd.

No scale

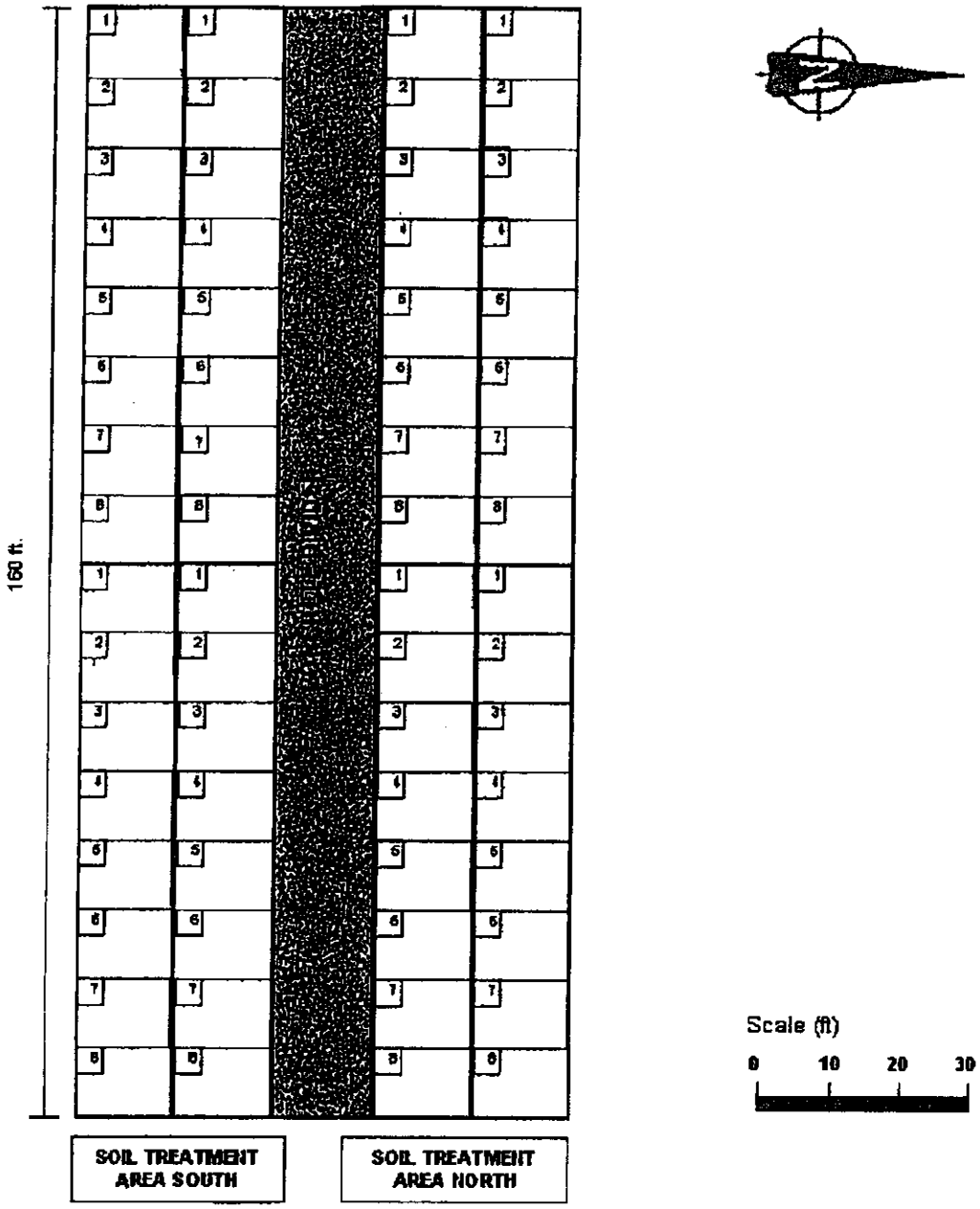
amec

Client: Luz Solar Partners III through VII Ltd.

Job No. CE03501 | Date: 28 June 2007

Figure 1 – Site Plan
SEGS III - VII
Boron, California

BIOREMEDIATION FACILITY



amec

Client: Luz Solar Partners III through VII Ltd.

Job No. CE03501 | Date: 10 January 2008

Figure 2
Bioremediation Unit Layout
SEGS III - VII
Boron, California

amec

Appendix A

Laboratory Data Sheets and Chain-of-Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

LABORATORY REPORT

Prepared For: FPL Energy Operating Systems
43880 Harper Lake Rd
Hinkley, CA 92347
Attention: Glen King

Project: FPL Kramer Junction

Sampled: 12/19/07
Received: 12/21/07
Issued: 01/03/08 11:40

NELAP #01108CA California ELAP#1197 CSDLAC #10256

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica The Chain of Custody, 1 page, is included and is an integral part of this report.
This entire report was reviewed and approved for release.

CASE NARRATIVE

SAMPLE RECEIPT:	Samples were received intact, at 4°C, on ice and with chain of custody documentation.
HOLDING TIMES:	All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION:	Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA:	All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS:	No significant observations were made.
SUBCONTRACTED:	No analyses were subcontracted to an outside laboratory.

LABORATORY ID	CLIENT ID	MATRIX
IQL2412-01	KJ-LF@5.5'-12-19-07	Soil

Reviewed By:

TestAmerica Irvine

Patty Mata
Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems 43880 Harper Lake Rd Hinkley, CA 92347 Attention: Glen King	Project ID: FPL Kramer Junction Report Number: IQL2412	Sampled: 12/19/07 Received: 12/21/07

THERMINOL (CADHS LUFT/8015B MOD)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IQL2412-01 (KJ-LF@5.5'-12-19-07 - Soil)								
Reporting Units: mg/kg								
1,1'-Biphenyl	EPA 8015 MOD.	7L21094	2.0	ND	1	12/26/2007	12/27/2007	
1,1'-Oxybisbenzene	EPA 8015 MOD.	7L21094	2.0	ND	1	12/26/2007	12/27/2007	C
Surrogate: n-Octacosane (40-125%)				*79 %*				

TestAmerica Irvine

Patty Mata
Project Manager

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FPL Energy Operating Systems 43880 Harper Lake Rd Hinkley, CA 92347 Attention: Glen King	Project ID: FPL Kramer Junction Report Number: IQL2412	Sampled: 12/19/07 Received: 12/21/07

METHOD BLANK/QC DATA

THERMINOL (CADHS LUFT/8015B MOD)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 7L21094 Extracted: 12/26/07										
Blank Analyzed: 12/26/2007 (7L21094-BLK1)										
1,1'-Biphenyl	ND	2.0	mg/kg							
1,1'-Oxybisbenzene	ND	2.0	mg/kg							
Surrogate: n-Octacosane	*6.00*		*mg/kg*	*6.67*		*90*	*40-125*			
LCS Analyzed: 12/26/2007 (7L21094-BS1)										
1,1'-Biphenyl	2.64	2.0	mg/kg	3.33		79	50-115			
1,1'-Oxybisbenzene	2.71	2.0	mg/kg	3.33		81	50-115			
Surrogate: n-Octacosane	*5.50*		*mg/kg*	*6.67*		*82*	*40-125*			
Matrix Spike Analyzed: 12/26/2007 (7L21094-MS1)					**Source: IQL2265-03**					
1,1'-Biphenyl	3.10	2.0	mg/kg	3.33	ND	93	35-120			
1,1'-Oxybisbenzene	3.17	2.0	mg/kg	3.33	ND	95	35-120			
Surrogate: n-Octacosane	*6.15*		*mg/kg*	*6.67*		*92*	*40-125*			
Matrix Spike Dup Analyzed: 12/26/2007 (7L21094-MSD1)					**Source: IQL2265-03**					
1,1'-Biphenyl	2.87	2.0	mg/kg	3.33	ND	86	35-120	8	30	
1,1'-Oxybisbenzene	2.95	2.0	mg/kg	3.33	ND	88	35-120	7	30	
Surrogate: n-Octacosane	*5.97*		*mg/kg*	*6.67*		*90*	*40-125*			

TestAmerica Irvine

Patty Mata
Project Manager

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
17461 Derian Avenue, Suite 100, Irvine, CA 92614 (949) 261-1022 Fax:(949) 260-3297

FPL Energy Operating Systems 43880 Harper Lake Rd Hinkley, CA 92347 Attention: Glen King	Project ID: FPL Kramer Junction Report Number: IQL2412	Sampled: 12/19/07 Received: 12/21/07

DATA QUALIFIERS AND DEFINITIONS

C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD	Relative Percent Difference

TestAmerica Irvine

Patty Mata
Project Manager

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FPL Energy Operating Systems 43880 Harper Lake Rd Hinkley, CA 92347 Attention: Glen King	Project ID: FPL Kramer Junction Report Number: IQL2412	Sampled: 12/19/07 Received: 12/21/07

Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 8015 MOD.	Soil	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

TestAmerica Irvine

Patty Mata
Project Manager

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

IQL2412

CHAIN OF CUSTODY FORM

1461 Dexter Ave., #100 Irvine CA 92614 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St. Suite B-120 Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas NV 89120 (702) 798-3620 FAX (702) 798-3621

IAL 0013(1007)

IQL2412 Page 1 of 1

Client Name/Address: FPL-Kramer Junction, 41100 Highway 395, Boron, CA 93516

Project/PO Number: FPL-Kramer Junction

Project Manager: Glen Irving

Phone Number: (760) 762-5562

Sampler: Ralph DeLaPaz

Fax Number:

Analysis Required: 8015 modified for Ethanol

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	8015	Special Instructions
KJ-LFC55'-12-19-07	Soil	4oz Jar	1	12-19-07	1235	on Ice	X	

Relinquished By: [signature] Date/Time: 12-20-07 @1850

Received By: Date/Time:

Relinquished By: Date/Time:

Received By: Date/Time:

Relinquished By: Date/Time:

Received In Lab By: [signature] Date/Time: 12/21/07 18:50

Turnaround Time: (Check)
same day ____ 72 hours ____
24 hours ____ 5 days ____
48 hours ____ normal X

Sample Integrity: (Check)
intact X on ice 5.5/4.4

HO 12/21/07 18:20

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

EXHIBIT 521

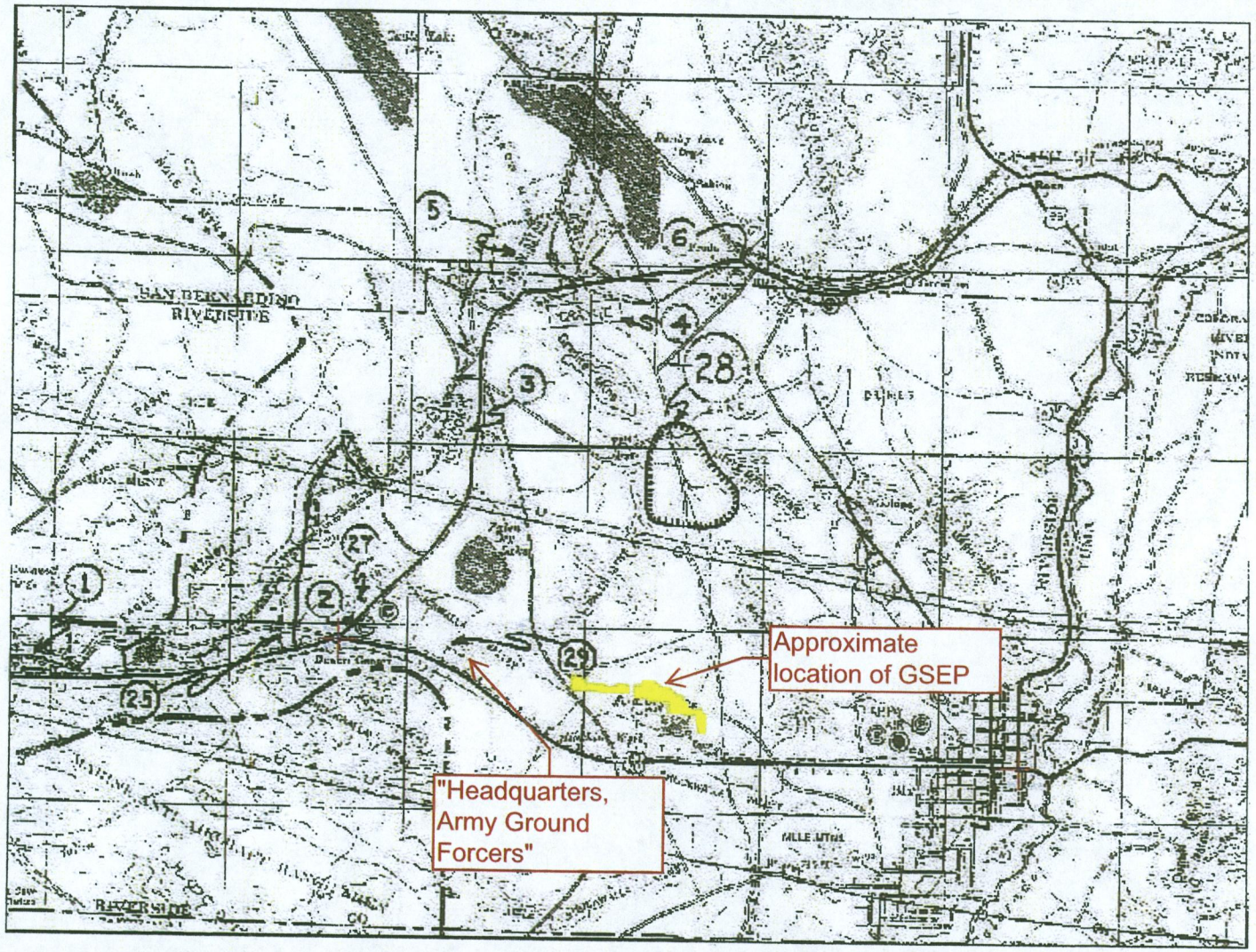

Figure 27. Map of a portion of the DTC/C-AMA, showing installations. The Palen Pass Defensive Area (a maneuver area) is marked 28. Other installations include the following: Camp Young, 1; Desert Center Observers Camp, 2; Camp Coxcomb, 3; Camp Granite, 4; Camp Iron Mountain, 5; Freda Railroad Siding, 6; Eagle Mountain Road Medical Installations, 25; Desert Center A.A.D., 27; and 18th Ordnance Battalion Camp near Desert Center, 1 and 29 (Headquarters Army Ground Forces 1943).

EXHIBIT 522

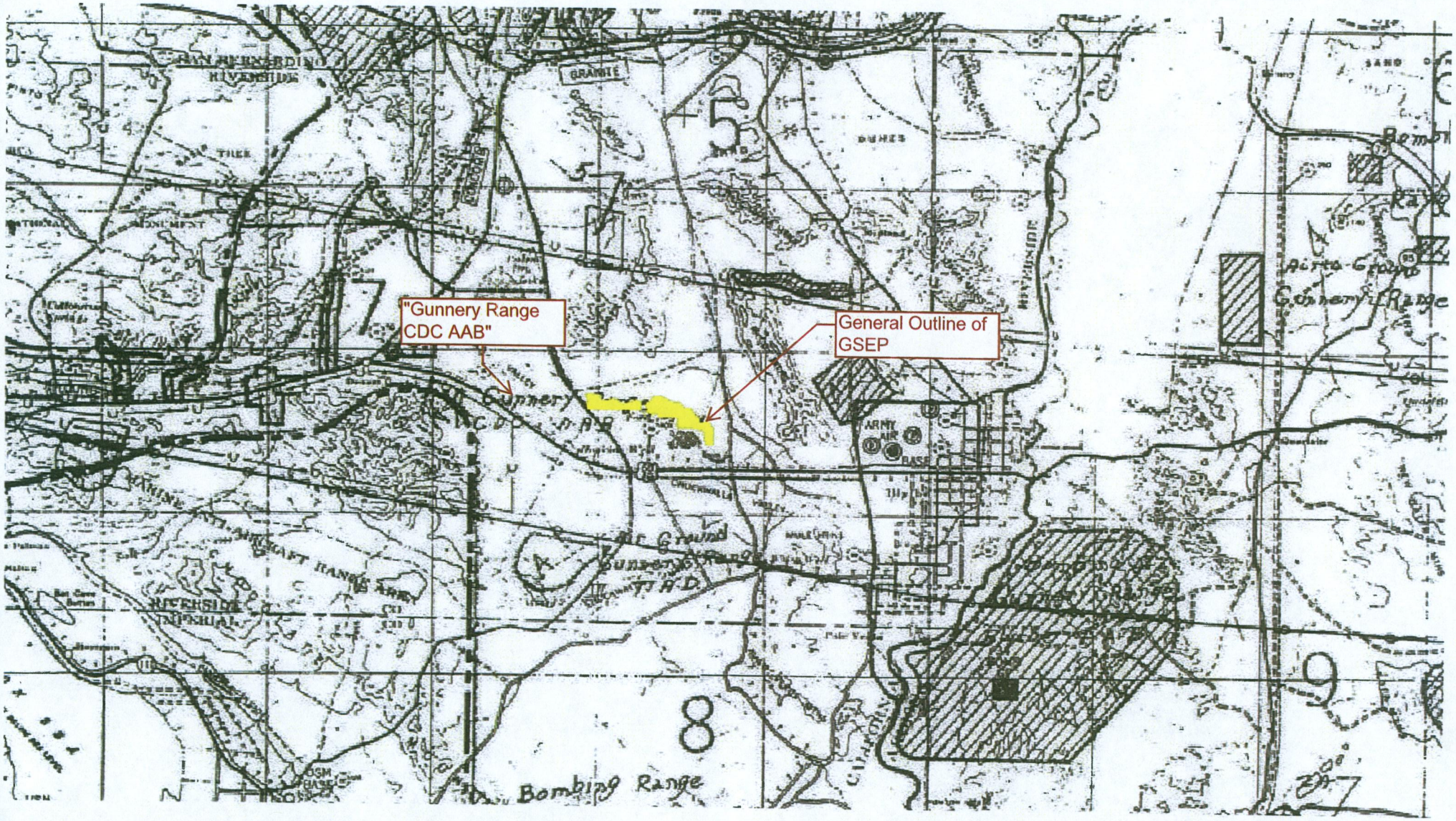
"Gunnery Range
CDC AAB"
General Outline of
GSEP
Air to Ground
Gunnery Range
Bombing Range
RIVERSIDE
GRANITE
DUNES
ARMY AIR BASE
RIVERSIDE MUNICIPAL
5
7
8
9

EXHIBIT 523

STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

In the Matter of:	
The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

TESTIMONY OF ERIC D. HENDRIX ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES OF THE GENESIS SOLAR ENERGY PROJECT

June 18, 2010

Rachael E. Koss
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Attorneys for the CALIFORNIA UNIONS
FOR RELIABLE ENERGY

2364-076a

I. INTRODUCTION

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Project" or "GSEP") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential impacts on water resources.

My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 24 years of working on hydrogeology and engineering geology issues. A summary of my education and experience is attached to this testimony as Attachment 1.

This testimony provides an analysis of hydrogeologic conditions and potentially significant unmitigated impacts associated with the Project. Opinions expressed herein result from review of the technical documents listed in the references section below, including but not limited to the AFC, several groundwater resource investigation reports prepared by consultants to the Project applicant, Genesis Solar, LLC ("Applicant"), the Staff Assessment and Draft Environmental Impact Statement ("SA/DEIS"), and the Revised Staff Assessment ("Revised SA") for the Project. We also describe additional analyses that are needed to address the impacts associated with the Project.

With the information reviewed to date, I have determined that the Project would result in the following: (1) potentially significant unmitigated impacts to the Chuckwalla Valley Groundwater Basin ("CVGB") water balance; (2) potentially significant unmitigated impacts to groundwater supply for both existing and other proposed projects within the CVGB; and (3) significant unmitigated impacts to groundwater supply within the Palo Verde Mesa Groundwater Basin ("PVMGB") and adjudicated Colorado River. My determinations are based on the fact that the technical analyses used to evaluate significant impacts in the Revised SA: (1) are insufficient to determine the adequacy of existing groundwater supply to meet proposed Project needs; (2) rely on an existing groundwater well data set with several salient gaps, the uncertainties of which have not been quantified properly with respect to long-term Project water demands and available supply; (3) do not accurately account for extractions of groundwater in storage from the adjacent PVMGB or the Colorado River; (4) erroneously assume that *total groundwater in storage* within the CVGB may be considered accessible to both the proposed Project and other foreseeable projects, without proper consideration of long-term *sustainability* of the water supply; (5) do not account for the uncertainty in future potential CVGB recharge and Colorado River water "accounting surface" levels resulting from prolonged drought and/or climate changes; and (6) do not fully

anticipate pending changes in the acquisition process for water entitlements within the fully-appropriated Colorado River.

II. STATEMENT

A. The Project Would Result in Potentially Significant Unmitigated Impacts to CVGB Balance

The Revised SA states that the Project would not significantly impact basin balance in the CVGB under existing conditions because Project pumping plus other existing basin outflows would not exceed net average recharge (inflows) to the basin.[1] According to the current water budget of the CVGB provided by the Applicant, the CVGB is estimated to have a net available water supply of approximately 2,608 acre-feet per year ("AFY").[2] The Project proposes to pump 1,605 AFY during operation.[3] Thus, Staff concludes that because there will be a net positive budget balance of 1,003 AFY with full Project operation, Project pumping will not cause an overdraft in the CVGB.[4] However, Staff's analysis fails to account for: (1) impacts to the CVGB water budget from uncertainties in the number and water demands of other proposed projects; (2) uncertainties regarding outflow from CVGB to PVMGB; and (3) uncertainties associated with the Applicant's groundwater investigations and flow model. Furthermore, the Revised SA's proposed mitigation for potential impacts to the CVGB balance is inadequate.

First, the 2,608 AFY figure includes groundwater pumping, but ***excludes cumulative impacts*** from Project pumping and pumping by other proposed local solar power plant projects, including Chuckwalla Solar I, Eagle Mountain Soleil, Desert Lily Soleil, Desert Sunlight Solar Farm, Eagle Mountain Pump Storage, Mule Mountain Solar Project, Mule Mountain Soleil, and Solar Millennium Palen Solar Project.[5] Thus, in relying on the 2,608 AFY figure, Staff overestimated the CVGB's net available water supply.

The Revised SA states that because the estimated "total recoverable groundwater in storage" in the CVGB will be 15,000,000 AF over the construction and operation period of the Project, the Project's contribution to the cumulative impact to basin balance is less than significant.[6] However, total groundwater in storage is not a meaningful baseline for effective groundwater management; rather, the conventional standard for basin management is the *perennial yield* or *operational safe yield* of the basin, which is defined as that amount of groundwater

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[1] Revised SA, p. C.9-46.
[2] Id., p. C.9-30, Soil & Water Table 8.
[3] Id., p. C.9-7, Soil & Water Table 1.
[4] Id., p. C.9-47.
[5] Tetra Tech EC and WorleyParsons, 2009, p. 10, Table 2.
[6] Revised SA, p. C.9-85.

outflow (extraction) which can be *sustained over time* without creating significant detrimental impacts, such as basin overdraft.[7] This concept of sustainability goes beyond the simple arithmetic of the water budget (inflow versus outflow), and must account for the effects of potential reduction in "expected" basin recharge during long-term droughts and climate change, and/or the ability of the basin to *naturally recharge* over time as groundwater exceeding "average" budget recharge is repeatedly extracted over a multiple-year period.[8]

Furthermore, no consideration for potential long-term drought or climate change effects have been presented by the Applicant, nor requested by Staff. Because of such uncertainties, and because large alluvial basins such as the CVGB and PVMGB do not "instantaneously recover" from such conditions, the net result is the "mining" of groundwater, which results in negative impacts such as those outlined by Staff in the Revised SA[9] (e.g., undesirable lowering of water levels in other CVGB basin wells) and the removal of groundwater in storage from the PVMGB and the Colorado River.[10] The proposed use of the estimated 15,000,000 AF of CVGB *total storage* as a basin "management bright-line" or basis for significance levels is thus erroneous; the "total basin inflow" of 13,719 AFY is the key operative quantity for basin management decisions, and is likely to more closely approximate the true *perennial yield* value for the CVGB.

Second, 2,608 AFY assumes that outflow/underflow from CVGB to PVMGB is 400 AFY.[11] However, in its response to CURE's data requests, the Applicant presented a revised estimate for the outflow from CVGB to PVMGB of 988 AFY,[12] more than double its earlier estimate of 400 AFY. Given the greater 988 AFY outflow, the available CVGB water budget must necessarily be readjusted downward to 2,020 AFY. Consequently, with Project operation there is a relatively small "margin of error" for water supply management of only 348 AFY. Given the poor water well control and water level data for the CVGB basin, such a small error-margin is unacceptable, particularly once other proposed pumpers (see above) are added into the equation. The small margin of error in the available water budget and yield poses serious concerns that the proposed Project groundwater pumping may, in combination with existing pumpers and other proposed projects, result in an overdraft situation in the CVGB.

Furthermore, no apparent effort was made by the Applicant to evaluate future potential droughts in the greater Colorado River watershed (or continuation of the existing drought, which has resulted in a 110-foot water level decline in Lake

---

[7] Bredehoeft, 2002; Devlin and Sophocleous, 2005.
[8] Alley and Leake, 2004; Kresic, 2008.
[9] Revised SA, p. C.9-58.
[10] Anderson and Woosley, 2005.
[11] Revised SA, p. C.9-47.
[12] Genesis Solar, LLC's Data Responses to CURE's Data Requests Set 2 (1-9), Item 6.

Mead, according to the U.S. Bureau of Reclamation)[13] upon Colorado River flows or water levels, and resultant impacts on water levels and replenishment to the PVMGB. Such fluctuations may significantly alter (increase) the outflow from CVGB into PVMGB, and negatively impact available CVGB water budget for the proposed Project.

Third, the Applicant's groundwater studies and resultant conclusions are based upon large uncertainties. A primary source of uncertainty originates from the dearth of adequate existing water well data essential to developing and calibrating a reliable conceptual groundwater flow model and numerical model for the groundwater basins, including both the limited well locations, type of well construction (e.g., wells shallower than the proposed Project pumping depths and flow model depths; wells which screen across multiple aquifers and confining units; wells for which no screen depth information is available) and absence of available information regarding historical water level measurements in existing wells. Each of these "data gaps" introduces significant uncertainty to a numerical flow model.[14]

For example, both the Applicant and Staff identify 54 wells within the Project well database,[15] but only 16 of these wells screen at depths within the proposed Project groundwater extractions depths (> 800 feet below ground surface).[16] Furthermore, many of these wells have been abandoned, according to the California Department of Water Resources and the National Well Information System, and are thus not available for the long-term monitoring program recommended by Staff as a mitigation measure.[17]

In addition, in its response to Staff's Data Requests Set 1A, number 149, the Applicant provided Figure WR-DR149b which indicates only two nearby wells (#9 and #15) with water level data collected during the time period of greatest interest to evaluating groundwater response to proposed Project pumping (i.e., 1988 to present, the period when local prison expansion and pumping increases occurred). This is a very limited data set of historical water levels from which to determine how the CVGB will respond to Project pumping. The Applicant acknowledged that limited well-construction details (screened intervals) are available for these wells,[18] and that the wells apparently screen depths shallower than the depth intervals proposed for Project groundwater pumping (i.e., 800 – 1800 foot depth).[19] Therefore, water level trends in these nearest wells are of limited use in evaluating long-term groundwater response to pumping in the CVGB.

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[13] US Dept. of Interior, USBR web site, 2010.
[14] Zheng and Bennett, 2002.
[15] Revised SA, p. C.9-40; Soil & Water Table 11.
[16] Id., p. C.9-5.
[17] Id., p. C.9-100, Soil & Water-2.
[18] See Applicant Response to CURE Water Resources Data Requests 1-9, Item #2, April 2010.
[19] Worley-Parsons, 2010b.

The limitations of the well data set make it unfeasible to calibrate the Applicant's existing flow model to water levels (heads), which is a conventional recommended procedure for proper flow model development and calibration.[20] Consequently, the Applicant has presented an initial model which is calibrated only to water budget and groundwater *flux*, rather than calibrated to heads. *The Applicant's own groundwater consultant has acknowledged this fact, and the limitations of its model.*[21]

Because of the numerous uncertainties associated with refining the flow model for the CVGB, the Revised SA proposes to mitigate potential impacts to the basin with a groundwater monitoring plan and a water supply plan.[22] However, the proposed plan is inadequate for several reasons. First, Staff recommends use of only *existing* groundwater wells within the CVGB for the monitoring program. However, there are no existing monitoring wells within three miles of the Project location, few existing wells screen the depths below 800 feet where proposed pumping is to occur, and existing wells largely screen across multiple aquifers and confining units as opposed to across discrete zones where Project pumping is to occur. Each of these factors diminishes the intended use and effectiveness of the *existing* wells within the Staff-recommended monitoring network.[23] Second, there are no proposed monitoring wells within the PVMGB which eliminates the ability for "early-warning" detection and mitigation of potential overdraft in the PVMGB and removal of Colorado River waters during Project pumping. Third, there are *NO* wells located within or in reasonable proximity to the critical basin boundary *between* the CVGB and PVMGB.[24] The absence of monitoring wells directly along the boundary minimizes the ability to verify the speculative flow conditions across this important boundary, and likewise decreases the ability for "early warning" detection of adverse extractions from the PVMGB and Colorado River, to which the Applicant is not legally entitled.

B. The Project Would Result in Potentially Significant Impacts to Groundwater Supply for Both Existing Uses and Proposed Projects in the CVGB

Results of pumping tests in CVGB existing wells, coupled with results of the existing Applicant groundwater flow model indicate that other existing and proposed groundwater pumpers are within the physical capture zone limits of the proposed Project extraction wells. Thus, the proposed Project would potentially

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[20] ASTM, 1993; Hill, 1998; Zheng and Bennett, 2002.
[21] Genesis Solar, LLC's Data Responses to CURE's Data Requests Set 2 (1-9), Items 2 and 3.
[22] Revised SA, pp. C.9-100-105.
[23] Id., p. C.9-40, Soil & Water Table 11.
[24] Worley-Parsons, 2010a, Figs. 6 and 10; Galati & Blek Responses to CURE Data Requests 1-9, 2010a Fig. CDR 7-1.

create a significant impact on local and regional water resources in that it will have negative impact upon water levels within wells operated by other existing groundwater pumpers and projects including State prisons pumping south of the proposed Project in the Eastern CVGB, agricultural pumping in the PVMGB to the east, and the contiguous water supplies of the Colorado River to the east, as well as several *proposed* projects with groundwater extractions in these basins (Chuckwalla Solar I, Eagle Mountain Soleil, Desert Lily Soleil, Desert Sunlight Solar Farm, Eagle Mountain Pump Storage, Mule Mountain Solar Project, Mule Mountain Soleil, and Solar Millennium Palen Project, Solar Millennium Blythe Project).[25]

The groundwater monitoring plan and water supply plan recommended by Staff to mitigate potentially significant impacts to the groundwater supply in the CVGB[26] are inadequate for several reasons. First, Staff recommends use of only existing groundwater wells within the CVGB for the monitoring program. However, there are no existing monitoring wells within three miles of the Project location, few existing wells screen the depths below 800 feet where proposed pumping is to occur, and existing wells largely screen across multiple aquifers and confining units as opposed to across discrete zones where Project pumping is to occur.[27] Each of these factors diminishes the intended use and effectiveness of the *existing wells* within the Staff-recommended monitoring network. Second, there are no proposed monitoring wells within the PVMGB. As a result, there is no ability for "early-warning" detection and mitigation of potential overdraft in the PVMGB and removal of Colorado River waters during Project pumping. Third, there are *NO* wells located within or in reasonable proximity to the critical basin boundary *between* the CVGB and PVMGB. The absence of monitoring wells directly along the boundary minimizes the ability to verify the speculative flow conditions across this important boundary, and likewise decreases the ability for "early warning" detection of adverse extractions from the PVMGB and Colorado River, to which the Applicant is not legally entitled.

C. The Project Would Result in Significant Unmitigated Impacts to the PVMGB and Colorado River

The Revised SA correctly concludes that the Project will result in significant impacts to the PVMGB and the Colorado River. However, an adequate understanding of the hydraulic continuity between the CVGB and the PVMGB is necessary to adequately analyze the extent of the Project's significant impacts to the PVMGB and the adjudicated Colorado River. To better understand this connection, in its Data Requests Set Two, CURE requested that the Applicant provide an evaluation of PVMGB water demand and water level response using both historic

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[25] Tetra Tech EC and WorleyParsons, 2009, p. 10, Table 2

[26] Revised SA, pp. C.9-100-105.

[27] Id., p. C.9-40, Soil & Water Table 11.

well pumping (production) data and water levels from existing PVMGB wells.[28] The Applicant did not provide a conventional well-production analysis as requested; rather, it provided only well hydrograph (water levels vs. time) data.[29] In the absence of a comprehensive comparison between groundwater pumping versus water level data in the PVMGB, the potential increase in outflow from the CVGB to the PVMGB as a result of future increased pumping in the PVMGB cannot meaningfully be assessed. As such, the potential reduction in available CVGB water budget for the proposed Genesis (and other) solar projects, and the removal of water from the Colorado River to replace future groundwater extracted from storage via PVMGB pumping, cannot be evaluated reliably.

Although it is unlikely that 100% of the pumped Project groundwater will result in extraction from the Colorado River directly, the existing data uncertainties (discussed above) yield the possibility that a significant portion of the groundwater extracted by the Genesis Project will ultimately flow from the Colorado River. The existing numerical groundwater flow model developed by the Applicant[30] is incapable of simulating such flows or resolving the uncertainties, as discussed above.

Condition of Certification Soil & Water-19 allows the Applicant to develop a revised flow model to estimate the maximum predicted decrease in underflow from the CVGB to the PVMGB and Colorado River.[31] However, the same uncertainties found in the existing Applicant flow model will persist in this recommended revised flow model approach. It is likely that the same large (20 – 25%) residuals (simulated vs. observed water level and flux values) obtained within the Applicant's initial model calibration effort will result from this recommended revised model effort. Such large residuals are typically unacceptable for flow models.[32]

The Revised SA also recommends replacement of extracted Colorado River waters by the Applicant as mitigation for significant impacts to the Colorado River. However, given that: (a) the Applicant is not an adjudicated party to the existing Colorado River Quantification Settlement Agreement (QSA)[33] and has no existing legal entitlement to this water; (b) the Colorado River is fully appropriated; (c) the current multi-year drought condition affecting the lower Colorado River would restrict the local approval of replacement water transfers between adjudicated QSA parties (e.g., City of Needles) and the Applicant; and (d) existing uncertainties in how the USBR ultimately intends to implement management of the river "accounting surface," local replacement water entitlements is not a feasible means

[28] CURE Data Requests Set 2 (1-9).
[29] See Applicant's Response to CURE Water Resources Data Requests 1-9, April 2010.
[30] Worley Parsons, January 2010a.
[31] Revised SA, p. C.9-122.
[32] ASTM, 1993; Hill, 1998; Zheng and Bennett, 2002.
[33] *Arizona vs. California*, 547 U.S. 150 (2006).

to mitigate Project impacts to the Colorado River. The Applicant has not provided a plan for attempting to secure water rights transfers from pumpers within the PVMGB (either municipal or agricultural), nor has the Applicant provided an assessment of the likelihood of availability of such transfers. Thus, impacts to the Colorado River remain significant and unmitigated.

D. Supplemental Efforts Necessary to Adequately Analyze and Mitigate Impacts to Water Resources

My evaluation has resulted in recommendation for the following supplemental analyses by the Applicant to adequately analyze and mitigate the Project's impacts to water resources:

(1) Serious re-consideration of the design and implementation of a dry-cooling system for the proposed solar plant, to reduce consumptive groundwater use;

(2) Analysis of the potential impacts of prolonged drought conditions and climate change upon water levels in the CVGB, Colorado River and PVMGB during the 33-year proposed Project duration, and thus upon predicted groundwater flows across the boundary between the CVGB – PVMGB boundary, as well as the reasonableness for replacement water entitlements or transfers available to Genesis as part of impacts mitigation;

(3) The revision of the existing 3D Genesis numerical groundwater flow model to adequately simulate flows from groundwater in storage in the PVMGB and potential flows directly from the Colorado River in response to Project pumping. The revised model must be able to discriminate extractions of groundwater from storage in the PVMGB versus flows out of the Colorado River, and must be able to reasonably resolve the existing uncertainties in aquifer configuration, heads and flows across the CVGB-PVMGB boundary;[34] and

(4) Installation of groundwater monitoring well(s) along the CVGB-PVMGB boundary where limited well control exists presently, to serve as "sentry wells" against future excess flows out of the PVMGB and Colorado River due to long-term Project pumping. Wells should screen vertical intervals which match the same hydrostratigraphic intervals designated for Project well pumping. Dedicated water level transducers and a real-time recording interface, such as a telemetric system, is recommended, to provide maximum response time to potential future excess groundwater flux into the CVGB.

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[34] *See* Applicant's Response to CURE Water Resources Data Requests 1-9, Item 2, April 2010.

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EXHIBIT 524

DECLARATION

I, Eric D. Hendrix, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at IRVINE, California.

Dated: 6/18/10 Signed:

EXHIBIT 525

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RESUME OF ERIC D. HENDRIX

Vice President, Geology
Principal Hydrogeologist

Education

Master of Science, Geology
University of California, Los Angeles

Bachelor of Science, Geological Sciences
California State University, Long Beach

Registration

Certified Hydrogeologist, California, No. 431
Certified Engineering Geologist, California, No. 1531
Registered Professional Geologist, California, No. 4899
Registered Geologist, Arizona, No. 26977
Registered Environmental Assessor, California, No. 2495
California Community Colleges Instructor Credential

Professional Responsibilities

As Vice President of Geology for Mission Geoscience, Mr. Hendrix:

- Manages technical operations & business development for all water resources development & remediation, hydrology and seismic risk evaluation services
- Oversees Corporate Engineering Geologic & Hydrogeologic Technical Quality Control program.
- Coordinates litigation support services for water resources/water rights matters, environmental engineering standard-of-care, and environmental remediation, compliance ad toxic tort projects (CERCLA contribution, RCRA, SDWA, CWA)

Professional History

- Senior Hydrogeologist, Applied Environmental Services, Inc., Laguna Hills, California.
- Senior Engineering Geologist, Zeiser/Kling Consultants Inc., Costa Mesa, California.
- Engineering Geologist, Leighton & Associates, Inc., Irvine, California
- Research Assistant, Precambrian Paleobiology Research Group, UCLA

Experience

Mr. Hendrix has over 25 years of complex hydrologic and hydrogeologic project experience, involving surface and ground water assessment, development, management, remediation, protection & litigation, including the following:

Remediation management for complex dissolved and separate-phase (NAPL) hydrocarbon groundwater plumes in multiple potable aquifers, large petroleum refinery, Carson, CA

Remediation management for complex dissolved and separate-phase (NAPL) hydrocarbon groundwater plumes in potable aquifer, large petroleum refinery, Paramount, CA

Remediation management of heavy-distillate NAPL contamination of complex faulted aquifer, petroleum refinery, Signal Hill, CA

Remediation of chlorinated solvent plume in potable aquifer, large aerospace manufacturing facility, Torrance, CA

Remediation of chlorinated solvent plume in potable aquifer, large aerospace manufacturing facility, Fullerton, CA

Aquifer testing & remediation of chlorinated solvent plume in Superfund NPL site, City of Industry, San Gabriel Valley Groundwater Basin

Aquifer characterization and fate & transport investigation, complex groundwater contamination site involving multiple chlorinated solvent sources, for litigation support, Santa Barbara, CA

Aquifer characterization, testing & assessment of potential contaminant plume capture by production wells, for litigation support, former Kaiser Steel Mill, Ontario, CA

Assessment of groundwater production sustainability for proposed large solar energy facility, Pleasant Valley Groundwater basin, Fresno County, CA (for State Energy Commission CEQA process)

CEQA / SB 610 water supply analysis for large commercial development project, Sacramento County, CA

CEQA Flood Hydrology & Coastal Erosion Investigation, City of Dana Point General Plan

Storm water runoff and pollutant loading study for harbor expansion, City of Dana Point

Surface flooding risk analysis for high-pressure MWD water pipelines, Rancho Santa Fe, CA

Surface water hydrology & pollutant loading study associated with large planned complex development, Irvine Lake, CA

Storm water runoff study related to wetlands development and CWA Section 404 streambed alteration, San Juan Capistrano

Groundwater model development to assess impacts of sewage discharge on production wells, Wrightwood, CA

Groundwater model development to assess impacts of hazardous waste landfill leachate on production well quality, Colton, CA

Groundwater model development to evaluate potential off-site migration of dissolved chlorinated solvent plume at large aerospace manufacturing facility, Torrance, CA

Seepage and groundwater source investigation for large landslide impacting hillside residential area, for litigation support, Anaheim, CA

Hydrologic investigation to determine sources of water causing hydrocollapse of fill slopes, for litigation support, Covina, CA

Watershed runoff and groundwater recharge study for new school construction, Cajon Valley, CA

Evaluation of seepage impacts to landslide occurrence, various sites throughout Orange, Los Angeles, Riverside and San Diego County

Surface and Subsurface Hydrogeologic Investigation & Production Well Feasibility Study, Wilder Ranch EIR & Specific Plan, Santa Cruz County, CA

Natural spring water supply feasibility investigations, La Jolla Indian Reservation, San Diego County, CA

Groundwater development investigations, Warner Springs and Lake Henshaw Basin, San Diego County, CA

Operational Yield Investigation and Draft AB 3030 Management Plan, Charnock Groundwater Basin, Los Angeles County, CA

Sentney Wellfield Development & Safe Yield Evaluation, Central Groundwater Basin, Los Angeles County, CA

Wellhead Protection, Aquifer Testing and Regional Contaminant Investigation, Concerto Wellfield, Forebay of Orange County Groundwater Basin

Wellhead Protection Investigation and Aquifer Testing, Claremont Groundwater Basin, Los Angeles County

Regional Groundwater Basin Evaluation, Groundwater Model Development and Wellhead Protection Study, USEPA Santa Monica Regional MTBE Contamination Project

Associations Member of Executive Committee,
Society of Sedimentary Geology (SEPM), Pacific Section
National Groundwater Association/Association of Groundwater Scientists and Engineers (NGWA/AGWSE)
California Groundwater Resources Association (GRA)
Association of California Water Agencies (ACWA)
Association of Environmental & Engineering Geologists
American Society of Civil Engineers (ASCE)
American Association of Petroleum Geologists
(Division of Environmental Geosciences/Charter Member)
Geological Society of America *(Hydrogeology, Engineering Geology, Sedimentary Geology and Quaternary Geology Divisions)*

Awards & Honors

Dibblee Geological Foundation, Honorary Map Dedication DF-384, Rosamond & Rogers Lake Quadrangles, 2008

Sigma Xi Graduate Research Fellowship, UCLA, 1984-1986

Invited Speaker, Geological Society of America Penrose Conference, 1986, Ventura, CA, Miocene Tectonic Reconstruction of California

Invited Speaker, 2001 Geological Society of America Cordilleran Section Field Trip, Central Transverse Ranges & San Andreas Fault

Publications

(separate list available upon request)

EXHIBIT 526

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of: The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

REBUTTAL TESTIMONY OF ERIC D. HENDRIX ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES OF THE GENESIS SOLAR ENERGY PROJECT

June 25, 2010

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I. INTRODUCTION

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Project" or "GSEP") since the data adequacy phase. I have reviewed numerous documents and have conducted my own investigations and analyses regarding the Project's potential impacts on water resources. My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 24 years of working on hydrogeology and engineering geology issues.

The Revised Opening Testimony by Genesis Solar, LLC ("Genesis" or "Applicant") regarding soil and water resources contains proposed Project approval criteria which are contrary to and inconsistent with the technical discussions and statements presented within the Applicant's Opening Testimony dated May 20, 2010. Also the Revised Opening Testimony attempts to counter Staff's proposed mitigation outlined in the Staff Assessment/Draft Environmental Impact Statement ("SA/DEIS") and Revised Staff Assessment ("RSA"), specifically with respect to Conditions of Certification Soil & Water 15 and Soil & Water 19, regarding impacts of Project groundwater pumping on water within the Lower Colorado River and contiguous groundwater basins ("River Aquifer"). Genesis also contradicts and avoids the modified groundwater modeling approach verbally agreed upon by Genesis representatives and their consultants and CEC Staff during a conference call amongst these parties on April 10, 2010. Finally, the Applicant's Revised Opening Testimony misinterprets and misapplies the intent and results of hydraulic modeling by the U.S. Geological Survey regarding Lower Colorado River management "accounting surface" water levels (Wiele, Leake et al, 2008). The Applicant has clearly done this in an effort to avoid implementation of Staff-recommended measures Soil & Water 15 and 19, concerning Project impacts upon the Colorado River.

II. STATEMENT

With respect to Staff-recommended mitigation measures within Soil & Water 15, the Applicant misstates conclusions of the USGS aquifer-depletion modeling effort for the Lower Colorado River Accounting Surface (Wiele, Leake et al, 2008), incorrectly claiming that "*...this study shows that most of the CVGB, including the [project] site, is located outside of the area where pumping would deplete the Colorado River, even if pumping were to continue for 100 years.*" In truth, Figure 6 in Wiele, Leake et al (2008) clearly illustrates that the USGS modeling produces an accounting surface elevation of 238 to 240 feet above mean sea level (msl) across the Palo Verde Mesa Groundwater Basin ("PVMGB") as far west as the flow boundary ("narrows") between the Chuckwalla Valley Groundwater Basin ("CVGB") and the PVMGB. This elevation is only slightly deeper (e.g., from zero to 10 feet) than the

recently-measured water levels within existing wells in the PVMGB (Figure CDR-7-1, Galati & Blek 2010b/Genesis *Supplemental filing: Response to CURE Water Resources Data Requests 1 – 9*).

Wiele, Leake et al (2008) opted for the sake of brevity not to illustrate their accounting surface model results beyond the CVGB-PVMGB boundary, but clear evidence exists that this surface reasonably extends beyond the boundary. Given that the CVGB well water levels nearest to PVMGB wells were generally 30 to 40 feet higher in elevation than PVMGB well water levels, and given that Genesis' own consultant acknowledges hydraulic continuity and groundwater flows of 988 AFY across this boundary into the PVMGB (Fig CDR-7-1, Worley-Parsons 2010b; Genesis *Responses to CURE Soil & Water Data Requests 1 -9*, Item 6), it is reasonable to conclude that the Colorado River accounting surface also extends across this boundary into the CVGB. Genesis' own consultant clearly makes the statement that "*...comparison of water levels in similar well pairs suggest relatively consistent underflow from late 1966 to 2000 [between the CVGB and PVMGB]....*" (Genesis *Responses to CURE Soil & Water Data Requests 1 -9*, Item 7), and their "gravimetric cross section line H" (Figure CDR-6-2, Genesis *Responses to CURE Soil & Water Data Requests 1 -9*, Item 6) clearly depicts continuity of the same saturated aquifer units (shallow alluvium and deep Bouse Formation) across the narrows boundary.

The Wiele, Leake et al (2008) study simulates the accounting surface elevations assuming that the Colorado River is flowing under "normal operating conditions," which is defined as the condition when releases by the US Bureau of Reclamation ("USBR") from reservoirs along the Lower River (Mead, Mohave, Havasu) are being made to accommodate downstream requirements where each Lower-Basin State (CA, AZ, NV) is using its full Federal apportionment, plus the 1944 treaty-specified allotment for Mexico. This model "boundary condition" is not presently the case, nor has it been the case for 9 out of the past 10 years due to continuous drought in both the Lower Basin and Upper Basin watersheds.

This drought trend continues. Currently, Lake Mead water levels are at 1,090 feet elevation msl, 115 feet lower than the "normal" operating elevation of 1,205.4 feet assumed in the accounting surface model. Lake Mead is currently at only 42% of capacity, and USBR projects continued declining releases of water from Hoover Dam through at least August 2010, at 65% of long-term average (USBR web site, June 20, 2010). The California Department of Water Resources ("CDWR") reports that average statewide rainfall runoff is still well below (only 75% of) average through end of April 2010 (CDWR, California's Drought Update, May 28, 2010).

As these "boundary elevations" drop in the model due to prolonged drought, so does the River level and the "River Aquifer" level in PVMGB, quite reasonably and possibly below the model accounting surface. Should this occur, the groundwater

gradient across the CVGB-PVMGB boundary becomes steeper, and the groundwater flux out of CVGB could forseeably increase to greater than the 319 AFY simulated by Genesis' consultants as a result of long-term proposed Project wet-cooling operations, leaving less net water budget for the Genesis Project to pump in CVGB. If this occurs, even the ***existing*** groundwater pumpers in PVMGB could require special entitlements to continue to pump at their previous levels (Wiele, Leake et al, 2008). It should be noted that during drought conditions in the early 1990s, water levels in PVMGB fell below the USGS-USBR accounting surface level of 238 – 240 feet msl elevation (Genesis *Responses to CURE Soil & Water Data Requests 1 -9*, Figure CDR-7-1). As a result, it is critical that Genesis evaluate reasonable drought scenarios and uncertainties as part of their mitigation efforts for long-term Project water supply.

In addition to the uncertainties associated with impacts and possible continuation of the present four-year drought, many experts in climate research predict changes in east pacific precipitation patterns due to global warming. Most climate models impacting the Colorado River predict a 5 to 25 percent decline in regional precipitation by year 2050 (McClurg, 2009). Genesis therefore needs to make an allowance in resulting possible and reasonable River Aquifer supply declines in their evaluation for the Project.

Genesis erroneously suggests that a "buried bedrock ridge" barrier exists at the CVGB-PVMGB boundary. As discussed above, continuity of saturated sediments and aquifers occurs across this "buried ridge" is well-established, and the groundwater flow is clearly from CVGB eastward towards PVMGB (Genesis Revised Opening Testimony, page 7, 1st paragraph), and thus into the Colorado "River Aquifer" as established and accepted by USBR and USGS (Owen-Joyce et al, 2000; Wiele, Leake et al, 2008).

Given this well-recognized continuity, the presence of the "bedrock ridge" at the narrows boundary is completely moot. As long as the CVGB recharges the PVMGB and the River, then any additional extractions within the CVGB have the potential to withdraw water from the River, and thus depress the River Aquifer accounting surface. Genesis' own cross-sections (e,g, sections H, I and j) and water level data in the WorleyParsons reports (2010a,b) and also Responses to CURE Data Requests 1-9 clearly depicts the Project pumped aquifer (Bouse Formation) as being in hydraulic continuity across this boundary.

Genesis' new argument regarding the "irrigation recharge mound" in Palo Verde Valley along the River falls short due to its reliance on circular logic. They allege that the mound, which originates due to PVID irrigation, will block any possible hydraulic continuity with CVGB groundwater extractions. There are two problems with the Applicant's argument. First, the irrigation water in the mound comes from pumping groundwater in physical continuity with River (surface) water. If the

River level continues to drop due to a prolonged drought (such as the current one), or long-term climate changes, there is less water available for irrigation and thus a much smaller or even non-existent "mound." Genesis has yet to address the (very likely) scenario where drought lowers both the River level and the groundwater with which it is in contact. Second, the "irrigation mound" occurs within the shallow alluvial ("water-table") aquifer. Genesis previously argued that the shallow aquifer is ***not*** in hydraulic continuity with the deeper (Bouse) aquifer from which the Project will pump. If this is true, why is a mound in the shallow aquifer even an issue? In contrast, the USBR and USGS treat these two aquifers in the River Aquifer as being in hydraulic continuity (Owen-Joyce at al, 2000). In this case, lowering of the river water surface lowers the water level in ***both*** aquifers during excessive drought, excessive pumping, or both.

REFERENCE MATERIAL

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EXHIBIT 527

DECLARATION

I, Eric D. Hendrix, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at IRVINE, California.

Dated: 6/24/10 Signed:

EXHIBIT 528

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	
The Application for Certification for the GENESIS SOLAR ENERGY PROJECT	Docket No. 09-AFC-8

TESTIMONY OF DAVID MARCUS ON BEHALF OF THE CALIFORNIA UNIONS FOR RELIABLE ENERGY ON SOIL AND WATER RESOURCES FOR THE GENESIS SOLAR ENERGY PROJECT

June 18, 2010

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2364-072a

I. INTRODUCTION

I have been working for the California Unions for Reliable Energy ("CURE") as a consultant on the Application for Certification ("AFC") for the Genesis Solar Energy Project ("Genesis" or "GSEP") since the data adequacy phase. I have reviewed documents and have conducted my own analysis regarding the use of dry cooling for the Project.

My testimony is based on the activities described above and the knowledge and experience I have acquired during more than 25 years of working as an energy consultant, including a dozen years working on CEC siting cases on behalf of CURE. A summary of my education and experience is attached to this testimony as Exhibit 1.

II. WATER USE AND THE ECONOMIC VIABILITY OF DRY COOLING (SA, pp. B.2-17 to B.2-18)

The Genesis project is being developed by a subsidiary of NextEra Energy Resources, LLC, just like the Beacon Solar Energy Project which is also in licensing at the CEC.[1] Both projects are proposed to have a maximum output of 250 Mw.[2] Both propose to use wet cooling. Both have had analyses prepared for them by Worley Parsons which look at the feasibility and economics of using dry cooling instead of wet cooling.[3] The analysis below is based on the two Worley Parsons studies prepared for the Genesis and Beacon applicants, and also relies upon supplemental confidential analysis prepared by the Beacon applicant and the CEC staff, and reported in the alternatives chapter of the Beacon FSA.

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[1] For the Beacon developer, see p. 1 of http://docs.google.com/viewer?a=v&q=cache:_Gf3alezgoAJ:www.energy.ca.gov/sitingcases/beacon/DESCRIPTION.PDF+%22Beacon+Solar,+LLC%22&hl=en&gl=us&pid=bl&srcid=ADGEESjqVmGRZTE1tmB5c0vhzAGuxyrgKsk8sSPgYRwjPo3mmXigOphM5c37XJ9ijyg4M7XGeSahqUaHxm4KvUIWbEwxQ65d0vEW2fIQb31aomLCy4boyyvfgWknqpqH_ItD7Sb4ohtA&sig=AHIEtbS5Fbr4pBgPii7yttGGqXwsDLIi7A, and also http://www.nexteraenergyresources.com/news/contents/2009/010709.shtml. For Genesis see http://www.energy.ca.gov/sitingcases/genesis_solar/index.html.

[2] http://www.energy.ca.gov/sitingcases/all_projects.html

[3] For Beacon, Ex. 623, available online at http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/2008-02-01_DRY_COOLING_EVALUATION_TN-49597.PDF; for Genesis, the 76 page document cited and declared non-confidential (after the publication date of the Genesis SA) in http://www.energy.ca.gov/sitingcases/genesis_solar/documents/2010-01-14_Reponse_to_Application_for_Confidentiality+Cooling_Study_TN-54955.PDF.

A. Economics of changing to dry cooling without changing the size of the solar field

1. Switching to dry cooling is economically even more attractive for Genesis than for Beacon

The Worley Parsons analysis for Beacon concludes that a shift from wet to dry cooling would reduce the Mwh output of the Beacon project by 7.50 percent,[4] increase its capital cost by $20.497 million,[5] but decrease its annual O&M cost by $1.288 million.[6] The net effect would be to reduce the net present value of the Beacon project by $71 million.[7] For Genesis, because groundwater at the site requires extensive treatment for the wet cooling process,[8] the net cost of changing to dry cooling would be smaller.[9] Specifically, the reduction in Mwh output from switching to dry cooling would be only 6.88%,[10] less than the 7.50% at Beacon. The incremental capital cost of dry cooling at Genesis would be only $516,000,[11] or only 2.5%[12] of the $20,497,000 incremental capital cost for Beacon.[13] And the benefit of decreased O&M costs would be slightly more at Genesis than at Beacon ($1.498 million per year[14] versus $1.298 million per year[15]). Thus, the total impact on NPV of switching to dry cooling would be only $43 million for Genesis,[16] versus $71 million for Beacon.[17] In percentage terms, the

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[4] Beacon Exh. 623, p. 16.
[5] Ibid., p. 17.
[6] Ibid., p. 15.
[7] Ibid., p. 17.
[8] Worley Parsons, "Cooling Study – 125 MW Solar project," 8/11/2009 (cited below as "WP"), p. 4.
[9] The WP study is for a 125 MW project. The Applicant has indicated, in response to CURE data request set 3, questions 1-2, that the Genesis project will actually consist of two independent 125 Mw projects, and the results of the WP study can be simply doubled to show impacts for the Genesis project as a whole. Comparisons below between the WP studies for Genesis and Beacon take into account the fact that the Beacon study was for 250 Mw and the Genesis study was for 125 Mw.
[10] Based on output of 294.717 gwh per year per 125 Mw with wet cooling and 274.439 Mwh per year per 125 Mw with dry cooling. WP, p. 4. See also Exhibit 2 (attached hereto), "solar field unchanged" column.
[11] WP, p. 8, bottom line, showing a difference between dry cooling and wet cooling capital costs of $258,000 per 125 Mw unit. $258,000 x 2 = $516,000 for the full 250 Mw Genesis project.
[12] See Exhibit 2, "Capital cost" line.
[13] Beacon Exh. 623, p. 17.
[14] WP, p. 20, next-to-last line, showing a difference of $746,000 per year per 125 Mw unit in O&M costs. $746,000 x 2 = $1.498 million for the full 250 Mw Genesis project.
[15] Beacon Exh. 623, p. 15, difference between O&M costs with and without dry cooling.
[16] See Exh. 2. For both Beacon and Genesis, the total NPV impact is the sum of the incremental capital cost, the NPV of the annual O&M cost impact, and the NPV of the annual generation revenue impact. For Beacon, the calculated total impact on NPV can be compared to the reported total impact on NPV from Beacon Exh. 623, p. 17, confirming that the calculations in Exhibit 2 match those done by the Applicant's Worley Parsons consultant. For Genesis, the capital cost comes directly from WP, p. 8; the net generation impact is calculated from the Mwh in WP, p. 4 and the price and NPV data in Beacon Exh. 623, p. 17; the O&M NPV cost comes from the annual data in WP, p. 20 and the NPV cost/annual cost ratio for O&M data shown in Beacon Exh. 623, pp. 15 and 17.

economic cost of switching to dry cooling at Genesis would be only 60 percent as large as the cost of doing so at Beacon.[18]

The Worley Parsons data show three reasons why converting to dry cooling at Genesis would be less expensive than at Beacon. First, because groundwater at the project site requires considerable treatment for the wet cooling process, converting to dry cooling would save energy that would otherwise have to spent on water purification. The result is that the cost of lost generation due to dry cooling would be $6.5 million less at Genesis than at Beacon.[19] Second, again because groundwater at the project site requires extensive treatment for wet cooling, use of wet cooling would require substantial capital costs for water treatment.[20] The result is that the capital cost penalty for dry cooling at Genesis would be $20 million less than at Beacon.[21] Third, the lifecycle NPV benefit from reduced O&M with dry cooling would be $2.1 million bigger at Genesis than at Beacon.[22] The sum of these three differences, $28 million,[23] explains why the NPV of the economic cost of switching to dry cooling would be more than $28 million less at Genesis than at Beacon.[24]

2. Switching to dry cooling is economically viable at Beacon

The Applicant, the CEC staff, and CURE have all analyzed the economics of switching from wet cooling to dry cooling at Beacon. CURE

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[17] Beacon Exh. 623, p. 17. The $71 million figure is also calculated from its components in Exhibit 2 to this testimony.

[18] $43 million/$71 million. See also Exh. 2 to this testimony, "Total impact on NPV" line.

[19] See Exhibit 2, "NPV of generation impact" line. The NPV of lost revenue due to decreased generation is $63.86 million for Beacon. For Genesis, assuming the same value per Mwh at Genesis as at Beacon, and the same discount rate, the NPV of lost generation revenue is $28.67 million per 125 Mw unit, or $57.34 million for the full 250 Mw plant. The difference between $63.86 million and $57.34 million is $6.52 million.

[20] WP, p. 8

[21] $20.50 million incremental capital costs for dry cooling at Beacon, per Beacon Exh. 623, p. 17. $0.26 million incremental capital costs for dry cooling at each 125 Mw unit of Genesis, per WP, p. 8, resulting in $0.52 million of incremental capital cost for the full 250 Mw plant. $20.50 million minus $0.52 million = $19.98 million.

[22] See Exh. 2, "NPV of O&M cost impact" line. Switching to dry cooling provides a lifecycle NPV benefit of $12.98 million for O&M costs at Beacon per Beacon Exh. 623, p. 17. The corresponding benefit at Genesis is $7.52 million per 125 Mw unit, based on an annual benefit of $746,000 per WP, p. 20, and the same lifecycle NPV/annual benefit ratio used for Beacon. The total O&M benefit at Genesis of switching to dry cooling is thus $7.52 million times two, or $15.04 million, which is $2.06 million more than the Beacon benefit.

[23] $6.52 million plus $19.98 million plus $2.06 million (see preceding footnotes) equals $28.56 million.

[24] See Exh. 2, "Total Impact on NPV" line. The total economic penalty at Beacon for switching from wet to dry cooling is $71.38 million (or $71.1 million per Beacon Exh. 623, p. 17). The corresponding penalty at Genesis is $21.41 million per 125 Mw unit, or $42.82 million for the full 250 Mw plant. The penalty is $71.38 – 42.82 = $28.56 million less at Genesis.

concluded that doing so would have minor impacts on the economic viability of the Beacon project.[25] The CEC staff concluded that switching to dry cooling would leave the Beacon applicant with a project that was still economically viable, based on the rates of return accepted by other solar developers.[26] The Applicant's numbers are confidential, but the Applicant never provided any testimony disputing the FSA or CURE regarding dry cooling, and the CEC staff's confidential analysis used the Applicant's own numbers.[27]

3. Conclusion

The unrebutted record in the Beacon proceeding shows that dry cooling would be economically feasible for Beacon. A comparison of the Applicant's analyses of dry cooling for Beacon and dry cooling for Genesis shows that the economic cost of switching to dry cooling is lower for Genesis than Beacon. Thus, it seems inescapable that dry cooling would also be economically feasible for Genesis. The fact that other applicants at the CEC are proposing on their own initiative to use dry cooling[28] is just further evidence for the economic viability of dry cooling.

B. Effect on the economics of dry cooling if the solar field were enlarged

1. Solar field enlarged by 12 percent

In the Beacon and Genesis analyses of dry cooling described above, switching to dry cooling reduces annual generation. It also reduces the maximum plant output to less than 250 Mw under maximum temperature conditions. One alternative, as acknowledged in the Genesis SA,[29] is to enlarge the size of the solar field at the same time that the cooling system is switched to dry cooling. In the case of Beacon, as the Beacon FSA explains, the additional solar field area needed to maintain a 250 Mw capacity for an air-cooled alternative at Beacon would not just lead to an additional annual cost. It would also result in 4.1 percent greater annual generation from an air-cooled alternative than from the Applicant's proposal.[30] The Beacon FSA indicates that to maintain a 250 Mw output under maximum temperature

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[25] CURE testimony regarding Beacon, Exh. 616, p. 5, ftn. 44.

[26] Beacon FSA, pp. 6-13-14. See also the Genesis SA, p. B.2-18, which reiterates the conclusions of the Beacon FSA regarding the economic feasibility of dry cooling.

[27] Beacon FSA, pp. 6-12-13, describing the Applicant's data and its use by the CEC staff.

[28] See 07-AFC-5, Ivanpah Solar Electric Generating System; 09-AFC-7, Solar Millennium Palen Solar Power Project; 09-AFC-6 Solar Millennium Blythe Power Project; and 09-AFC-9 Solar Millennium Ridgecrest Power Project.

[29] Genesis SA, p. B.2-18.

[30] Beacon FSA, pp. 6-9, 6-40, 6-44.

conditions would require expanding the solar field by 12 percent. That would more than offset the 7.5 percent annual average efficiency loss associated with dry cooling, leading to greater annual output with dry cooling.[31] In the case of Genesis, expanding the solar field by 12 percent would more than offset the 6.88 percent annual average efficiency loss,[32] leading to a 4.29% increase in annual output.[33] If the additional 25 gwh per year of generation[34] were sold at 15 cents per kwh (the price assumed by the Beacon Applicant in assessing dry versus wet cooling,[35] and used by the Staff as well in the Beacon case[36]), it would be worth $3.8 million per year.[37] The 30-year NPV of an additional $3.8 million per year of revenue would be over $35 million. That would be enough to offset all but $2.7 million (0.3 percent) of the 30-year NPV incremental cost of dry cooling.[38]

In other words, the economics of Genesis with dry cooling and a twelve percent larger solar field are virtually identical (within 0.3 percent) of the economics of Genesis as proposed with wet cooling, and are better than the economics of Genesis with dry cooling but no expansion of the solar field. This is consistent with the findings in the Beacon case, where the CEC staff concluded that dry cooling with a 12 percent larger solar field was economically superior to both wet cooling and to dry cooling with no increase in the size of the solar field.[39]

2. Solar field enlarged by 7.39 percent

The Genesis SA suggests that a 12 percent increase in the Genesis solar field would require 150 acres, which may not be available.[40] However, this large of an increase is not required either to maintain the annual Mwh output of Genesis or its net Mw output. The annual Mwh output decrease due to dry cooling is 6.88%, which would be offset by a 7.39% increase in the solar field size.[41] The net output of Genesis under maximally adverse

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[31] 1.12*(1-.075) > 1.00.
[32] WP, p. 4. See also the Genesis SA, p. B.2-18, which rounds the 6.88 percent reduction to 6.9%.
[33] 1.12*(1-.0688) = 1.0429.
[34] 294.7 gwh per 125 Mw unit with wet cooling, per WP, p. 4, implying 589.4 gwh for the full 250 Mw plant. 4.29% increase in output with dry cooling and a 12% larger solar field (see the previous footnote. 589.4 x .0429 = 25.3 gwh.
[35] Beacon Exh. 623, pp. 15 and 17 (45162 Mwh sell for $6,774,300; $6774300/45162 Mwh = $150/Mwh).
[36] Beacon FSA, p. 4.9-158.
[37] 25.3 gwh/year x $150/Mwh x 1000 Mwh/gwh = $3.795 million/year.
[38] See Exhibit 2, "Solar Field expanded 12%" column, and double the cost numbers there to reflect the difference between one 125 Mw Genesis unit and the full 250 Mw plant.
[39] Beacon FSA, pp. 6-12-13.
[40] Genesis SA, p. B.2-18.
[41] (1-.0688) * (1 + .0739) = 1.00.

conditions[42] with dry cooling and no increase in solar field size would be 239.8 Mw.[43] Increasing the field size by 7.39 percent would increase the plant output to over 250 Mw.[44] Thus, it is sufficient to increase the field size by just 7.39 percent, or 92 acres,[45] to maintain both annual Mwh output at the same annual level as with wet cooling and also maintain maximum output of 250 Mw under all temperature/humidity conditions.

A 7.39% increase in solar field size would (assuming a cost increase proportional to that at Beacon) result in a net cost life cycle NPV penalty of only $18.1 million,[46] or 2.2%.[47] That is barely one fourth the penalty associated with dry cooling for Beacon with no solar field increase,[48] a penalty which the CEC staff found would leave the Beacon project still economically viable.[49] It is also less than half the penalty associated with converting Genesis to dry cooling without expanding the solar field.[50] As with Beacon, expanding the solar field improves project economics.

3. Conclusion

As with Beacon, enlarging the solar field improves the economics of dry cooling. As with Beacon, enlarging the solar field by 12 percent makes the economics of dry cooling comparable to if not superior to the economics of wet cooling. If a 12 percent enlargement of the solar field is not feasible due to lack of space, a 7.39 percent enlargement would be sufficient to avoid any reduction in annual Mwh output or peak Mw output under extreme temperature conditions. Dry cooling with a 7.39% solar field expansion would have better economics than simply converting to dry cooling. Since switching to dry cooling at Genesis is cheaper than switching to dry cooling at Beacon, and switching to dry cooling with an expanded solar field is cheaper yet, and because switching to dry cooling at Beacon is economically feasible and provides an adequate return to investors,[51] switching to dry cooling at Genesis with an expanded solar field is economically feasible.

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[42] 122 degrees F and 9 percent relative humidity. WP, Appendix 4, "NextEra – Ford Dry Lake Dry Cooled CSP Plant Performance Evaluation," 4th page.
[43] Ibid., showing 119.931 Mw per unit, or 239.862 Mw for the full plant.
[44] 239.862 * 1.0739 > 250.
[45] A 12 percent field increase is equal to 150 Mw, per the Genesis SA, p. B.2-18. Thus, a 7.39% field increase would only require 150 acres x .0739/.12 = 92.375 acres.
[46] $9.057 million per 125 Mw unit, or $18.114 million for the full 250 Mw Genesis plant. See Exhibit 2, "Solar Field expanded 7.39%" column.
[47] See Exhibit 2, "Solar Field expanded 7.39%" column.
[48] See Exhibit 2, "Total Impact on NPV" row.
[49] Beacon FSA, p. 6-13.
[50] See Exh. 2, "Total Impact on NPV" line. 2.17% is less than half of 5.14%.
[51] Beacon FSA, pp. 6-12-13.

EXHIBIT 529

DECLARATION

I, David Marcus, declare as follows:

I have reviewed the above testimony regarding the Genesis Solar Energy Project. To the best of my knowledge, all of the facts in my testimony are true and correct. To the extent that this testimony contains opinion, such opinion is my own.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief. This declaration is signed at Berkeley, California.

Dated: 6/17/10 Signed: _David Marcus

EXHIBIT 530

RESUME

DAVID I. MARCUS
P.O. Box 1287
Berkeley, CA 94701-1287

January 2010

Employment

Self-employed, March 1981 - Present

Consultant on energy and electricity issues. Clients have included Imperial Irrigation District, the cities of Albuquerque and Boulder, the Rural Electrification Administration (REA), BPA, EPA, the Attorney Generals of California and New Mexico, alternative energy and cogeneration developers, environmental groups, labor unions, other energy consultants, and the Navajo Nation. Projects have included economic analyses of utility resource options and power contracts, utility restructuring, utility bankruptcy, nuclear power plants, non-utility cogeneration plants, and offshore oil and hydroelectric projects. Experienced user of production cost models to evaluate utility economics. Very familiar with western U.S. grid (WSCC) electric resources and transmission systems and their operation and economics. Have also performed EIS reviews, need analyses of proposed coal, gas and hydro powerplants, transmission lines, and coal mines. Have presented expert testimony before FERC, the California Energy Commission, the Public Utility Commissions of California, New Mexico, and Colorado, the Interstate Commerce Commission, and the U.S. Congress.

Environmental Defense Fund (EDF), October 1983 - April 1985

Economic analyst, employed half time at EDF's Berkeley, CA office. Analyzed nuclear power plant economics and coal plant sulfur emissions in New York state, using ELFIN model. Wrote critique of Federal coal leasing proposals for New Mexico and analysis of southwest U.S. markets for proposed New Mexico coal-fired power plants.

California Energy Commission (CEC), January 1980 - February 1981

Advisor to Commissioner. Wrote "California Electricity Needs," Chapter 1 of Electricity Tomorrow, part of the CEC's 1980 Biennial Report. Testified before California PUC and coauthored CEC staff brief on alternatives to the proposed 2500 megawatt Allen-Warner Valley coal project.

CEC, October 1977 - December 1979

Worked for CEC's Policy and Program Evaluation Office. Analyzed supply-side alternatives to the proposed Sundesert nuclear power plant and the proposed Point Concepcion LNG terminal. Was the CEC's technical expert in PG&E et. al. vs. CEC lawsuit, in which the U.S. Supreme Court ultimately upheld the CEC's authority to regulate nuclear powerplant siting.

Energy and Resources Group, U.C. Berkeley, Summer 1976

Developed a computer program to estimate the number of fatalities in the first month after a major meltdown accident at a nuclear power plant.

Federal Energy Agency (FEA), April- May 1976

Consultant on North Slope Crude. Where To? How?, a study by FEA's San Francisco office on the disposition of Alaskan oil.

Angeles Chapter, Sierra Club, September 1974 - August 1975

Reviewed EIRs and EISs. Chaired EIR Subcommittee of the Conservation Committee of the Angeles Chapter, January - August 1975.

Bechtel Power Corporation (BPC), June 1973 - April 1974

Planning and Scheduling Engineer at BPC's Norwalk, California office. Worked on construction planning for the Vogtle nuclear power plant (in Georgia).

Education

Energy and Resources Group, U.C. Berkeley, 1975 - 1977

M.A. in Energy and Resources. Two year master's degree program, with course work ranging from economics to engineering, law to public policy. Master's thesis on the causes of the 1972-77 boom in the price of yellowcake (uranium ore). Fully supported by scholarship from National Science Foundation.

University of California, San Diego, 1969 - 1973

B.A. in Mathematics. Graduated with honors. Junior year abroad at Trinity College, Dublin, Ireland.

Professional Publications

"Rate Making for Sales of Power to Public Utilities," with Michael D. Yokell, in Public Utilities Fortnightly, August 2, 1984.

EXHIBIT 531

Exhibit 2

Dry cooling versus applicant-proposed technology

Parameter	Beacon dry cooling (250 Mw plant)				Genesis dry cooling (125 Mw unit)				Genesis as % of Beacon on a per-Mw basis		
	Solar Field Unchanged	Page # in WP study	Solar Field Expanded	Page # in WP study	Solar Field Unchanged	Page # in WP study	Solar Field Expanded 12.00%	Solar Field Expanded 7.39%	Solar Field Unchanged	Solar Field Expanded 12.00%	Solar Field Expanded 7.39%
Annual output with wet cooling	602527	p. 16	602527		294717	p. 4	294717	294717	97.8%		
Net generation impact (Mwh)	-45,162	p. 17	0		-20,278	p. 4	12655	0	89.8%		
% reduction in net gen	-7.50%	p. 16	0.00%	Note A	-6.88%		4.29%	0.00%	91.8%		
Revenue impact of net gen	-$6,774,300	p. 17	$0		-$3,041,700		$1,898,202	$0	89.8%		
Capital cost	-$20,497,000	p. 17	-$73,497,000	p. 17	-$258,000	p. 8	-$26,758,000	-$16,575,135	2.5%	72.8%	45.1%
Annual O&M cost impact	$1,288,000	p. 15	$1,288,000		$746,000	p. 20	$746,000	$746,000	115.8%	115.8%	115.8%
NPV of O&M cost impact	$12,980,000	p. 17	$12,980,000	p. 17	$7,517,919		$7,517,919	$7,517,919	115.8%	115.8%	115.8%
NPV of generation impact	-$63,860,000	p. 17	$0		-$28,673,510		$17,893,979	$0	89.8%		
Total impact on NPV	-$71,377,000		-$60,517,000		-$21,413,591		-$1,346,102	-$9,057,216	60.0%	4.4%	29.9%
Reported total impact on NPV	-$71,100,000	p. 17	-$60,100,000	p. 17							
Price at which output is sold ($/Mwh)	$150	p. 17	$150		$150		$150	$150			
NPV of 30-year output, wet cooling	$851,988,467		$851,988,467		$416,737,316		$416,737,316	$416,737,316			
Total impact on NPV	-8.38%		-7.10%		-5.14%		-0.32%	-2.17%			

Per WP pp. 15, 17 for BSP:	Implicit O&M inflation rate	0.7991%
	NPV/annual cost for O&M	10.07764
Per WP p. 17 for BSP:	NPV/annual cost for generation	9.42680
	Implicit discount rate	10.000%

NPV discount rate calculator and escalation rate calculator		NPV of revenues with wet cooling
1	1	$44,207,550
1	1.007991	$44,207,550
1	1.016046	$44,207,550
1	1.024165	$44,207,550
1	1.032349	$44,207,550
1	1.040599	$44,207,550
1	1.048914	$44,207,550
1	1.057296	$44,207,550
1	1.065745	$44,207,550
1	1.074261	$44,207,550
1	1.082846	$44,207,550
1	1.091499	$44,207,550
1	1.100221	$44,207,550
1	1.109013	$44,207,550
1	1.117875	$44,207,550
1	1.126808	$44,207,550
1	1.135812	$44,207,550
1	1.144888	$44,207,550
1	1.154037	$44,207,550
1	1.163259	$44,207,550
1	1.172555	$44,207,550
1	1.181925	$44,207,550
1	1.191369	$44,207,550
1	1.20089	$44,207,550
1	1.210486	$44,207,550
1	1.220159	$44,207,550
1	1.229909	$44,207,550
1	1.239737	$44,207,550
1	1.249644	$44,207,550
1	1.25963	$44,207,550
9.4268	10.0776	$416,737,316

Note A: Should have been 4.1%, not zero, per Beacon FSA, pp. 6-9, 6-40, 6-44

EXHIBIT 532

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

DOCKET
09-AFC-8
DATE 06/15/10
RECD. 06/16/10

JUNE 15, 2010 **Via Electronic & U.S. Mail**

Mike Monasmith
Siting, Transmission and Environmental
Protection Division
California Energy Commission
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Allison Shaffer
Project Manager
Palm Springs South Coast Field Office
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, California 92262

To Whom it May Concern:

Notice of Availability of the
Draft Environmental Impact Statement/Staff Assessment for the NextEra Energy Resources Genesis Solar Energy Project and Possible California Desert Conservation Area Plan Amendment; CEC Docket No. 09-AFC-8, BLM Docket No. CACA 4880

The Metropolitan Water District of Southern California (Metropolitan) reviewed the Draft Environmental Impact Statement/Staff Assessment (collectively, "DEIS") for the NextEra Energy Resources Genesis Solar Energy Project and Possible California Desert Conservation Area Plan Amendment (Project). The U.S. Bureau of Land Management (BLM) is the lead agency under the National Environmental Policy Act (NEPA) for the DEIS and the California Energy Commission (CEC) is the lead agency (for licensing thermal power plants 50 megawatts and larger) under the California Environmental Quality Act (CEQA) and has a certified regulatory program under CEQA. Under its certified program, CEC is exempt from having to prepare an environmental impact report. Its certified program, however, requires environmental analysis of the project or a "staff assessment," including an analysis of alternatives and mitigation measures to minimize any significant adverse effect the project may have on the environment.

Metropolitan is pleased to submit comments for consideration by BLM and CEC during the public comment period for the DEIS and staff assessment.[1] In sum, Metropolitan provides these comments to ensure that any potential impacts on its facilities in the vicinity of the Project and on the Colorado River water resources are adequately addressed.

[1] Comments on the DEIS and Revised Staff Assessment are due July 8, 2010 per the Federal Register notice. 75 Fed. Reg. 18204 (April 9, 2010). This comment deadline applies to the CEC's Revised Staff Assessment issued June 11, 2010 regardless of whether it is finalized separately from BLM's DEIS as the relevant comment periods may not be reduced or altered retroactively.

Background

Metropolitan is a public agency and regional water wholesaler. It is comprised of 26 member public agencies serving more than 19 million people in six counties in Southern California. One of Metropolitan's major water supplies is the Colorado River via Metropolitan's Colorado River Aqueduct (CRA). Metropolitan holds an entitlement to water from the Colorado River. The CRA consists of tunnels, open canals and buried pipelines. CRA-related facilities also include above and below ground reservoirs and aquifers, access and patrol roads, communication facilities, and residential housing sites. The CRA, which can deliver up to 1.2 million acre-feet of water annually, extends 242 miles from the Colorado River, through the Mojave Desert and into Lake Mathews. Metropolitan has five pumping plants located along the CRA, which consume approximately 2,400 gigawatt-hours of energy when the CRA is operating at full capacity.

Concurrent with its construction of the CRA in the mid-1930s, Metropolitan constructed 305 miles of 230 kV transmission lines that run from the Mead Substation in Southern Nevada, head south, then branch east to Parker, California, and then west along Metropolitan's CRA. Metropolitan's CRA transmission line easements lie on federally-owned land, managed by BLM. The transmission lines were built for the sole and exclusive purpose of supplying power from the Hoover and Parker projects to the five pumping plants along the CRA.

Metropolitan's ownership and operation of the CRA and its 230 kV transmission system is vital to its mission to provide Metropolitan's 5,200 square mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Project Understanding

Genesis Solar LLC, a Delaware limited liability company and wholly owned subsidiary of NextEra™ Energy Resources LLC, proposes to construct, own, and operate the Genesis Solar Energy Project. The Project would be a concentrated solar electric generating facility that would be located in Riverside County, California.

The Project would consist of two independent solar electric generating facilities with a nominal net electrical output of 125 megawatts (MW) each, for a total net electrical output of 250 MW. Electrical power would be produced using steam turbine generators fed from solar steam generators. The solar steam generators receive heated transfer fluid from solar thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun.

The Project proposes use of a wet cooling tower for power plant cooling. Water for cooling tower makeup, process water makeup, and other industrial uses such as mirror washing would be supplied from on-site groundwater wells. Project cooling water blow down would be piped to lined, on-site evaporation ponds.

The Project water needs will be met by use of groundwater pumped from one of two wells on the plant site. Water for domestic uses by project employees will also be provided by onsite

groundwater treated to potable water standards. During construction, the Project proponent anticipates using up to 2,440 acre-feet of water over the course of approximately three years. Following construction and for long-term operations, the average total annual water usage for all four units combined is estimated to be about 1,644 acre-feet per year (afy).

The project is located approximately 25 miles west of the city of Blythe, California, on lands managed by BLM. The project is an undeveloped area of the Sonoran Desert. Surrounding features include the McCoy Mountains to the east, the Palen Mountains (including the Palen/McCoy Wilderness Area) to the north, and Ford Dry Lake, a dry lakebed, to the south. I-10 is located to the south of the Project.

Land Use Issues: Potential Impacts on Metropolitan Facilities

Although Metropolitan has not yet identified any direct land use impacts, the Project is in the general vicinity of Metropolitan facilities, perhaps as close as 4 miles. As described above, Metropolitan currently has a significant number of facilities, real estate interests, and fee-owned rights-of-way, easements, and other properties (Facilities) located on or near BLM-managed land in southern California that are part of our water distribution system. Metropolitan is concerned with potential direct or indirect impacts that may result from the construction and operation of any proposed solar energy project on or near our Facilities. In order to avoid potential impacts, Metropolitan requests that the final EIS and staff assessment include an assessment of potential impacts to Metropolitan's Facilities with proposed measures to avoid or mitigate significant adverse effects.

Metropolitan is also concerned that locating solar projects near or across its electrical transmission system could have an adverse impact on Metropolitan's electric transmission-related operations and Facilities. From a reliability and safety aspect, Metropolitan is concerned with development of any proposed projects and supporting transmission systems that would cross or come in close proximity with Metropolitan's transmission system. Metropolitan requests that the final EIS and staff assessment analyze and assess any potential impacts to Metropolitan's transmission system.

Water Resources: Potential Impacts on Colorado River and Local Water Supplies

Metropolitan is also concerned about the Project's potential direct and cumulative impacts on water resources, specifically potential impacts on Colorado River and local groundwater supplies. As noted above, Metropolitan holds an entitlement to imported water supplies from the Colorado River. Water from the Colorado River is allocated pursuant to federal law and is managed by the Department of the Interior, Bureau of Reclamation (USBR). In order to lawfully use Colorado River water, a party must have an entitlement to do so. *See* Boulder Canyon Project Act of 1928, 43 U.S.C. §§ 617, et seq.; *Arizona v. California*, 547 U.S. 150 (2006).

As noted above, the Project proposes to use approximately 2,440 af of water during construction and 1,644 afy for long-term operations, using groundwater from a groundwater basin that is hydrogeologically connected to the Colorado River, within an area referred to as the "accounting surface." The extent of accounting surface area for the Colorado River was determined by the

U.S. Geological Survey (USGS) and USBR as part of an on-going rule-making process. *See* Notice of Proposed Rule Regulating the Use of the Lower Colorado River Without an Entitlement, 73 Fed. Reg. 40916 (July 16, 2008); USGS Scientific Investigation Report No. 2008-5113. To the extent the Project uses Colorado River water, it must have a documented right to do so.

Entities in California are using California's full entitlement of Colorado River water, meaning that all water is already contracted and no new water entitlements are available in California. In addition, the California contractors have agreed in the 1931 Seven Party Agreement to prioritize the delivery of California's Colorado River water among themselves. Under this priority agreement, the following mitigation alternatives identified in SOIL&WATER-15 are no longer available to Proponents to mitigate impacts to Colorado River water resources: "payment for irrigation improvements in Palo Verde Irrigation District, purchase of water rights within the Colorado River Basin that will be held in reserve, and/or BLM's Tamarisk Removal Program." Instead, Proponents would have to obtain Colorado River water for the Project from the existing junior priority holder, Metropolitan, which has the authority to sell water for power plant use. Mitigation measure SOIL&WATER-15 should be revised accordingly. Metropolitan is willing to discuss the exchange of a portion of its water entitlement subject to any required approvals by Metropolitan's Board of Directors and so long as the Proponents agree to provide a replacement supply through an agreement with Metropolitan. Proponents must fully address the impacts on Colorado River water resources and provide full mitigation for such impacts, including replacement of supply.

Additionally, CEC and BLM should assess the potential cumulative impacts of the use of the scarce Colorado River and local groundwater supplies in light of other pending renewable energy projects within the Colorado River Basin and the local groundwater regions. Metropolitan requests that the final EIS and staff assessment address the Proponent's water supply and any potential direct or cumulative impacts from this use.

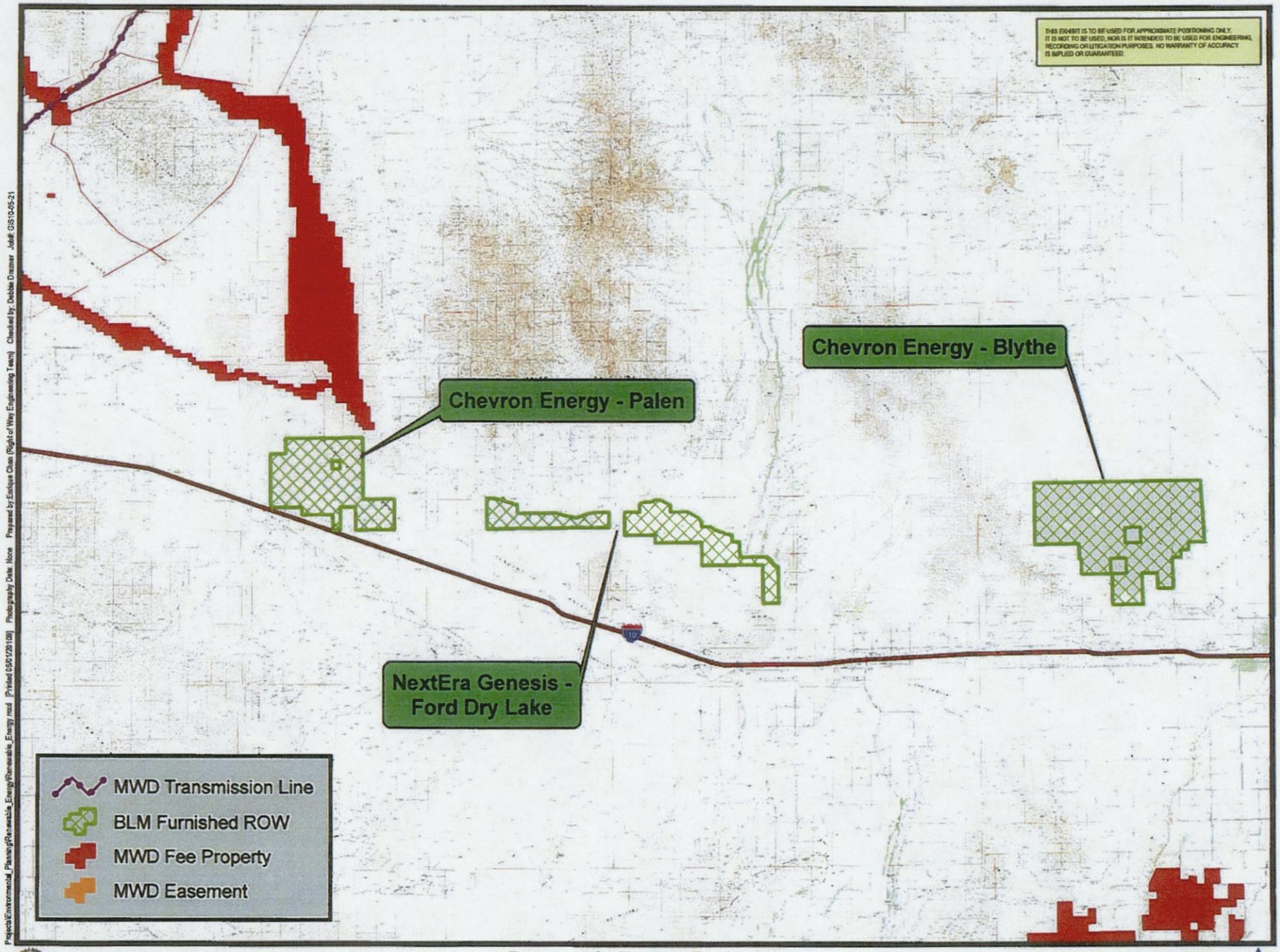
We appreciate the opportunity to provide input to your planning process and we look forward to receiving future environmental and related documentation on this project. If we can be of further assistance, please contact Dr. Debbie Drezner at (213) 217-5687.

Very truly yours,

Delaine W. Shane

Delaine W. Shane
Manager, Environmental Planning Team

DSD/dsd
(Public Folders/EPT/Letters/EPT Final Letters PDF/2010/15-JUN-10A.doc)
Enclosures: Map



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The Metropolitan Water District of Southern California
Corporate Resources Group

Renewable Energy Projects
MWD Right of Way

Miles
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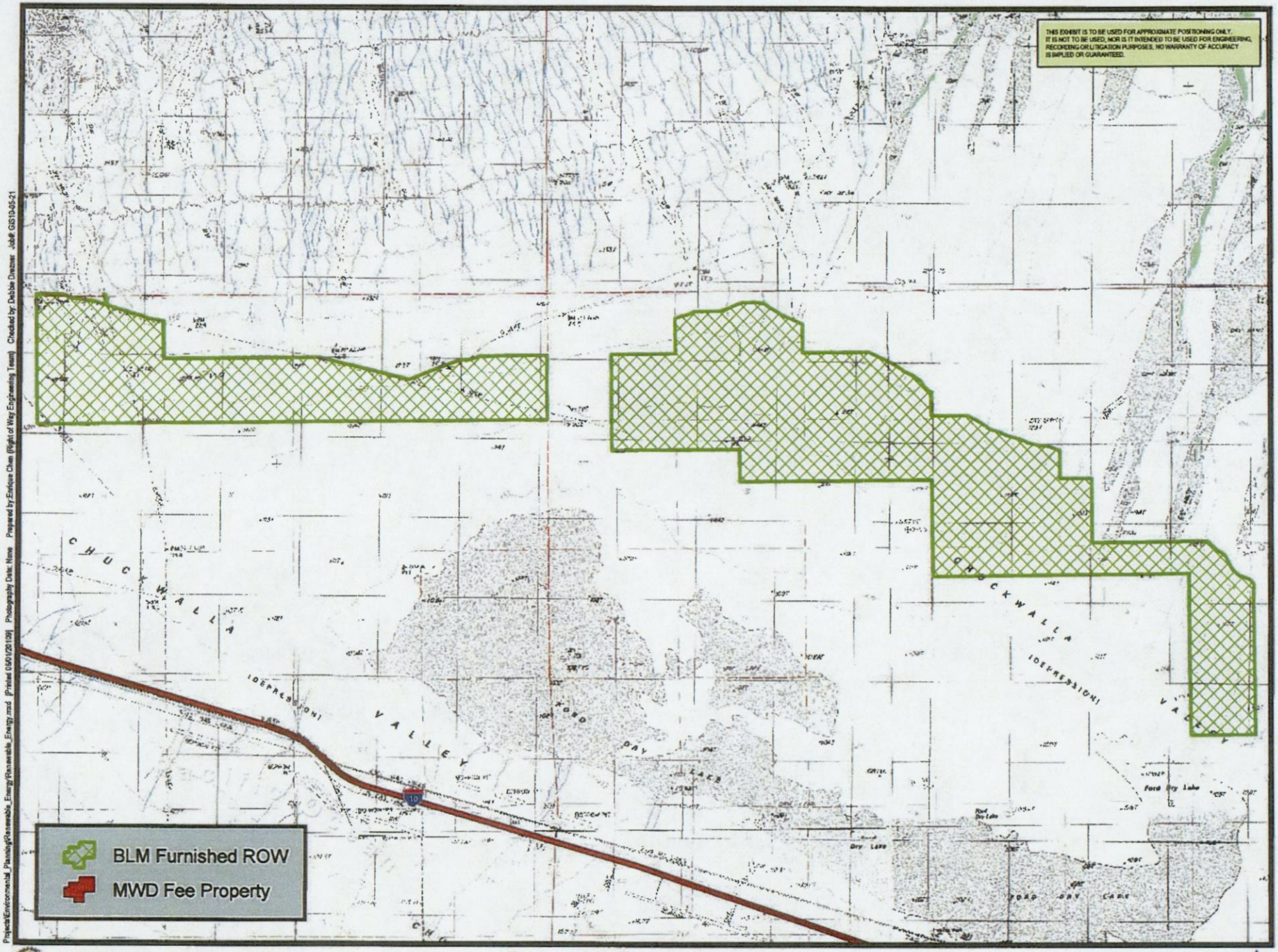

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The Metropolitan Water District of Southern California
Corporate Resources Group

Renewable Energy Projects

NextEra - Genesis

Miles
0 0.5 1

EXHIBIT 533

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 *GENESIS SOLAR ENERGY PROJECT* GENESIS SOLAR, LLC	DOCKET NO. 09-AFC-8

DECISION AND SCOPING ORDER

I. Background

On January 26, 2010, the Committee designated by the Energy Commission to conduct proceedings on the Application for Certification (AFC) for the Genesis Solar Energy Project held a hearing on a motion brought by the Applicant, Genesis Solar, LLC, for Scoping Order to address the following legal issues:

1. What is the Commission's Policy on use of water for power plant cooling purposes?
2. What is the legal affect of the US Bureau of Reclamation's Accounting Surface Methodology on groundwater pumping in the Chuckwalla Valley Groundwater Basin?
3. What is the legal standard for including future projects in the cumulative impact analysis under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA)?
4. Does the Commission have a policy of conserving water for use by projects that are not yet identified?

1. COMMISSION'S POLICY ON USE OF WATER FOR POWER PLANT COOLING

The Energy Commission articulated a policy on the use of water for power plant cooling in the *2003 Integrated Energy Policy Report* (2003 IEPR). It states:

> Consistent with the Board policy and the Warren-Alquist Act, the Energy Commission will approve the use of fresh water for cooling purposes by power plants which it licenses only where alternative water supply sources and alternative cooling technologies are shown to be environmentally undesirable or economically unsound. (2003 IEPR, p. 41.)

The "Board policy" refers to the State Water Resources Control Board (SWRCB or Board) Resolution No. 75-58 entitled "*WATER QUALITY CONTROL POLICY ON THE USE AND DISPOSAL OF INLAND WATERS USED FOR POWER PLANT COOOLING*" (hereinafter, "Policy 75-58).

The first principle enumerated in Policy 75-58 creates a priority of water sources for power plant cooling as follows:

> It is the Board's position that from a water quantity and quality standpoint the source of powerplant cooling water should come from the following sources in this order of priority depending on site specifics such as environmental, technical and economic feasibility consideration: (1) wastewater being discharged to the ocean, (2) ocean, (3) brackish water from natural sources or irrigation return flow, (4) inland wastewaters of low TDS, and (5) other inland waters.

The Applicant plans to use groundwater for cooling the Genesis Solar Energy Project power plant. In order to get clarification on SWRCB's relevant policy, CEC requested and received a letter from the executive director of the SWRCB, which was introduced into the record. The letter states that the definitions of fresh inland waters and brackish waters contained in Policy 75-58 do not extend to groundwater. SWRCB directs CEC to Board Policy 88-63 which states:

> All surface and ground waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards with the exception of <u>[s]urface and ground waters where</u>... [t]he total dissolved solids (TDS) exceed 3,000 mg/L (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by Regional Boards to supply a public water system.

The letter further states that "[s]tate policy for water quality control does allow, under some circumstances, the use of supply water with TDS ranging from 1,000 to 3,000 mg/l to supply renewable energy projects."

Therefore, we can only conclude that Policy 75-58 does not govern the definition of groundwater in the CEC policy as stated in the 2003 IEPR. Staff and Intervenor CURE argue that the California Energy Commission (CEC) has never simply relied on a numeric threshold to determine whether a project conforms to the CEC policy on water used for power plant cooling.

To provide the Applicant the guidance it seeks in understanding the Energy Commission water policy affecting groundwater, we return to the language of the 2003 IEPR, where, at page 41, it quotes the Warren-Alquist Act regarding conserving water and using alternative sources:

> "It is further the policy of the state and the intent of the Legislature to promote all feasible means of energy and water conservation and all feasible uses of alternative energy and water supply sources."

The Committee reads this language as requiring projects seeking to use groundwater for power plant cooling to use the least amount of the worst available water, considering all applicable technical, legal, economic, and environmental factors. The suitability of using brackish groundwater for power plant cooling is necessarily a question of fact.

2. LEGAL AFFECT OF THE U.S. BUREAU OF RECLAMATION'S ACCOUNTING SURFACE METHODOLOGY ON GROUNDWATER PUMPING IN THE CHUCKWALLA VALLEY GROUNDWATER BASIN

The Committee agrees with the Applicant that the U.S. Bureau of Reclamation's accounting surface methodology is not a LORS. The methodology's applicability to the Genesis AFC process is a question of fact that may be heard in future evidentiary hearings if necessary.

3. LEGAL STANDARD FOR INCLUDING FUTURE PROJECTS IN THE CUMULATIVE IMPACT ANALYSIS UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

In their briefs as well as at the hearing, the parties indicated that the case law and other legal sources adequately classified those future projects which should be considered in a cumulative impacts analysis. The Committee finds that the state of the law is sufficiently clear and the parties are quite capable of discerning the factors necessary to determine reasonably foreseeable projects. It is premature at this time for the

Committee to determine such questions of fact as whether projects included in the cumulative analysis are reasonably foreseeable.

4. COMMISSION'S POLICY OF CONSERVING WATER FOR USE BY PROJECTS THAT ARE NOT YET IDENTIFIED

The Commission's policy on conserving water is articulated above. The parties are admonished to work cooperatively to resolve differences to the extent possible. The Committee expects Staff to work cooperatively with the Applicant to perform the review of this AFC as expeditiously as any other project seeking to qualify for ARRA funding.

Dated: February 2, 2010 at Sacramento, California.

JAMES D. BOYD
Vice Chair and Presiding Member
Genesis Solar AFC Committee

Original Signed By:
ROBERT WEISENMILLER
Commissioner and Associate Member
Genesis Solar AFC Committee

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
GENESIS SOLAR ENERGY PROJECT

Docket No. 09-AFC-8

PROOF OF SERVICE
(Revised 1/26/10)

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*indicates change

DECLARATION OF SERVICE

I, RoseMary Avalos, declare that on February 2, 2010, I served and filed copies of the attached DECISION AND SCOPING ORDER, dated February 2, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[http://ww.energy.ca.gov/sitingcases/genesis_solar].**

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

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

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

_X_ by personal delivery or by depositing in the United States mail at Sacramento, California 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:

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

OR

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

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-8
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:
ROSEMARY AVALOS

EXHIBIT 534

State Water Resources Control Board

Executive Office

Linda S. Adams
Secretary for Environmental Protection

Charles R. Hoppin, Chairman
1001 I Street • Sacramento, California 95814 • (916) 341-5603
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
Fax (916) 341-5621 • http://www.waterboards.ca.gov

Arnold Schwarzenegger
Governor

January 20, 2010

Ms. Melissa Jones
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Dear Ms. Jones:

STATE POLICIES FOR WATER QUALITY CONTROL AND THEIR APPLICABILITY TO POWER PLANT LICENSING

Thank you for your letter of November 23, 2009, in which you seek the State Water Resources Control Board's (State Water Board) assistance with applications for renewable energy projects currently pending before the California Energy Commission (Commission). As these projects would develop new sources of renewable energy and qualify for federal financial assistance, the Governor's Office and the Commission have placed a high priority on their timely review. To that end, I will ensure that State Water Board management staff is available to consult with Commission staff on water supply issues for these projects as needed.

State Water Board management staff will also coordinate with the management staff at the affected regional water quality control boards (regional water boards) on water quality issues to help ensure that the affected regional water boards continue to timely process the applicants' reports of waste discharge. In addition, my staff is available to discuss other methods for streamlining the Commission's review of these projects, including ensuring consistent approaches for regional water boards' adoption of waste discharge requirements, assessing appropriate waste discharge fees for regional water board oversight activities, and coordinating monitoring, inspection, and enforcement activities.

You have asked whether State Water Board policies support the use of supply water with a total dissolved solids (TDS) range of 1,000 to 3,000 mg/l for these projects, and, if so, which factors should be considered by the Commission in determining whether the use of such waters should be allowed for each project. State policy for water quality control does allow, under some circumstances, the use of supply water with TDS ranging from 1,000 to 3,000 mg/l to supply renewable energy projects. As discussed in greater detail below, the State Water Board's policies and state law identify multiple factors that should be considered when evaluating alternate sources of supply water for these projects.

Your questions relate to the interaction between certain provisions of State Water Board Resolution 75-58 ("Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling") and State Water Board Resolution 88-63 ("Sources of Drinking

Water"). As official state policies for water quality control, State Water Board Resolutions 75-58 and 88-63 are binding on all state agencies unless the Legislature provides otherwise. (Wat. Code, § 13146.)

When it adopted State Water Board Resolution 75-58 in 1975, the State Water Board recognized that new power plants were being considered for non-coastal sites, and expressed a concern about the limited availability of inland waters for powerplant cooling. The board stated that Resolution 75-58's purpose is to "provide consistent statewide water quality principles and guidance for adoption of waste discharge requirements, and implementation actions for powerplants which depend upon inland waters for cooling." (State Water Board Resolution 75-58, p.1.) Further, the board anticipated that the policy "should be particularly useful in guiding planning of new power generating facilities so as to protect beneficial uses of the State's water resources and to keep the consumptive use of freshwater for powerplant cooling to that minimally essential for the welfare of the citizens of the State." (*Ibid.*)

The provisions in Resolution 75-58 that are most relevant to your questions about sources of water for the pending renewable energy projects are the following three "Principles:"

> 1. It is the Board's position that from a water quantity and quality standpoint the source of powerplant cooling water should come from the following sources in this order of priority depending on site specifics such as environmental, technical and economic feasibility consideration: (1) wastewater being discharged to the ocean, (2) ocean, (3) brackish water from natural sources or irrigation return flow, (4) inland wastewaters of low TDS, and (5) other inland waters.
>
> 2. Where the Board has jurisdiction, use of fresh inland waters for powerplant cooling will be approved by the Board only when it is demonstrated that the use of other water supply sources or other methods of cooling would be environmentally undesirable or economically unsound.
>
> 7. The State Board encourages water supply agencies and power generating utilities and agencies to study the feasibility of using wastewater for powerplant cooling. The State Board encourages the use of wastewater for powerplant cooling where it is appropriate. Furthermore, Section 25601(d) of the Warren-Alquist Energy Resources Conservation and Development Act directs the Commission to study, "expanded use of wastewater as cooling water and other advances in powerplant cooling" and Section 462 of the Waste Water Reuse Law directs the Department of Water Resources to "...conduct studies and investigations on the availability and quality of waste water and uses of reclaimed waste water for beneficial purposes including, but not limited to... and cooling for thermal electric powerplants."

(State Water Board Resolution 75-58, pp. 4-5.)

In State Water Board Resolution 88-63, the board determined that, with specified categorical exceptions, "[a]ll surface and ground waters of the State are considered to be suitable, or

potentially suitable, for municipal or domestic water supply . . . ." (State Water Board Resolution 88-63, p. 1.) The relevant categorical exceptions is where the water has TDS exceeding 3,000 mg/L and the water is not reasonably expected by regional boards to supply a public water system. (*Ibid.*)

More specifically, your questions relate to Resolution 75-58's definitions of "brackish waters" and "fresh inland waters" and Resolution 88-63's treatment of "sources of drinking water." "Brackish waters" is defined by Resolution 75-58 as "waters with a salinity range of 1,000 to 30,000 mg/L and a chloride range of 250 to 12,000 mg/l." (State Water Board Resolution 75-58, p. 2.) "Fresh inland waters" is defined by Resolution 75-58 as "those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife." (*Ibid.*) As a general matter, that means "fresh inland waters" for purposes of Resolution 75-58 does not extend to groundwater, which typically does not provide fish or wildlife habitat. On the other hand, State Water Board Resolution 88-63 generally provides that all surface waters and ground waters with a TDS of 3,000 mg/L or less shall be considered to be suitable for municipal or domestic water supply.

The Commission's primary issue revolves around whether brackish waters with a TDS of between 1,000 and 3,000 mg/L should be considered to be fresh inland waters in the context of Resolution 75-58's Principle No. 2. The answer is typically yes for surface waters and no for ground waters. Due to the State Water Board's subsequent adoption of Resolution 88-63, which establishes the threshold of 3,000 mg/L TDS for suitability, or potential suitability, for domestic or municipal water supply, surface waters that support fish and wildlife habitat and have TDS concentrations of 3,000 mg/L or less should be considered to be "fresh inland waters" for the purposes of Resolution 75-58's Principle No. 2. As a result, such waters should only be used for these renewable energy projects upon a demonstration that the use of other water supplies or other methods of cooling would be "environmentally undesirable" or "economically unsound." With respect to ground waters, they would not be considered "fresh inland waters" because they do not provide habitat for fish and wildlife.

Neither "environmentally undesirable" nor "economically unsound" is defined in Resolution 75-58. It appears that the State Water Board has not had occasion to formally interpret or apply either phrase since it adopted Resolution 75-58. If recycled water is available, and its use would not cause greater significant adverse effects on the environment than the use of fresh inland waters would cause, then it is unlikely that the State Water Board would find that the use of the recycled water is "environmentally undesirable." Water Code section 13550, which was enacted in 1977, helps to inform how the phrase "economically unsound" should be applied. Section 13550 contains a legislative declaration that the use of potable[1] domestic water for nonpotable uses, including industrial use, is a waste or unreasonable use of the water if the State Water Board determines that, among other things, recycled water of an adequate quality is available at a cost that is comparable to, or less than, the cost of supplying the potable water. Therefore, if recycled water is available for these projects at roughly the same or lower cost, then the use of fresh inland waters should clearly be considered to be "economically unsound."

In its 2003 Integrated Energy Policy Report, the Commission stated that it interprets "economically unsound" in this context as "economically or otherwise infeasible." To the extent

[1] "Potable water" in Water Code section 13550 refers to both surface water and ground water.

that the Commission determines that it is appropriate to require project applicants to incur substantially increased, but economically feasible, costs in order to use recycled water in lieu of fresh inland waters, such a result would not be compelled by the terms of Water Code section 13550. As the State Water Board has not yet defined "economically unsound," it is not possible to determine whether such a result would be required by Principle No. 2 of Resolution 75-58. Nonetheless, it would be consistent with Principle No. 7 of Resolution 75-58, which encourages the use of recycled water for powerplant cooling.

As you point out, Principle No. 1 of Resolution 75-58 lists brackish water as generally a higher priority for powerplant cooling than inland wastewaters of low TDS and other inland waters. This priority scheme is, however, explicitly dependent on site-specific considerations, including environmental considerations. One of the underlying bases for Resolution 75-58 is that "[t]he loss of inland waters through evaporation in powerplant cooling facilities may be considered an unreasonable use of inland waters when general shortages occur." (State Water Board Resolution 75-58, p. 3, Basis 4.) Thus, in a water short area with available recycled water, site-specific environmental considerations may dictate that the use of recycled water should take precedence over the use of brackish water.

Finally, the State Water Board understands that the Commission and other state and federal agencies are working on a longer-term plan for future renewable energy projects. The State Water Board would welcome the opportunity to assist with such a planning effort by identifying the existing and anticipated future sources of recycled water that may be available for future energy projects. Such a mapping approach may be used by the Commission and potential project applicants in siting future power plants in closer proximity to such sources of recycled water, thereby minimizing additional demands on the state's limited potable water supplies.

I hope that this answers the questions you have posed. Please do not hesitate to contact Jonathan Bishop, State Water Board Chief Deputy Director, at (916) 341-5820 to discuss these or any other issues.

Sincerely,

Dorothy Rice

Dorothy Rice
Executive Director

EXHIBIT 535

United States Department of the Interior

BUREAU OF RECLAMATION
Lower Colorado Regional Office
P.O. Box 61470
Boulder City, NV 89006-1470

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

LC-4405
WTR-4.03

DEC 21 2009

DOCKET	
09-AFC-6	
DATE	DEC 21 2009
RECD.	DEC 21 2009

VIA OVERNIGHT MAIL

MEMORANDUM

To: Ms. Holly L. Roberts, Project Manager, Palm Springs-South Coast Field Office, Bureau of Land Management, 1201 Bird Center Drive, Palm Springs, California 92262

From: Steven C. Hvinden Steven C. Hvinden
Director, Boulder Canyon Operations Office

Subject: *Federal Register* Notice Dated November 23, 2009, Entitled Notice of Intent to Prepare Two Environmental Impact Statements/Staff Assessments for the Proposed Chevron Energy Solutions/Solar Millennium Palen and Blythe Solar Power Plants, Riverside County, CA and Possible Land Use Plan Amendments

The Bureau of Reclamation submits these comments in response to the United States Department of the Interior Bureau of Land Management (BLM)'s *Federal Register* notice dated November 23, 2009, (due date December 23, 2009), published at 74 Fed. Reg. 61169, and entitled "Notice of Intent to Prepare Two Environmental Impact Statements/Staff Assessments for the Proposed Chevron Energy Solutions/Solar Millennium Palen and Blythe Solar Power Plants, Riverside County, CA and Possible Land Use Plan Amendments." The notice addresses two proposed solar power plant projects (the Palen Solar Power Project and the Blythe Solar Power Project).

BLM's notice states that the site for the proposed Palen Solar Power Project is 10 miles east of Desert Center, California. The notice further states that the Palen Solar Power Project is anticipated to require approximately 1,100 acre-feet of water during construction and approximately 300 acre-feet of water per year during operation. The source of the water is stated as new wells.

The notice states that the site for the proposed Blythe Solar Power Project is 8 miles west of Blythe, California. The notice further states that the Blythe Solar Power Project is anticipated to require approximately 3,100 acre-feet of water during construction and approximately 600 acre-feet of water per year during operation. The source of the water is stated as new wells.

The Secretary of the Interior, acting through Reclamation, manages the mainstream waters of the lower Colorado River pursuant to Federal law. See the Boulder Canyon Project Act, 45 Stat. 1057 (1928) (BCPA) and the Supreme Court Decree in *Arizona* v. *California* entered March 9, 1964 (376 U.S. 340), amended February 28, 1966 (383 U.S. 268), supplemented January 9, 1979

(439 U.S. 419), April 16, 1984 (466 U.S. 144), and October 10, 2000 (531 U.S. 1), and later consolidated March 27, 2006 (547 U.S. 150 (2006)) (Consolidated Decree). In Article I of the Consolidated Decree, the Supreme Court recognizes that consumptive use of the mainstream water of the lower Colorado River may occur through underground pumping:

> (C) Consumptive use from the mainstream within a State shall include all consumptive uses of water of the mainstream, *including water drawn from the mainstream by underground pumping*, and including, but not limited to, consumptive uses made by persons, by agencies of that State, and by the United States for the benefit of Indian reservations and other federal establishments with the State;

Consolidated Decree, Article I.(C), emphasis added.

The United States Geological Survey (USGS) has conducted studies and developed a method to identify wells that, when pumped, result in water being drawn from the mainstream of the river. This methodology (referred to as the "accounting surface methodology") is described in USGS Water-Resources Investigations Report (WRIR) Nos. 94-4005 and 00-4085, published in 1994 and 2000, respectively. WRIR No. 94-4005 can be downloaded at http://pubs.er.usgs.gov/usgspubs/wri/wri944005. WRIR No. 00-4085 can be downloaded at http://az.water.usgs.gov/pubs/WRIR00-4085intro.html.

The USGS updated these reports in 2009 through publication of Scientific Investigations Report No. 2008-5113 (this report, including maps of the accounting surface, can be downloaded at http://www.usbr.gov/lc/region/programs/unlawfuluse.html). Since July of 1994, the accounting surface methodology has been and continues to be the primary tool Reclamation utilizes to determine if the use of a well does, or does not, result in a consumptive use of mainstream water from the lower Colorado River water.

If the new wells for the Palen Solar Power Project or the new wells for the Blythe Solar Power Project will draw water from the mainstream of the lower Colorado River, an entitlement to the use of Colorado River water is required by Section 5 of the BCPA and by the Consolidated Decree. An entitlement is an authorization for an individual or entity to put Colorado River water to a beneficial use pursuant to: (1) a right decreed by the United States Supreme Court; (2) a contract with the United States under Section 5 of the BCPA; or (3) a reservation of water by the Secretary.

If an entitlement is required, it must be satisfied from Colorado River water apportioned for use within the State of California by the Secretary in accordance with the terms of the Consolidated Decree. The entitlement to be used for a proposed solar project may be an existing entitlement, made available for this purpose by an existing entitlement holder either directly or through exchange.

Reclamation appreciates the opportunity to provide comments on the Palen Solar Power Project and the Blythe Solar Power Project. Please contact me at 702-293-8414 if you have questions.

cc: Ms. Sandra Owen-Joyce
Supervisory Hydrologist
United States Geological Survey
Water Science Center
520 North Park Avenue, Suite 221
Tucson, Arizona 85719-5035

EXHIBIT 536

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

COLORADO RIVER BOARD OF CALIFORNIA
770 FAIRMONT AVENUE, SUITE 100
GLENDALE, CA 91203-1068
(818) 500-1625
(818) 543-4685 FAX

DOCKET
09-AFC-7
DATE MAR 22 2010
RECD. APR 01 2010

March 22, 2010

Mr. Alan H. Solomon
Project Manager
Siting, Transmission and Environmental
Protection Division
California Energy Commission
1516 Ninth Street, MS 15
Sacramento, CA 95814-5512

Dear Mr. Solomon:

The Colorado River Board of California (Board), created in 1937, is the State agency charged with safeguarding and protecting the rights and interests of the State, its agencies and citizens, in the water and power resources of the seven-state Colorado River System.

The Board has received and reviewed the California Energy Commission's (CEC) documents Nos. Docket 09-AFC-6 and 09-AFC-7: Request for Agency Participation in the Review of the Blythe and the Palen Solar Power Projects in Riverside County, California, Distribution of Application for Certification. Both the Blythe and the Palen Solar Power Projects are proposed to be located in the Southern California inland desert. The applicants for both the Blythe and the Palen Projects are seeking a right-of-way grant for approximately 9,400 acres and 5,200 acres, respectively, of Federal lands that are administered by the Bureau of Land Management (BLM). The total water consumption during the operational period for the Blythe and the Palen Projects is estimated to be 628 and 314 acre-feet per year over the 30-year license period, respectively. In addition during construction, the water use is estimated to be 3,164 and 1,560 acre-feet for the two projects, respectively. The water supply for each project will be pumped groundwater from on-site wells.

According to the Consolidated Decree of the Supreme Court of the United States in the case of *Arizona v. California, et al.* entered March 27, 2006, (547 U.S. 150 (2006)), the consumptive use of water means "diversion from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation" and consumptive use "includes all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping." Also, pursuant to the 1928 Boulder Canyon Project Act (BCPA) and the Consolidated Decree, no water shall be delivered from storage or used by any water user without a valid contract between the Secretary of the Interior and the water user for such use, i.e., through a BCPA Section 5 contract. Within California, BCPA Section 5 contracts have previously been entered into between users of Colorado River mainstream water and the Secretary of the Interior for water from the Colorado River that exceeds California's basic entitlement to use Colorado River water as set forth in the Consolidated Decree. Thus, no additional Colorado River water is available for use by new

PROOF OF SERVICE (REVISED 4/5/10) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 4/15/10
HA

project proponents along the Colorado River, except through the contract of an existing BCPA Section 5 contract holder, either by direct service or through an exchange of non-Colorado River water for Colorado River water.

The Federal lands proposed for both the Blythe and Palen Projects are located within the "Accounting Surface" area designated by U.S. Geological Survey Water Investigation Report Nos. 94-4005 and 00-4085 (USGS Report). This USGS Report indicates that the aquifer underlying lands located within the "Accounting Surface" is considered hydraulically connected to the Colorado River and groundwater withdrawn from lands underlying the "Accounting Surface" would be replaced by Colorado River water, in total or in part. This means that if it is determined that these wells are, in fact, pumping Colorado River water, a contract with the Secretary of the Interior is required before such a use is deemed to be a legally authorized use of this groundwater.

On November 9, 2009, the Board received applications for Lower Colorado Water Supply Project water for the Blythe and the Palen Solar Power Projects from the projects' consultant/proponent, Mr. Josef Eichhammer of Solar Millennium, LLC. This project, enacted by Congress on November 14, 1986, as the Lower Colorado Water Supply Project Act of 1986 (Act) authorized construction of the Lower Colorado Water Supply Project (LCWSP) and appropriated funds for the U.S. Bureau of Reclamation (Reclamation) to construct Phase I of the Project. The LCWSP consists of well field facilities in the Sand Hills along the All-American Canal in Imperial County. The LCWSP is authorized to provide exchange water up to a total amount of 10,000 acre-feet per year for nonagricultural use to those users of Colorado River water along the Colorado River, who do not have an existing Section 5 BCPA contractual entitlement or whose entitlement to use Colorado River is insufficient to meet their needs. Under a "first come first serve" priority basis, the Board has reviewed applications that it has received and, to date, recommended to Reclamation that applicants for LCWSP water in the amount of about 7,500 acre-feet per year are eligible to receive LCWSP water. At this time, the capacity to pump the fully authorized volume of 10,000 acre-feet of water per year has not been constructed. Furthermore, when the Congress passed the Act authorizing the LCWSP, water for large scale solar power/energy projects was not envisioned. Considering these two factors it does not appear that LCWSP water is a viable option for the Blythe and Palen Projects.

Based upon the applications for LCWSP water that were received from Solar Millennium for the Blythe and the Palen Solar Power Projects, several meetings and telephone conference calls have been held among the solar power projects consultants/proponents, Reclamation, BLM, Board's staff, and others. As a result of discussions in these meetings, the Board's staff has identified a preferred option for obtaining a legally authorized and reliable water supply for both the Blythe and the Palen Solar Power Projects over the life of the project that fits into the timeframe that has been established by Solar Millennium. That option involves obtaining water through an existing Section 5 BCPA contract holder, The Metropolitan Water District of Southern California (MWD). Although other options may be available, they, in the Board's opinion, could not be implemented in a timely manner and address the requirement that water consumptively used

from the Colorado River must be through a Section 5 BCPA contractual entitlement.

If you have any questions or need further information, please contact me at (818) 500-1625.

Sincerely,

Gerald R. Zimmerman
Executive Director

cc: Ms. Lorri Gray-Lee, Regional Director, Lower Colorado Region, U.S. Bureau of Reclamation
Ms. Holly Roberts, Associate Field Manager, Palm Springs-South Coast Field Office, BLM
Ms. Eileen Allen, Manager, Energy Facilities Siting and Dockets Office, CEC
Dr. Jeffrey G. Harvey, Principal & Senior Scientist, Harvey Meyerhoff Consulting Group
Mr. Gavin Berg, Project Manager, Solar Millennium LLC
Mr. William J. Hasencamp, Manager, Colorado River Resources, The Metropolitan Water District of Southern California

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 *PALEN SOLAR POWER PLANT PROJECT*

Docket No. 09-AFC-7

PROOF OF SERVICE
(Revised 4/5/10)

APPLICANT
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Marc D. Joseph
***Jason W. Holder**
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e-recipient@caiso.com

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Commissioner and Presiding Member
rweisenm@energy.state.ca.us

KAREN DOUGLAS
Chairman and Associate Member
kldougla@energy.state.ca.us

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Alan Solomon
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Lisa DeCarlo
Staff Counsel
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Jennifer Jennings
Public Adviser's Office
publicadviser@energy.state.ca.us

*indicates change

DECLARATION OF SERVICE

I, Hilarie Anderson, declare that on April 15, 2010, I served and filed a copy of the attached Letter from the Colorado River Board of California. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/solar_millennium_palen]

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

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

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

____ by personal delivery;

_x_ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

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

OR

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

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-7
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Original Signature in Dockets
Hilarie Anderson

*indicates change

EXHIBIT 537

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

COLORADO RIVER BOARD OF CALIFORNIA
770 FAIRMONT AVENUE, SUITE 100
GLENDALE, CA 91203-1068
(818) 500-1625
(818) 543-4685 FAX

February 22, 2010

Ms. Janet Laurain
Environmental Paralegal
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, California 94080-7037

Dear Ms. Laurain:

In response to your letter, dated February 3, 2010, requesting copies of all correspondence, analyses, memos, notes, electronic mail messages, files, charts, maps, and/or other documents in the Colorado River Board of California's (Board) office related to the Solar Millennium, LLC, Blythe Solar Power Project, but excluding documents docketed with California Energy Commission Docket No. 09-AFC-06, I have had the staff review the Board's files regarding this subject. Enclosed is the packet of copies of relevant materials pertaining to your Public Records Act request.

If you have any questions or require additional information, please contact me at (818) 500-1625.

Sincerely,

Gerald R. Zimmerman
Executive Director

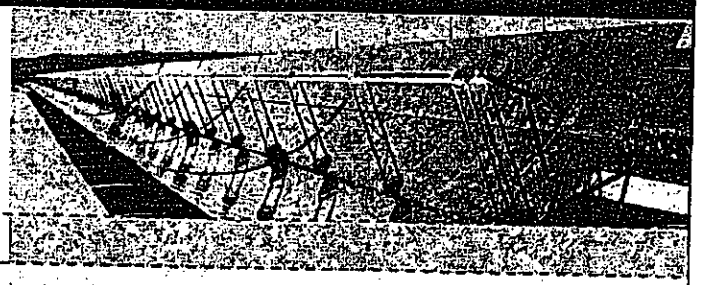
Enclosures

EXHIBIT 538

SOLAR MILLENNIUM LLC

Solar Millennium LLC

Chevron

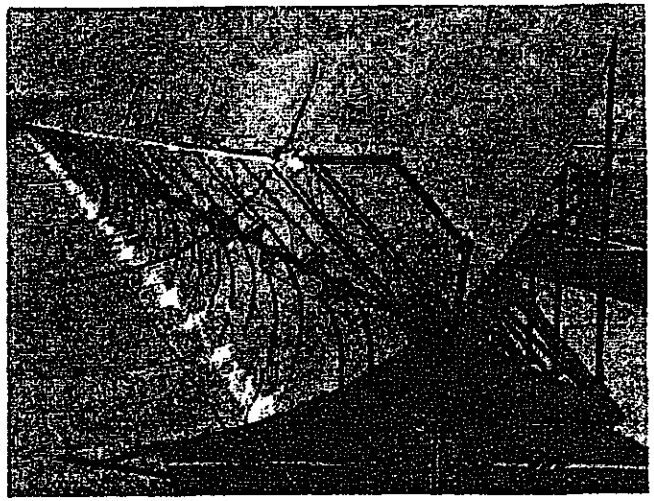


BLYTHE & PALEN SOLAR POWER PROJECTS

Colorado River Board of California
Glendale, California

January 6, 2010

MEETING AGENDA



- Introductions
- Overview of Each Project
- Water Supply Contract Applications
- Accounting Surface Question
- Property Ownership & Applicant Status
- Q & A
- Board Meeting Wednesday January 13, 2010

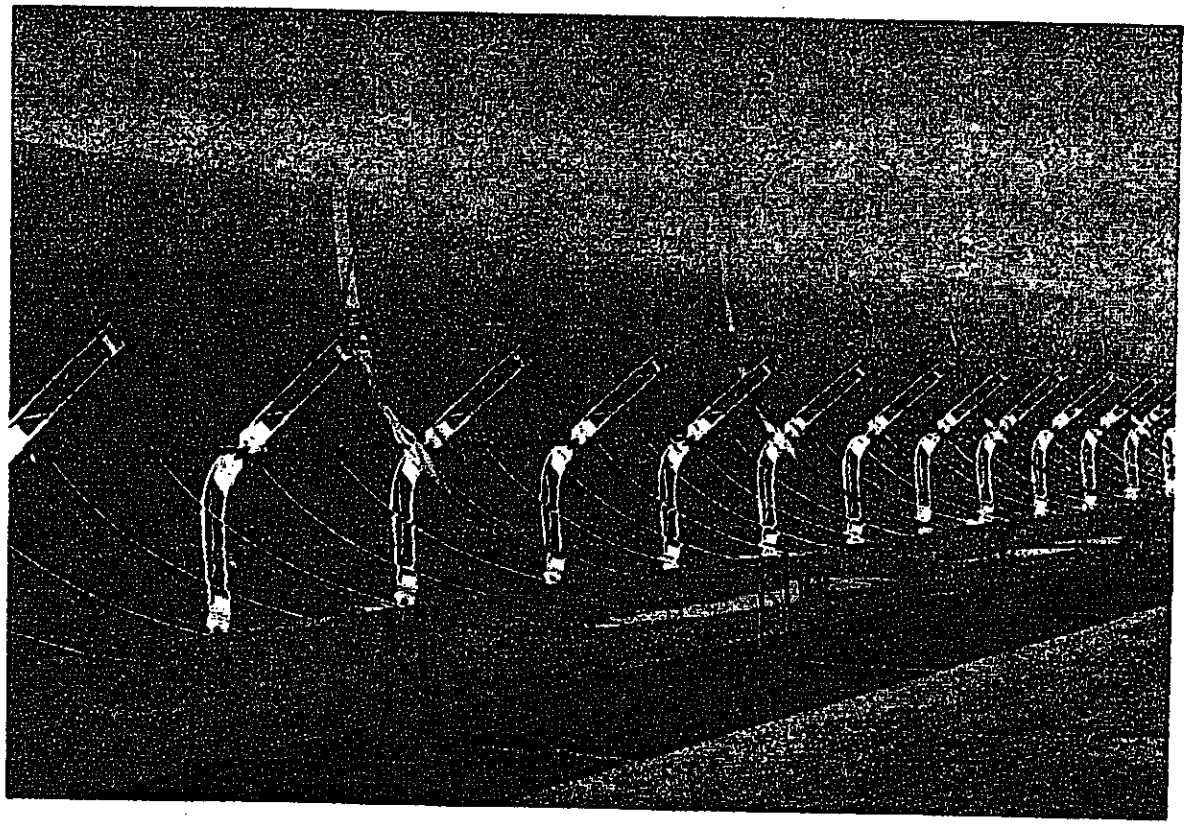
NOVEMBER 23 MEETING REVIEW

11/23/09 Agenda

- Purpose and need for Renewable Energy
- Details of Projects
- Permitting Status
- Future Accounting Surface Policy
- Water Supply Contract Applications
- Next Steps - Board Meeting 01/13/10

FEDERAL & STATE ENTITLEMENTS

- Bureau of Land Management (BLM): Entitlement applied for is a **Utility ROW** - a private party property right - to develop a specific project on federal lands – EIS in process
- California Energy Commission (CEC): Entitlement applied for is a private entity license to construct and operate a thermal solar power plant (*BLM is not a party to the license*) – EIR/AFC in process



PROJECTS OVERVIEW

BLYTHE & PALEN SOLAR POWER PROJECTS

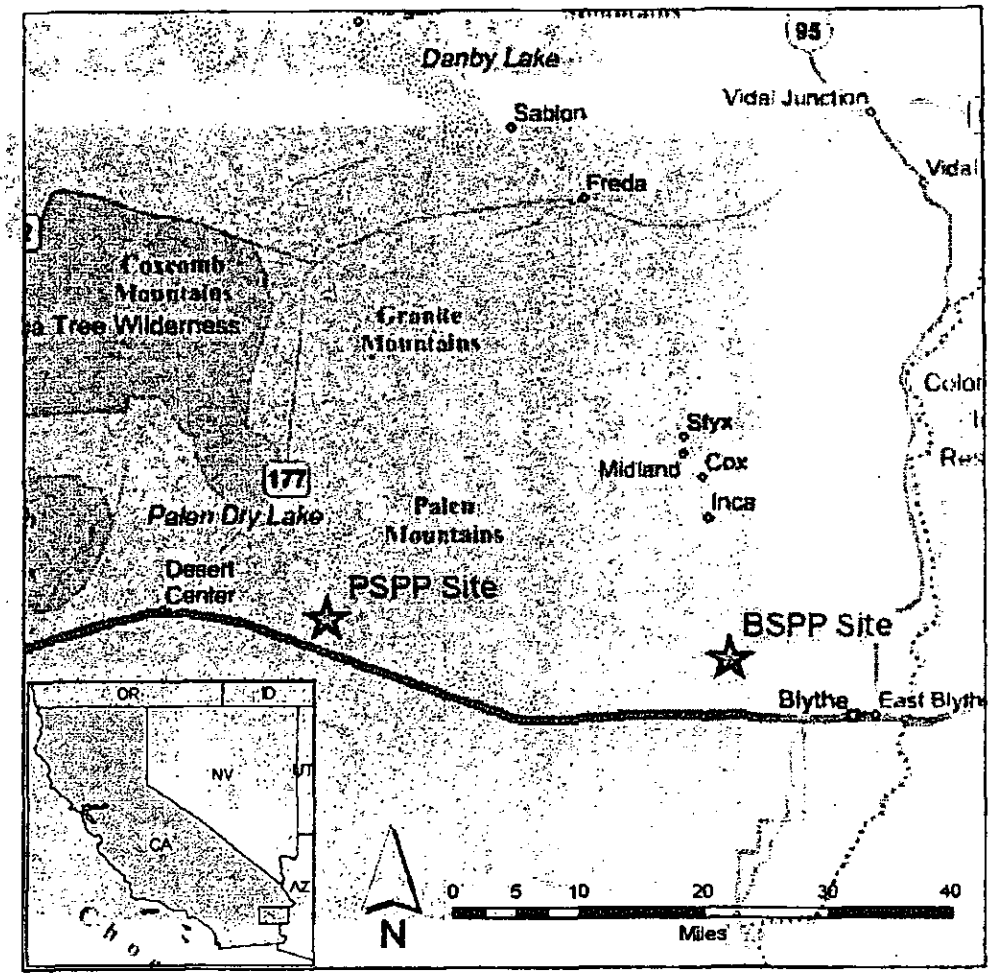
Location:

Palen Project

- Chuckwalla Valley
- east of Desert Center
- north of I-10.

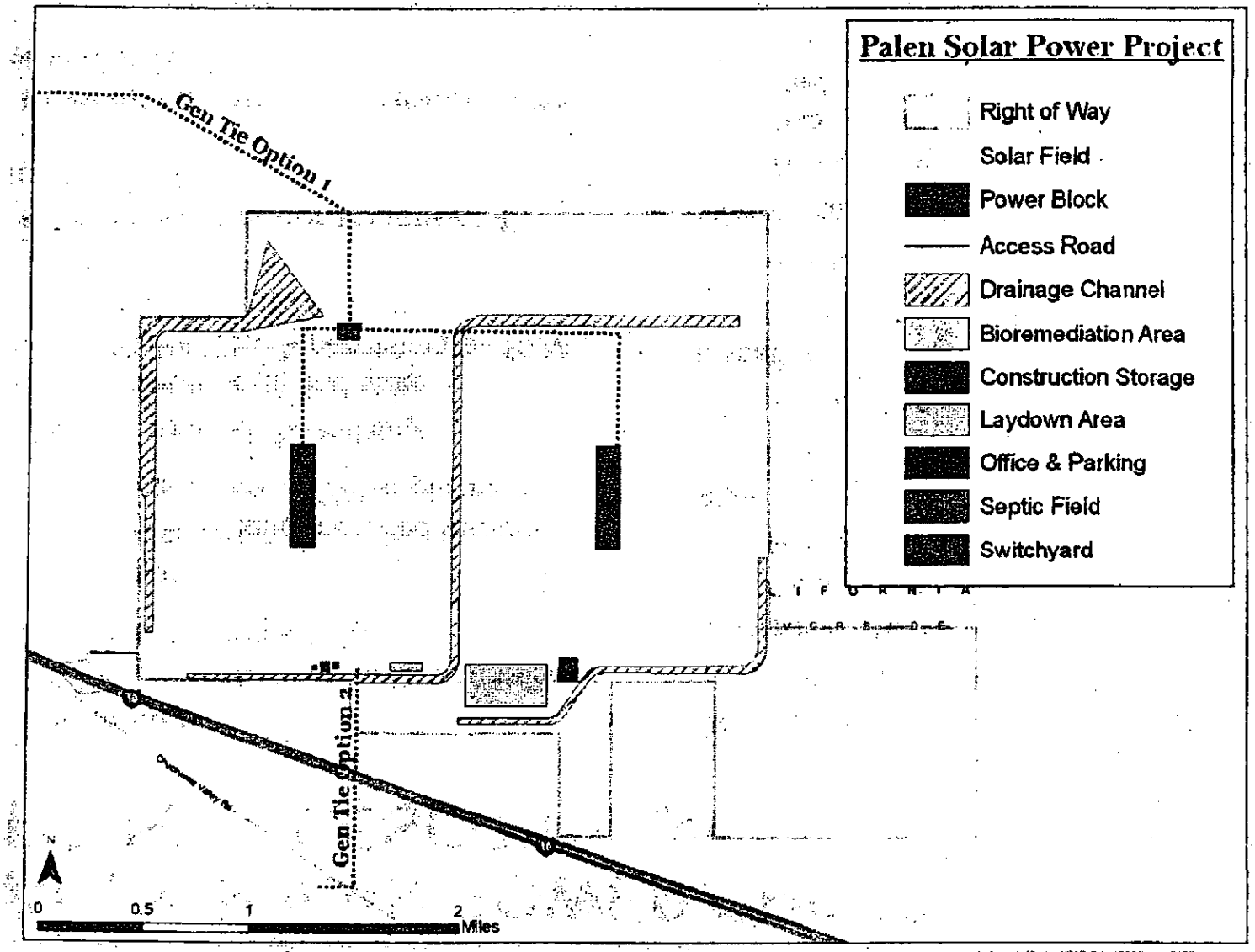
Blythe Project

- Palo Verde Mesa
- west of City of Blythe
- north of I-10 and Blythe AP



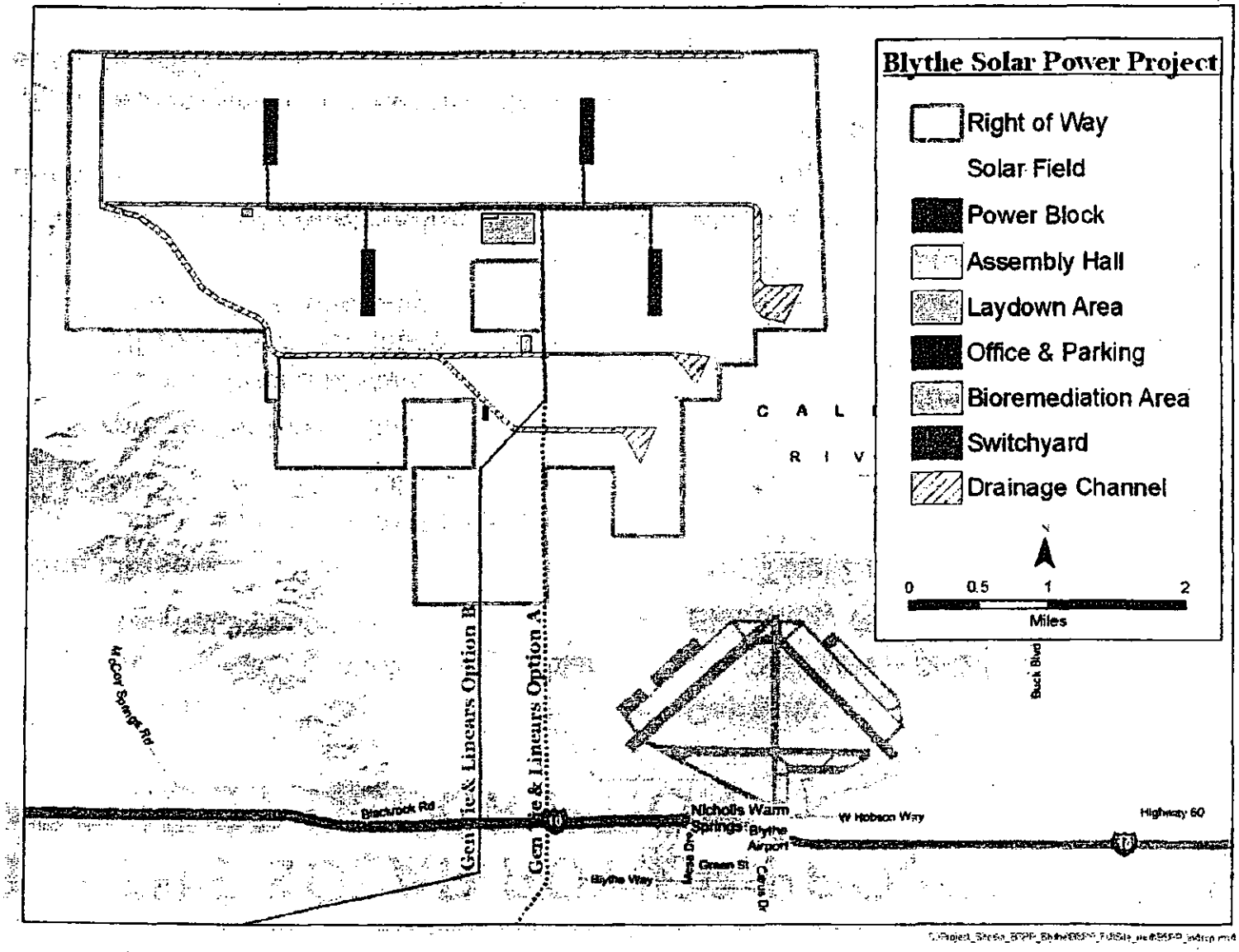
PALEN SOLAR POWER PROJECT: PROJECT DESCRIPTION

- **Technology**
  - Commercial parabolic trough solar thermal technology
- **Site Lease**
  - On BLM land, secured through solar power ROW application.
- **Environmental Permitting**
  - Joint federal and state NEPA/CEQA permitting by BLM and CEC, respectively.
- **Planned start of construction: 4th Quarter 2010**
- **Planned commercial inception date: December 2013**
- **Capacity**
  - 484 MW (2 X 242 MW)
- **Electricity Production**
  - Total 1 million MWh/year (550,000 MWh/year/plant) = 150,000 homes
- **Size**
  - Total ROW: 5,200 acres
  - Footprint: 3,900 acres
- **Location**
  - 10 miles east of Desert Center, CA
  - 1 mile North of Highway I-10
- **Water consumption**
  - Mirror washing, feedwater, potable, dust control – approx 314 acre feet/year
  - Project will be dry-cooled


Palen Solar Power Project
Right of Way
Solar Field
Power Block
Access Road
Drainage Channel
Bioremediation Area
Construction Storage
Laydown Area
Office & Parking
Septic Field
Switchyard
Gen Tie Option 1
Gen Tie Option 2
10
N
0
0.5
1
2
Miles

BLYTHE SOLAR POWER PROJECT: PROJECT DESCRIPTION

- **Technology**
  - Commercial parabolic trough solar thermal technology
- **Site Lease**
  - On BLM land, secured through solar power ROW application.
- **Environmental Permitting**
  - Joint federal and state NEPA/CEQA permitting by BLM and CEC, respectively.
- **Planned start of construction: 4th Quarter 2010**
- **Planned commercial inception date: December 2013**
- **Capacity:**
  - 968 MW – (242 MW x 4)
- **Electricity Production:**
  - Total 2 million MWh/year (550,000 MWh/plant/year) = 300,000 homes
- **Location:**
  - 8 miles west of Blythe, CA; 3 miles north of Highway I-10
- **Size:**
  - ROW: approx. 9,400 acres
  - Project: approx. 6,000 acres
- **Water consumption**
  - Mirror washing, feedwater, potable, dust control – approximately 614 acre feet/year
  - Project will be dry-cooled


Blythe Solar Power Project
Right of Way
Solar Field
Power Block
Assembly Hall
Laydown Area
Office & Parking
Bioremediation Area
Switchyard
Drainage Channel
N
0
0.5
1
2
Miles
Gen Tie & Linears Option B
Gen Tie & Linears Option A
Blackrock Rd
Nicholls Warm Springs
Blythe Airport
W Hobson Way
Highway 60
Green St
Blythe Way
Buck Blvd
McCoy Spring Rd

Applications to the Lower Colorado River Board of California

For Lower Colorado Water Supply Project Water

By Solar Millennium

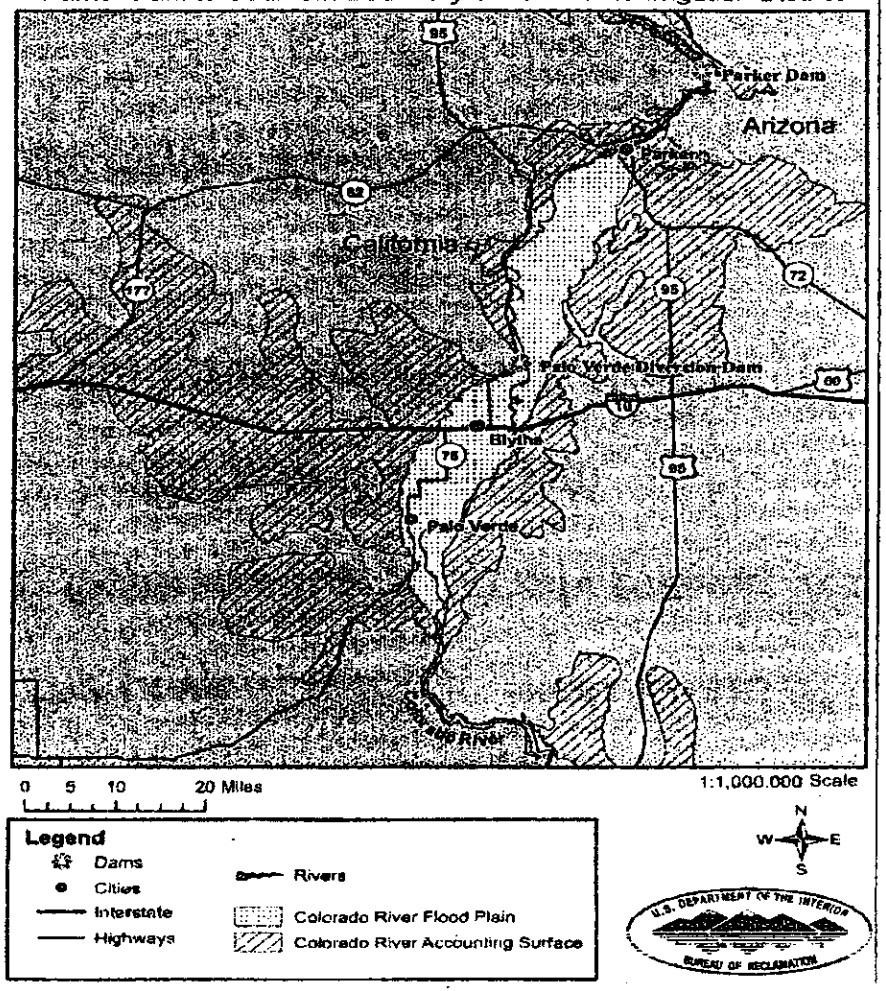
for the Palen Solar Power Project

and

the Blythe Solar Power Project

WATER SUPPLY CONTRACT APPLICATIONS

Figure 5 – Lower Colorado River Floodplain and Accounting Surface: Parker Dam to Southern Boundary of Palo Verde Irrigation District



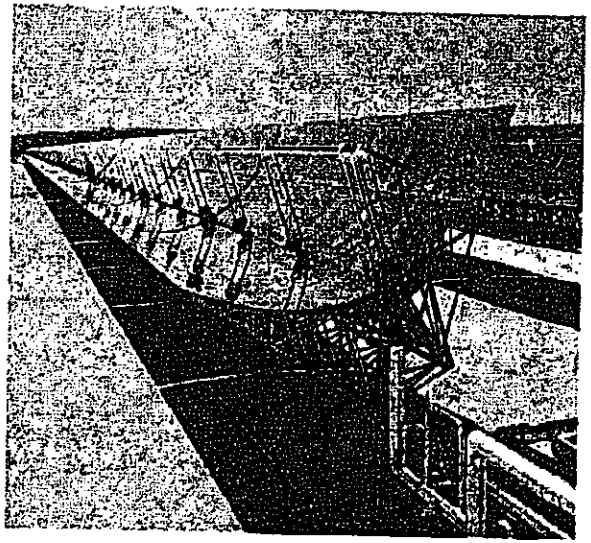
ACCOUNTING SURFACE SPECIFICS

Palen Solar Power Project:

- Chuckwalla Valley Aquifer
- Initial pumping above accounting surface
- Long term pumping may be below accounting surface
- Cumulative pumping likely to be below accounting surface

Blythe Solar Power Project:

- Palo Verde Mesa Aquifer
- Initial and long term pumping below the accounting surface



PALEN SOLAR POWER PROJECT: WATER USE

Annual Numeric Volume of Water Proposed to be Diverted Under Subcontract with the City of Needles			
Project Year[1]	**Water Use (AF)** ***Construction[2]***	**Water Use (AF)** ***Operations[3]***	**Total Annual Water Need**
2010	80	0	80
2011	500	0	500
2012	500	0	500
2013	480	314	794
2014-2040	0	314	314

1. Assumes 30-year license and land ROW approved in 2010.
2. Assumes construction begins late 2010. Estimated annual construction water need averaged over 39 month construction period.
3. Two equivalent power generation units to be developed and fully operational in 2013.

BLYTHE SOLAR POWER PROJECT: WATER USE

Annual Numeric Volume of Water Proposed to be Diverted Under Subcontract with the City of Needles			
Project Year[1]	**Water Use (AF)** ***Construction[2]***	**Water Use (AF)** ***Operations[3]***	**Total Annual Water Need**
2010	100	0	100
2011	558	0	558
2012	558	0	558
2013	558	307	865
2014	558	460	1018
2015	558	614	1172
2016	274	614	888
2017-2040	0	614	614

1. Assumes 30-year license and land ROW approved in 2010.
2. Assumes construction begins late 2010. Estimated annual construction water need averaged over 69 month construction period.
3. Four equivalent power generation units to be developed in phases, with first phase operational in 2013, and full operations by 2016

DISCUSSION OF POLICY ISSUES

- Status of Accounting Surface Policy
- Need for LCR Water Supply Contract
- Solar Millennium as first (and at this time the only) applicant
- Renewable energy development hurdles
- ROW on federal lands is a private property right
- Solar power development is a private development – no BLM interest or sponsorship

OPEN ITEMS

- CRB Staff analysis and likely recommendation?
- Bureau of Reclamation policy direction?

For more information, please contact us at:

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EXHIBIT 539

Declaration

I, Janet M. Laurain, declare as follows:

1. I am a paralegal at Adams Broadwell Joseph & Cardozo. I make this declaration from my personal knowledge. If called as a witness, I could testify competently to facts stated in this declaration.

2. On February 3, 2010, I submitted a Public Records Act Request for all correspondence, analyses, memos, notes, electronic mail messages, files, charts, and/or other documents related to the Solar Millennium, LLC, Blythe Solar Power Project to the Colorado River Board of California.

3. On February 22, 2010, I received a response to my February 3, 2010, Public Records Act Request. Attached as Exhibit 537 is a true and correct copy of Colorado River Board of California response to CURE's PRA request.

4. The following documents were enclosed with the February 22, 2010 response:

A. Solar Millennium LLC Blythe & Palen Solar Power Projects presentation to Colorado River Board of California (1/6/10), included as Exhibit 538.

5. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 24 day of June, 2010, at South San Francisco, California.

Janet M. Laurain

Janet M. Laurain

PROOF OF SERVICE

I, Bonnie Heeley, declare that on June 24, 2010 I served and filed copies of the attached **Exhibits on Behalf of California Unions for Reliable Energy for the Genesis solar Energy Project**. 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/genesis. The document has 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 by depositing in OVERNIGHT MAIL at South San Francisco, CA with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred."

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on June 24, 2010.

_____/s/_____
Bonnie Heeley

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